# Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue

## Wilson Borough/Palmer Township/Easton City, Northampton County

KCI

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
IAN C. PRESTON
ENGINEER
PE090749

Ian Preston

Ian Preston, P.E.
PA PE License Number PE090749

RISE TO THE CHALLENGE

Prepared by:
**KCI Technologies, Inc.**
5001 Louise Drive | Suite 201
Mechanicsburg, PA 17055
717.691.1340

Prepared for:
**Easton Wood Avenue PropCo, LLC**
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# Executive Summary

Easton Wood Avenue PropCo, LLC proposes to develop a 1,006,880 square-foot high-cube fulfillment center warehouse in Wilson Borough, Northampton County. The existing approximately 108-acre site is located north of Hackett Avenue (SR 2017)/Wood Avenue (SR 2024)/(SR 2017) as depicted in Figure 1. The site was previously occupied by an industrial pigment plant. The proposed warehouse building is located entirely within Wilson Borough, but portions of the property extend into Palmer Township and Easton City.

Access to the site is proposed via two (2) proposed site access driveways:

1. Full-movement access driveway on Hackett Avenue (SR 2017), approximately 700' west of Wood Avenue.
2. Full-movement access driveway on Wood Avenue (SR 2017), approximately 450' east of Hackett Avenue.

The site plan depicting the internal site circulation and proposed access configuration is provided in Figure 2.

The purpose of this *Transportation Impact Study (TIS)* is to evaluate the traffic impacts of the proposed development and identify improvements needed to mitigate adverse impacts while providing safe and efficient site access. The scope of this study includes an analysis of the existing (2023) weekday morning and weekday afternoon peak hours, as well as the future buildout year (2025) and horizon year (2030) peak hours, both without and with the proposed high-cube fulfillment center warehouse development at the following study intersections:

1. Hackett Avenue (SR 2017) & Proposed Site Access Driveway
2. Hackett Avenue (SR 2017) & Wood Avenue (SR 2017/SR 2024)
3. Wood Avenue (SR 2017) & Proposed Site Access Driveway
4. Wood Avenue (SR 2017) & US 22 West Ramps
5. Wood Avenue (SR 2017) & N. 13th Street (SR 2019)
6. S. 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramps
7. Northampton Street (SR 0248) & Wood Avenue (SR 2024)
8. Northampton Street (SR 0248) & Nazareth Road (SR 2012)
9. Nazareth Road (SR 0248) & Sales Street (SR 2040)/US 22 West Ramps
10. Hackett Avenue (SR 2017)/Mall Entrance & Park Avenue/Tatamy Road
11. Wood Avenue (SR 2017) & US 22 East On-Ramp
12. Wood Avenue (SR 2017) & US 22 East Off-Ramp

The revised PennDOT TIS scoping meeting application (S0520220124) was submitted April 4, 2023. The scoping application and all PennDOT/municipal review documentation are included in Appendix A. Manual turning movement traffic counts were conducted during the weekday morning, afternoon, and Saturday midday peak periods on February 22, 2023.

Based on trip generation data in the *Institute of Transportation Engineers (ITE) publication Trip Generation Manual, 11th Edition*, the proposed development will generate approximately 1,822 daily trips with 151 and 161 total new trips during the weekday morning and weekday afternoon peak

hours, respectively. Truck traffic accounts for approximately 13% of the anticipated daily and weekday morning peak hour traffic volumes and 6% of the weekday afternoon peak hour traffic volumes.

- PennDOT's TIS guidelines mandate if that overall intersection level of service (LOS) has dropped, mitigation will be required if the increase in delay is greater than 10 seconds. If signalization is the preferred alternative for mitigation of a previously unsignalized intersection, overall intersection LOS 'C' in rural areas and LOS 'D' in urban areas is acceptable.

The study area intersections are anticipated to operate at acceptable levels of service (LOS 'E' or better overall) in the weekday morning and weekday afternoon peak hours with proposed development traffic and the recommended improvements.

Improvements are required to facilitate site access and mitigate the impacts to the study area roadway network. As some of the proposed improvements are within the PennDOT right-of-way, coordination with PennDOT will be required for implementation. Concept plans for the proposed improvements are provided in Appendix I.

All proposed off-site improvements identified in the TIS will be funded and constructed by Easton Wood Avenue PropCo, LLC. The following improvements are recommended to mitigate the proposed development impacts and facilitate safe and efficient site access:

### Hackett Avenue (SR 2017) & Proposed Site Access Driveway

- Construct a low-volume full-movement driveway with one ingress and one egress lane.
  - The projected driveway ADT is 636.
- Construct a 200' right turn lane on the Hackett Avenue westbound approach.
- Provide stop control (*R1-1 STOP* sign) on the egress approach.
- Intersection will be designed to accommodate a WB-62 semitrailer design vehicle for anticipated deliveries outside of the peak hours.

### Wood Avenue (SR 2017) & Proposed Site Access Driveway

- Construct a low-volume full-movement driveway with one ingress and one egress lane.
  - The projected driveway ADT is 1,186.
- Construct a 200' right turn lane on the Wood Avenue westbound approach.
- Construct a 200' left turn lane on the Wood Avenue eastbound approach
- Provide stop control (*R1-1 STOP* sign) on the egress approach.
- Intersection will be designed to accommodate a WB-62 semitrailer design vehicle for anticipated deliveries outside of the peak hours.

### Wood Avenue (SR 2017) & N. 13th Street (SR 2019) & US 22 East Ramps

- Extend the existing Wood Avenue (SR 2017) left turn lane to the US 22 East Ramps (the existing left turn lane continues to the signalized intersection at N. 13th Street) to the west on Wood Avenue.
  - The leftmost eastbound through lane on Wood Avenue will drop into the exclusive left turn lane for the US 22 East Ramps/N. 13th Street.

- Install overhead lane use control signing as required by PennDOT District 5-0 to alert Wood Avenue motorists to the modified lane use configuration.

### WOOD AVENUE (SR 2017/2024) & HACKETT AVENUE (SR 2017)

- Construct a 150' right turn lane on the southbound stop-controlled Hackett Avenue (SR 2017) approach.

- Construct a 175' right turn lane on the westbound Wood Avenue (SR 2017) approach.

- A 100' left turn lane on the eastbound Wood Avenue (SR 2024) approach is warranted, but not recommended.
    - Due to the proximity of the existing US 22 overpass located just south of the intersection, constructing a left turn lane on the eastbound approach is infeasible as widening the roadway would impact the bridge piers.
    - Realigning Hackett Avenue (SR 2017) to shift the intersection to the north is constrained by right-of-way and environmental impacts.
    - A concept plan sketch depicting the warranted left turn lane, deemed infeasible based on impacts to the existing bridge piers, is included in Appendix I.
    - While the development will add some traffic to this left turn movement, for peak hours when gaps in oncoming traffic may be less frequent (and thus a left turn lane more desirable so that Wood Avenue through traffic is not impacted by traffic waiting to make a left turn), it's important to note that a 200' left turn lane is proposed at the primary site access driveway located approximately 450' to the east of Hackett Avenue. Thus, both trucks and passenger vehicles have the option to continue on Wood Avenue and utilize this dedicated left turn lane to the proposed development.

- Conduct a post-development (6 months after the opening of the facility) 12-hour traffic count at the intersection and evaluate traffic signal warrants with post-development volumes.
    - The intersection does not meet signal warrants with proposed development traffic volumes, but the intersection experiences marginally failing level of service for the Hackett Avenue left turn movement.
    - The proposed right turn lanes mitigate intersection delay and level of service while maintaining adequate sight distance and will allow for expedited installation of a traffic signal if required in the future (auxiliary turn lanes would be required based on queuing and minor street approach level of service for a signalized configuration).
    - If warranted based on either four or eight-hour vehicular volume warrants, Easton Wood Avenue PropCo, LLC will install a traffic signal at the intersection.

# Existing Conditions

The site is located north of Wood Avenue (SR 2017) and Hackett Avenue (SR 2017), north of US 22 in Wilson Borough, Northampton County, PA as shown in Figure 1. The existing roadways and study area intersections are described in this section.

## *Roadway Characteristics*

The characteristics of the study area roadway network are summarized in Table 1 below.

TABLE 1: EXISTING ROADWAY CHARACTERISTICS

| Roadway Name (Designation) | AADT [1] | Roadway Classification PennDOT [2] | Travel Lanes/ Direction | Speed Limit (mph) |
|---|---|---|---|---|
| Wood Avenue (SR 2017) | 7,904 | Urban/Minor Arterial | 1-2 | 35 |
| Hackett Avenue (SR 2017) | 5,948 | Urban/Collector | 1 | 40 |
| Wood Avenue (SR 2024) | 4,398 | Urban/Minor Arterial | 1 | 35 |
| Northampton Street (SR 0248) | 7,035 | Urban/Principal Arterial | 1 | 25/35 |
| Nazareth Road (SR 0248) | 7,572 | Urban/Principal Arterial | 2 | 40 |
| S. 25th Street (SR 2012) | 22,666 | Urban/Principal Arterial | 1-2 | 40 |
| N. 13th Street (SR 2019) | 14,418 | Urban/Minor Arterial | 1 | 35 |
| US 22 (SR 0022) Lehigh Valley Thruway | 40,076 | Urban/Principal Arterial | 2 | 45 |

*(1)* Traffic data from PennDOT's *Traffic Information Repository (TIRe)*

*(2)* From roadway classifications in PennDOT's *Traffic Information Repository (TIRe) and Table 1.2 – Roadway Typologies; PennDOT Publication 13M (DM-2)*

The following intersections, reviewed and agreed upon by PennDOT District 5-0 and the municipalities, are included in the study:

1. Hackett Avenue (SR 2017) & Proposed Site Access Driveway
2. Hackett Avenue (SR 2017) & Wood Avenue (SR 2017/SR 2024)
3. Wood Avenue (SR 2017) & Proposed Site Access Driveway
4. Wood Avenue (SR 2017) & US 22 West Ramps
5. Wood Avenue (SR 2017) & N. 13th Street (SR 2019)
6. S. 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramps
7. Northampton Street (SR 0248) & Wood Avenue (SR 2024)
8. Northampton Street (SR 0248) & Nazareth Road (SR 2012)
9. Nazareth Road (SR 0248) & Sales Street (SR 2040)/US 22 West Ramps
10. Hackett Avenue (SR 2017)/Mall Entrance & Park Avenue/Tatamy Road
11. Wood Avenue (SR 2017) & US 22 East On-Ramp
12. Wood Avenue (SR 2017) & US 22 East Off-Ramp

Documentation of the existing characteristics of the study intersections including signal permit plans are provided in Appendix D. Photographs of the study area intersections are provided in Appendix H.

## *Land Use Context*

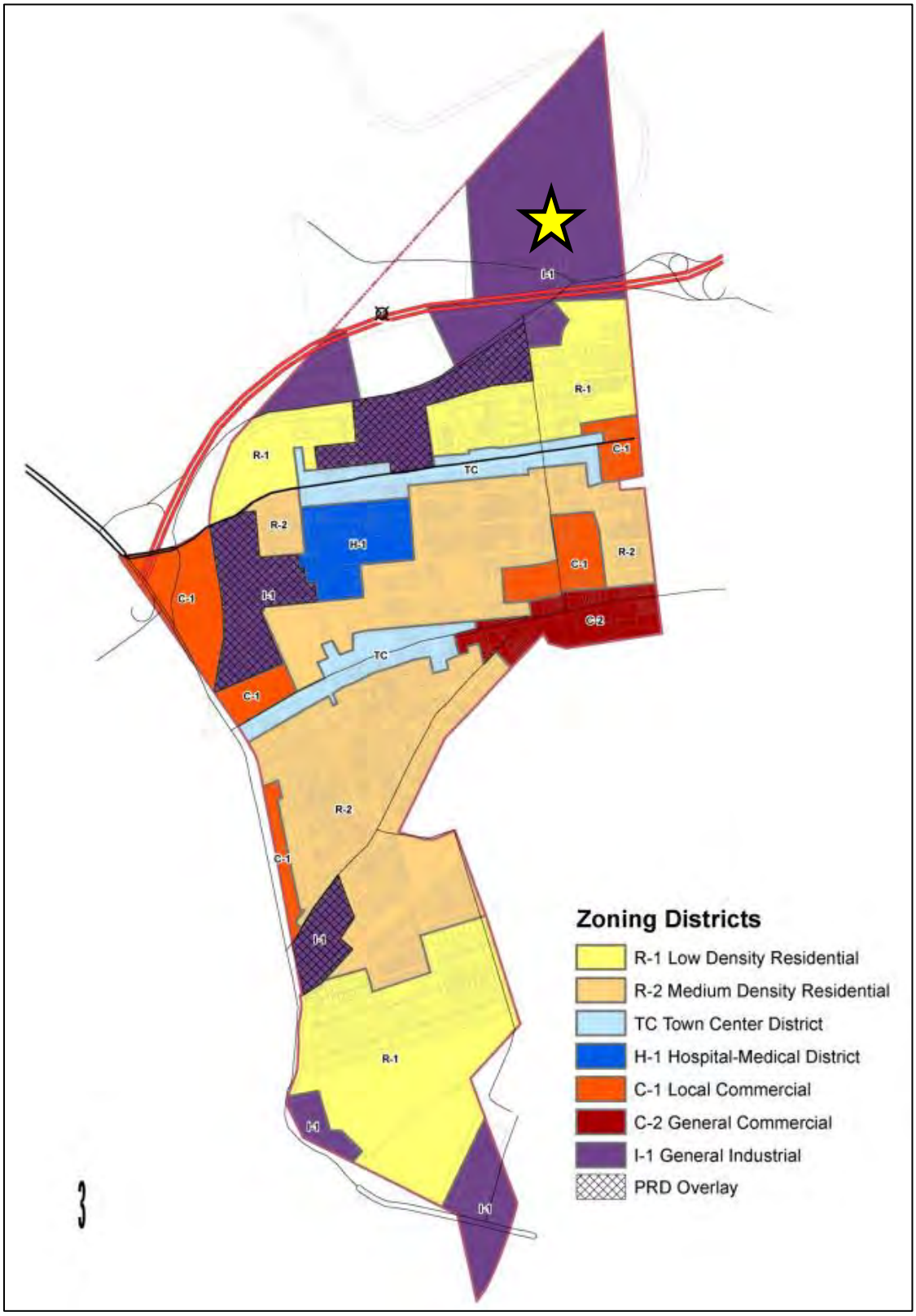
Wilson Borough lies directly west of the City of Easton, which is the easternmost city in the Lehigh Valley, Pennsylvania's third largest metropolitan area. US 22 provides access to the regional roadway network, both east into New Jersey and west to Allentown.

The proposed warehouse development is within the existing General Industrial zoning district as shown in Figure A below. The proposed lane use (warehousing) is permitted by right.

The existing land use context of the site frontage is best classified as suburban corridor (*PennDOT Publication 10X Appendix B*), *"Characterized by big box stores, commercial strip centers, restaurants, auto dealers, office parks, and gas stations, sometimes interspersed with natural areas and occasional home clusters. Buildings are usually set back from the road behind surface parking."*

The study area includes a mix of *Suburban Corridor* (Palmer Township) and *Town/Village Neighborhood* (Wilson Borough and Easton City).

FIGURE A: WILSON BOROUGH ZONING MAP



## Multimodal Transportation Facilities

LANTA (Lehigh and Northampton Transportation Authority) provides public transit/bus service in the study area. Routes 106, 216 and EBS Blue Line operate in the study area. There are no existing bus stops along the site frontage on Hackett Avenue (SR 2017) or Wood Avenue (SR 2017).

There are existing pedestrian signals, crosswalks, and ADA curb ramps at each existing signalized study intersection. Bicyclists are accommodated via the existing roadways and shoulders.

## Traffic Count Data

### Manual Turning Movement Counts

Manual turning movement traffic counts were conducted during the weekday morning and weekday afternoon peak periods on February 22, 2023. Count data is provided in Appendix C. The weekday morning and weekday afternoon peak hour traffic volumes are presented in Figure 3A and intersection peak hours/PHFs are presented in Figure 3B. Volume data for Intersection #12 was obtained by volume balancing between adjacent intersections.

## Crash Summary

A crash analysis was completed for the study area intersection and along the site frontage. The results are summarized in the *Crash Analysis for Proposed Warehouse at 1525 Wood Avenue* (under separate cover), dated June 2024

# Site Characteristics

This section of the TIS details the characteristics of the proposed development and site access considerations.

## *Trip Generation*

Anticipated traffic volumes generated by the proposed development are based on trip generation data compiled in the Institute of Transportation Engineers (ITE) publication, *Trip Generation, 11th Edition*. The daily and peak hour anticipated vehicular trip generation for the proposed development is presented in Table 2 below. The trip generation table and ITE data is included in Appendix B.

TABLE 2: SITE TRIP GENERATION

| ITE LUC | DESCRIPTION | SIZE | | DAILY TRIPS | WEEKDAY AM PEAK HOUR | | | WEEKDAY PM PEAK HOUR | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | IN | OUT | TOTAL | IN | OUT | TOTAL |
| 155 | High-Cube Fulfillment Center Warehouse - *Total* | 1,006,880 | SF | 1,822 | 122 | 29 | 151 | 63 | 98 | 161 |
| 155 | High-Cube Fulfillment Center Warehouse - *Passenger Vehicles* | 1,006,880 | SF | 1,590 | 112 | 19 | 131 | 58 | 93 | 151 |
| 155 | High-Cube Fulfillment Center Warehouse - *Trucks* | 1,006,880 | SF | 232 | 10 | 10 | 20 | 5 | 5 | 10 |

## *Trip Distribution and Assignment*

### NEW TRIP DISTRIBUTION

The distribution of site-generated traffic is based on the existing traffic patterns and proposed site access configuration. Figure 4A and Figure 4B depicts the new trip distributions for passenger vehicles/employees and trucks, respectively. The calculations, based on existing roadway network traffic, are provided in Figure 4A. For the truck distribution, all traffic is sourced from a destined to US 22 (50% each direction).

Route assignment within the study area is based on shortest travel times along with driver convenience and expectations. Figure 5A and Figure 5B depicts the new trip assignment for employees/passenger vehicles and trucks, respectively. Figure 5C depicts the total new trip assignment for each peak hour within the study area roadway network.

## *Site Access Configuration and Traffic Control*

Access to the site is proposed via two (2) proposed site access driveways:

1. Full-movement access driveway on Hackett Avenue (SR 2017), approximately 700' west of Wood Avenue.
2. Full-movement access driveway on Wood Avenue (SR 2017), approximately 450' east of Hackett Avenue.

The proposed access configuration, including auxiliary turn lanes, traffic control and geometry were based on PennDOT criteria and guidelines. Turn lane warrants per *PennDOT Publication 46 (11.16 Turn Lane Guidelines)* are provided in Appendix E**.** Final geometric design of the proposed site access driveways will be based on the following guidelines:

- *Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads*
- PennDOT District 5-0 policies
- *Wilson Borough Design Standards*

Traffic signal warrants per *PennDOT Publication 46* and *MUTCD* guidelines are provided in Appendix E for the intersection of Wood Avenue (SR 2017/2024) and Hackett Avenue (SR 2017).

The recommended access configurations and traffic controls for the site access driveways are detailed in the Conclusions and Recommendations section of the TIS.

## *Sight Distance*

Minimum safe sight distances for ingress and egress at the proposed access driveways depend on vehicle travel speeds, roadway grades/profiles, and the number of travel lanes. PennDOT's sight distance requirements are contained in *Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads*. Table 3 and Table 4 below documents the required and field measured sight distances for the proposed site access driveways. PennDOT M-950S forms for each driveway are provided in Appendix F.

The provided sight distances are based on existing conditions. Proposed roadway improvements will increase the available sight distance for all movements.

TABLE 3: SIGHT DISTANCE EVALUATION – WOOD AVENUE (SR 2017) SITE ACCESS DRIVEWAY

| Movement | Direction | Posted Speed Limit (mph) | Approximate Grade | PennDOT Requirements | | Available Sight Distance |
|---|---|---|---|---|---|---|
| | | | | Desirable (1) | Minimum (2) | |
| Egress | Looking Left | 35 | 0% | 440' | 249' | 400' |
| | Looking Right | 35 | 0% | 350' | 249' | 460' |
| Left Turn Ingress | Looking Ahead | 35 | 0% | 300' | 249' | 500' |
| | From Behind | 35 | 0% | N/A | 249' | 300' |

(1) *From desirable sight distances in Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads.*

(2) *Minimum safe stopping (formula) sight distance from Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads and Form M-950S.*

TABLE 4: SIGHT DISTANCE EVALUATION – HACKETT AVENUE (SR 2017) SITE ACCESS DRIVEWAY

| Movement | Direction | Posted Speed Limit (mph) | Approximate Grade | PennDOT Requirements | | Available Sight Distance |
|---|---|---|---|---|---|---|
| | | | | Desirable (1) | Minimum (2) | |
| Egress | Looking Left | 40 | -5% | 538' | 345' | 530' |
| | Looking Right | 40 | +5% | 460' | 291' | 820' |
| Left Turn Ingress | Looking Ahead | 40 | -5% | 373' | 345' | 500' |
| | From Behind | 40 | +5% | N/A | 291' | 740' |

(1) *From desirable sight distances in Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads.*

(2) *Minimum safe stopping (formula) sight distance from Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads and Form M-950S.*

# Future Conditions

Future traffic conditions were evaluated for the build-out year (2025) and design year (2030), both without and with the proposed development. The future build-out and horizon year base traffic volumes were estimated by adding traffic to account for general regional growth to the existing 2023 traffic volumes.

The proposed new trips were added to the 2025 and 2030 base (without development) traffic volumes to calculate the future 2025 buildout year and 2030 horizon year with-development traffic volumes.

## *Regional Traffic Growth*

Existing 2023 traffic volumes (with the previously noted balancing/adjustments) were increased by an annual traffic growth rate of 0.43% per year compounded for two years to 2025 and compounded for seven years to 2030, resulting in overall growth rates of 0.86% and 3.05%, respectively.

The background traffic growth rate was taken from PennDOT's *Growth Factors for August 2023 to July 2024*, published annually by the *Bureau of Planning and Research*. The growth rates are documented in Appendix C.

## *Local Traffic Growth*

Based on coordination with each municipality in the TIS scoping process, there are no planned developments in the area with significant anticipated traffic impacts to the study area roadway network that warrant inclusion in the *Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue*.

## *Future Traffic Conditions*

The regional background growth was added to the existing 2023 traffic volumes, resulting in the future 2025 and 2030 without development traffic volumes, depicted in Figure 6A and Figure 7A, respectively. The capacity/level of service analysis results are summarized by intersection in Table 5 and by lane group in the detailed level of service tables in Appendix G. Detailed capacity/level of service reports from the Vistro analyses are also provided in Appendix G.

The site-generated traffic volumes in Figure 5 were added to the future without development traffic volumes, resulting in the future 2025 and 2030 with development traffic volumes depicted in Figure 6B and Figure 7B, respectively. The capacity/level of service analysis results are summarized by intersection in Table 6 and by lane group in the detailed level of service tables immediately following the TIS. Detailed capacity/level of service reports from the Vistro analyses are also provided in Appendix G. The 50$^{th}$ and 95$^{th}$ percentile queue length results are summarized by intersection in Table 7 and Table 8 immediately following the TIS.

# Capacity/Level of Service Results

The peak hour traffic volumes were utilized in the capacity/level of service analysis for each scenario, in accordance with the methodologies contained in the *Highway Capacity Manual, 7th Edition* for both the signalized and stop-controlled intersections.

The HCM 7 methodology in *PTV's Vistro 2024 (Service Pack 0-4)* software was used for the analyses.

Per PennDOT's *Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permit Plans*, the following base inputs and assumptions were utilized:

- Base parameters for signalized intersections per Exhibit 10-9 and Exhibit 10-10 in PennDOT's *Publication 46, Traffic Engineering Manual*.
- Base parameters for unsignalized intersections per Exhibit 10-11 and Exhibit 10-12 in PennDOT's *Publication 46, Traffic Engineering Manual*
- Traffic signal timings were optimized under without development conditions, which was used as the base timings (splits) for with development scenarios. V/C balancing was used to optimize the splits for without development conditions.

The existing, future build-out year (2025) and design year (2030) intersection level of service results are summarized in Table 5. Detailed capacity/level of service analysis worksheets are provided in Appendix G.

## *Level of Service (LOS) Analysis*

Tables 6-8 immediately follow the TIS and include the Overall Intersection Level of Service, Detailed Level of Service, 95th Percentile Queue lengths and 50th Percentile Queue Lengths in tabular format. The Detailed delay, level of service, and volume/capacity ratio by movement at each intersection are presented in tabular format in the *Vistro Lane Group Results* table for each *Intersection Level of Service Report* found in Appendix G.

PennDOT's TIS guidelines mandate if that overall intersection level-of-service has dropped, mitigation will be required if the increase in delay is greater than 10 seconds. If signalization is the preferred alternative for mitigation of a previously unsignalized intersection, overall intersection LOS 'C' in rural areas and LOS 'D' in urban areas is acceptable.

The study area intersections are anticipated to operate at acceptable levels of service (LOS 'E' or better overall) in the weekday morning and weekday afternoon peak hours with proposed development traffic and the recommended improvements.

TABLE 5: OVERALL INTERSECTION LEVEL OF SERVICE

| Peak Hour | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | Existing | W/O Dev. | WD | WD + IMP. | W/O Dev. | WD | WD + IMP. | Existing | W/O Dev. | WD | WD + IMP. | W/O Dev. | WD | WD + IMP. |
| Hackett Avenue (SR 2017) & Proposed Site Access Driveway *Unsignalized* | *N/A* | *N/A* | A<br>0.6 | A<br>0.6 | *N/A* | A<br>0.6 | A<br>0.6 | *N/A* | *N/A* | A<br>0.9 | A<br>0.9 | *N/A* | A<br>0.9 | A<br>0.9 |
| Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) /(SR 2024) *Unsignalized* | A<br>5.2 | A<br>5.3 | A<br>5.3 | A<br>5.1 | A<br>5.5 | A<br>7.0 | A<br>5.3 | B<br>11.2 | B<br>11.8 | C<br>23.6 | A<br>8.6 | B<br>13.4 | D<br>27.6 | A<br>9.5 |
| Wood Avenue (SR 2017) & Proposed Site Access Driveway *Unsignalized* | *N/A* | *N/A* | A<br>1.0 | A<br>1.0 | *N/A* | A<br>1.0 | A<br>1.0 | *N/A* | *N/A* | A<br>1.3 | A<br>1.3 | *N/A* | A<br>1.3 | A<br>1.3 |
| Wood Avenue (SR 2017) & US 22 West Ramps *Unsignalized* | A<br>0.9 | A<br>0.9 | A<br>1.0 | *N/A* | A<br>0.9 | A<br>1.0 | *N/A* | A<br>2.7 | A<br>2.7 | A<br>2.8 | *N/A* | A<br>2.7 | A<br>2.8 | *N/A* |
| Wood Avenue (SR 2017) & N. 13th Street (SR 2019) *Signalized* | D<br>35.5 | D<br>35.8 | D<br>36.7 | *N/A* | D<br>36.8 | D<br>37.7 | *N/A* | E<br>60.7 | E<br>62.2 | E<br>65.5 | *N/A* | E<br>66.7 | E<br>69.5 | *N/A* |
| S. 25th Street (SR 2012) & Wood Avenue (SR 2024) /US 22 East Ramp *Signalized* | C<br>31.6 | C<br>29.4 | C<br>30.6 | *N/A* | C<br>29.9 | C<br>31.1 | *N/A* | D<br>35.4 | C<br>34.8 | D<br>35.7 | *N/A* | D<br>36.0 | D<br>36.8 | *N/A* |
| Northampton Street (SR 0248) & Wood Avenue (SR 2024) *Signalized* | B<br>18.7 | B<br>18.7 | B<br>19.6 | *N/A* | B<br>18.8 | B<br>19.7 | *N/A* | B<br>17.5 | B<br>17.5 | B<br>18.8 | *N/A* | B<br>17.6 | B<br>18.9 | *N/A* |
| Northampton Street (SR 0248) & S. 25th Street (SR 2012)/Nazareth Road (SR 0248) *Signalized* | B<br>15.9 | B<br>15.9 | B<br>16.0 | *N/A* | B<br>16.0 | B<br>16.2 | *N/A* | B<br>18.1 | B<br>18.3 | B<br>18.8 | *N/A* | B<br>18.6 | B<br>19.1 | *N/A* |
| Nazareth Road (SR 0248) & Sales Street (SR 2040) /US 22 West Ramps *Signalized* | B<br>19.7 | B<br>19.8 | B<br>19.9 | *N/A* | C<br>20.2 | C<br>20.3 | *N/A* | C<br>33.4 | C<br>33.8 | C<br>34.5 | *N/A* | D<br>35.1 | D<br>36.4 | *N/A* |
| Hackett Avenue (SR 2017)/Mall Entrance & Park Avenue/Tatamy Road *Signalized* | A<br>6.8 | A<br>6.8 | A<br>6.9 | *N/A* | A<br>6.9 | A<br>6.9 | *N/A* | A<br>8.3 | A<br>8.4 | A<br>8.5 | *N/A* | A<br>8.5 | A<br>8.6 | *N/A* |
| Wood Avenue (SR 2017) & US 22 East On-Ramp *Unsignalized* | A<br>0.7 | A<br>0.7 | A<br>0.8 | *N/A* | A<br>0.7 | A<br>0.8 | *N/A* | A<br>0.5 | A<br>0.5 | A<br>0.5 | *N/A* | A<br>0.5 | A<br>0.5 | *N/A* |
| Wood Avenue (SR 2017) & US 22 East Off-Ramp *Unsignalized* | A<br>4.1 | A<br>4.1 | A<br>4.1 | *N/A* | A<br>4.3 | A<br>4.2 | *N/A* | A<br>4.9 | A<br>5.0 | A<br>5.0 | *N/A* | A<br>5.2 | A<br>5.3 | *N/A* |

## *Queue Analysis*

Initial queue observations were conducted during the weekday afternoon peak hour to evaluate queue failures for the eastbound left turn lane at Wood Avenue (SR 2017) & N. 13th Street (SR 2019). The observed initial queue observations and calculations are included in Appendix H.

For the weekday afternoon peak hour, all other signalized intersections were visited during the documented peak hour. There were no observed instances of systemic initial queuing at any other intersections based on signalized operations. In a couple of instances, vehicles may have failed to make it through the intersection on green (despite being stopped at the end of the queue on red) based on a single instance of poor driver behavior/utilization from a vehicle ahead in the queue (e.g., driver not paying attention), after which queues completely cleared during the following cycle. Such instances do not meet the definition of initial queuing for HCM peak hour traffic analyses.

A peak hour queuing analysis was completed at the study intersections based on HCM 7 50th and 95th percentile queues. 95th percentile queue tables for all study area intersections are provided in the tables immediately following the TIS. 50th percentile queue tables are provided for all signalized intersections.

95th percentile queues are generally accommodated in 2030 with development conditions and the recommended improvements. In a couple of instances, 95th percentile queues exceed available storage in without development conditions. Where without development queues exceed available storage lanes, the increase in the anticipated 95th percentile queue length with proposed development traffic is less than a single vehicle.

# Conclusions and Recommendations

Easton Wood Avenue PropCo, LLC proposes to develop a 1,006,880 square-foot high-cube fulfillment center warehouse in Wilson Borough, Northampton County. The existing approximately 108-acre site is located north of Hackett Avenue (SR 2017)/Wood Avenue (SR 2024)/(SR 2017) as depicted in Figure 1.

The site was previously occupied by an industrial pigment plant. The proposed warehouse building is located entirely within Wilson Borough, but portions of the property extend into Palmer Township and Easton City.

Access to the site is proposed via two (2) proposed site access driveways:

1. Full-movement access driveway on Hackett Avenue (SR 2017), approximately 700' west of Wood Avenue.
2. Full-movement access driveway on Wood Avenue (SR 2017), approximately 450' east of Hackett Avenue.

Based on trip generation data in the *Institute of Transportation Engineers (ITE) publication Trip Generation Manual, 11th Edition*, the proposed development will generate approximately 1,822 daily trips with 151 and 161 total new trips during the weekday morning and weekday afternoon peak hours, respectively. Truck traffic accounts for approximately 13% of the anticipated daily and weekday morning peak hour traffic volumes and 6% of the weekday afternoon peak hour traffic volumes.

The study area intersections are anticipated to operate at acceptable levels of service (LOS 'E' or better overall) in the weekday morning and weekday afternoon peak hours with proposed development traffic and the recommended improvements.

Improvements are required to facilitate site access and mitigate the impacts to the study area roadway network. As some of the proposed improvements are within the PennDOT right-of-way, coordination with PennDOT will be required for implementation. Concept plans for the proposed improvements are provided in Appendix I.

All proposed off-site improvements identified in the TIS will be funded and constructed by Easton Wood Avenue PropCo, LLC. The following improvements are recommended to mitigate the proposed development impacts and facilitate safe and efficient site access:

### Hackett Avenue (SR 2017) & Proposed Site Access Driveway

- Construct a low-volume full-movement driveway with one ingress and one egress lane.
  - The projected driveway ADT is 636.
- Construct a 200' right turn lane on the Hackett Avenue westbound approach.
- Provide stop control (*R1-1 STOP* sign) on the egress approach.
- Intersection will be designed to accommodate a WB-62 semitrailer design vehicle for anticipated deliveries outside of the peak hours.

### Wood Avenue (SR 2017) & Proposed Site Access Driveway

- Construct a low-volume full-movement driveway with one ingress and one egress lane.
  - The projected driveway ADT is 1,186.
- Construct a 200' right turn lane on the Wood Avenue westbound approach.
- Construct a 200' left turn lane on the Wood Avenue eastbound approach
- Provide stop control (*R1-1 STOP* sign) on the egress approach.
- Intersection will be designed to accommodate a WB-62 semitrailer design vehicle for anticipated deliveries outside of the peak hours.

### Wood Avenue (SR 2017) & N. 13th Street (SR 2019) & US 22 East Ramps

- Extend the existing Wood Avenue (SR 2017) left turn lane to the US 22 East Ramps (the existing left turn lane continues to the signalized intersection at N. 13th Street) to the west on Wood Avenue.
  - The leftmost eastbound through lane on Wood Avenue will drop into the exclusive left turn lane for the US 22 East Ramps/N. 13th Street.
- Install overhead lane use control signing as required by PennDOT District 5-0 to alert Wood Avenue motorists to the modified lane use configuration.

### Wood Avenue (SR 2017/2024) & Hackett Avenue (SR 2017)

- Construct a 150' right turn lane on the southbound stop-controlled Hackett Avenue (SR 2017) approach.

- Construct a 175' right turn lane on the westbound Wood Avenue (SR 2017) approach.

- A 100' left turn lane on the eastbound Wood Avenue (SR 2024) approach is warranted, but not recommended.
  - Due to the proximity of the existing US 22 overpass located just south of the intersection, constructing a left turn lane on the eastbound approach is infeasible as widening the roadway would impact the bridge piers.
  - Realigning Hackett Avenue (SR 2017) to shift the intersection to the north is constrained by right-of-way and environmental impacts.
  - A concept plan sketch depicting the warranted left turn lane, deemed infeasible based on impacts to the existing bridge piers, is included in Appendix I.
  - While the development will add some traffic to this left turn movement, for peak hours when gaps in oncoming traffic may be less frequent (and thus a left turn lane more desirable so that Wood Avenue through traffic is not impacted by traffic waiting to make a left turn), it's important to note that a 200' left turn lane is proposed at the primary site access driveway located approximately 450' to the east of Hackett Avenue. Thus, both trucks and passenger vehicles have the option to continue on Wood Avenue and utilize this dedicated left turn lane to the proposed development.

- Conduct a post-development (6 months after the opening of the facility) 12-hour traffic count at the intersection and evaluate traffic signal warrants with post-development volumes.
    - The intersection does not meet signal warrants with proposed development traffic volumes, but the intersection experiences marginally failing level of service for the Hackett Avenue left turn movement.
    - The proposed right turn lanes mitigate intersection delay and level of service while maintaining adequate sight distance and will allow for expedited installation of a traffic signal if required in the future (auxiliary turn lanes would be required based on queuing and minor street approach level of service for a signalized configuration).
    - If warranted based on either four or eight-hour vehicular volume warrants, Easton Wood Avenue PropCo, LLC will install a traffic signal at the intersection.

# List of Report Figures


Figure 1A ..... Site Location Map

Figure 1B ..... Existing Lane Use Configuration

Figure 2 ..... Site Plan

Figure 3A ..... Existing 2023 Peak Hour Traffic Volumes

Figure 3B ..... Intersection Peak Hours & Peak Hour Factors

Figure 4A ..... Proposed Trip Distribution – Employees/Passenger Vehicles

Figure 4B ..... Proposed Trip Distribution - Trucks

Figure 5A ..... Proposed Employee/Passenger Site Trip Assignment

Figure 5B ..... Proposed Truck Site Trip Assignment

Figure 5C ..... Proposed Site Trip Assignment

Figure 6A ..... 2025 Without Development Peak Hour Traffic Volumes

Figure 6B ..... 2025 With Development Peak Hour Traffic Volumes

Figure 7A ..... 2030 Without Development Peak Hour Traffic Volumes

Figure 7B ..... 2030 With Development Peak Hour Traffic Volumes

**FIGURE 1A**

SITE LOCATION MAP

PROPOSED WAREHOUSE DEVELOPMENT AT 1525 WOOD AVENUE

WILSON BOROUGH/PALMER TOWNSHIP/EASTON CITY, NORTHAMPTON COUNTY, PA

(#) - STUDY INTERSECTION

KCI TECHNOLOGIES

PLOT DATE: 6/11/2024 12:43:30 PM

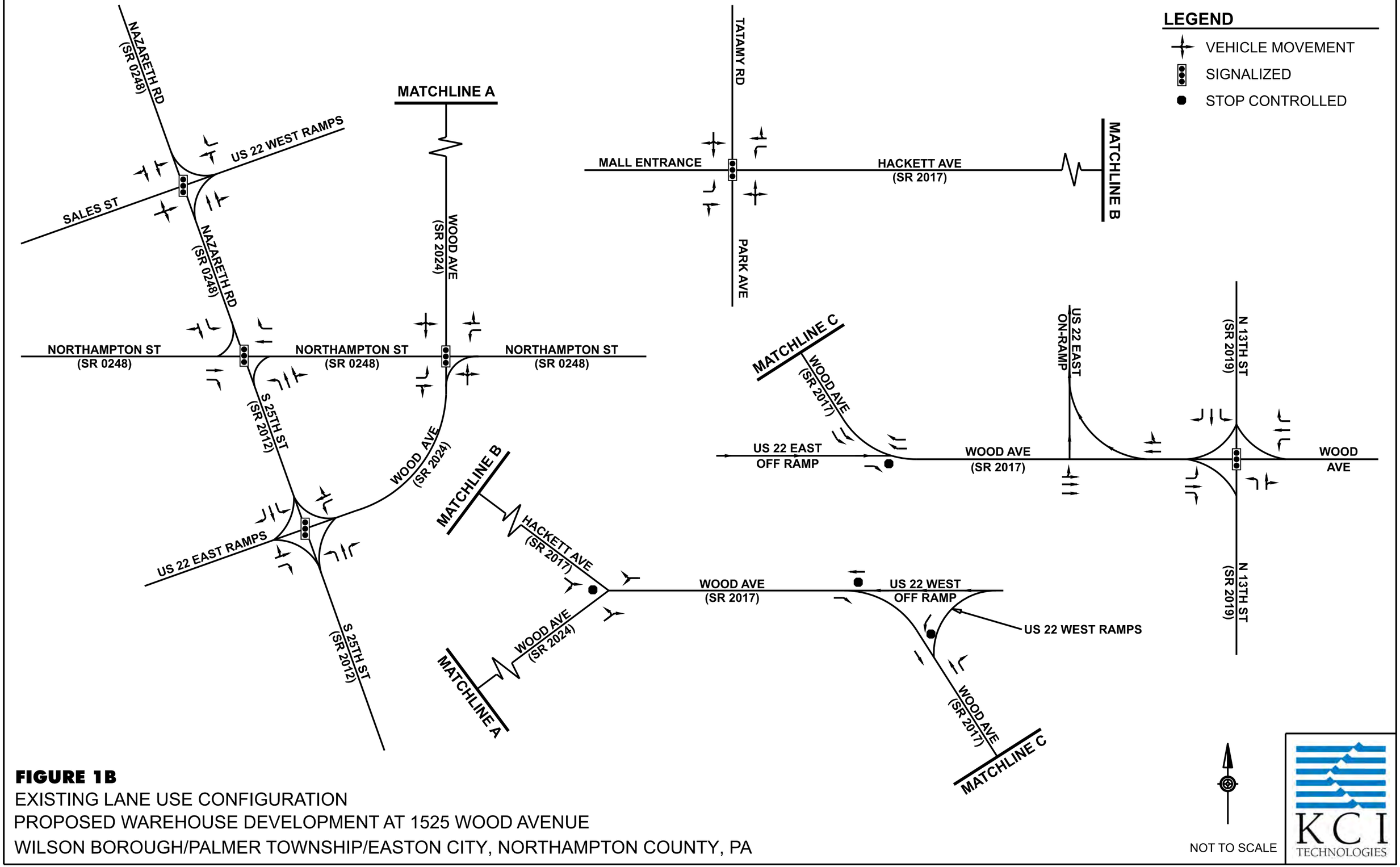



**FIGURE 1B**

EXISTING LANE USE CONFIGURATION
PROPOSED WAREHOUSE DEVELOPMENT AT 1525 WOOD AVENUE
WILSON BOROUGH/PALMER TOWNSHIP/EASTON CITY, NORTHAMPTON COUNTY, PA

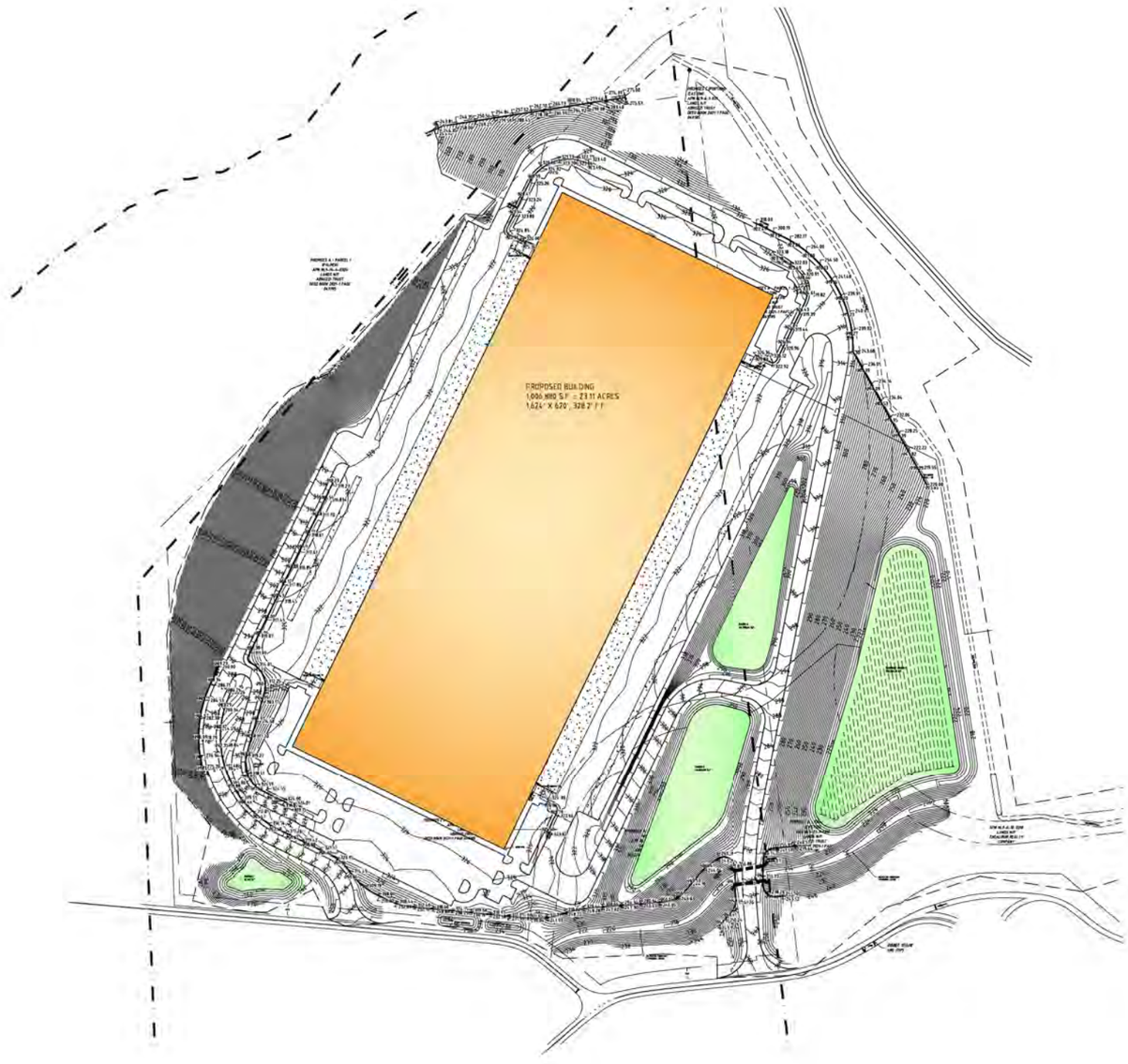
NOT TO SCALE

KCI TECHNOLOGIES

PLOT DATE: 6/11/2024 12:43:30 PM

**FIGURE 2**
SITE PLAN

PROJECT TITLE: EASTON COMMERCE PARK



LOCATION MAP
SCALE: 1" = 3,000'

NOTE:
1. THIS PLAN IS FOR CONCEPTUAL PURPOSES ONLY AND BASED ON IMAGES PROVIDED BY DEVELOPER. ADDITIONAL INFORMATION IS NECESSARY FOR APPROVALS & CONSTRUCTION.

GRAPHIC SCALE
150 0 150 300
1" = 150'

BEI

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BOGIA ENGINEERING INC.
1340 PENN AVE WYOMISSING, PA 19610
PHONE: 610-678-9071 - FAX: 510-678-3517
WWW.BOGIAENG.COM

CONCEPT PLAN

SCANNELL PROPERTIES

JOB#BRISTOL PIKE STORAGE
WILSON BOROUGH.,
LEHIGH COUNTY
PENNSYLVANIA

| | |
|---|---|
| PIN: | |
| CHECKED BY: | |
| DRAWN BY: | DH |
| DATE: | 2022-09-13 |
| SCALE: | 1:150 |
| DRAWING: | C-1 |
| PROJECT: | 2022-528 |
| SHEET: | 1 OF 1 |

PROPOSED WAREHOUSE DEVELOPMENT AT 1525 WOOD AVENUE
WILSON BOROUGH/PALMER TOWNSHIP/EASTON CITY, NORTHAMPTON COUNTY, PA

KCI TECHNOLOGIES

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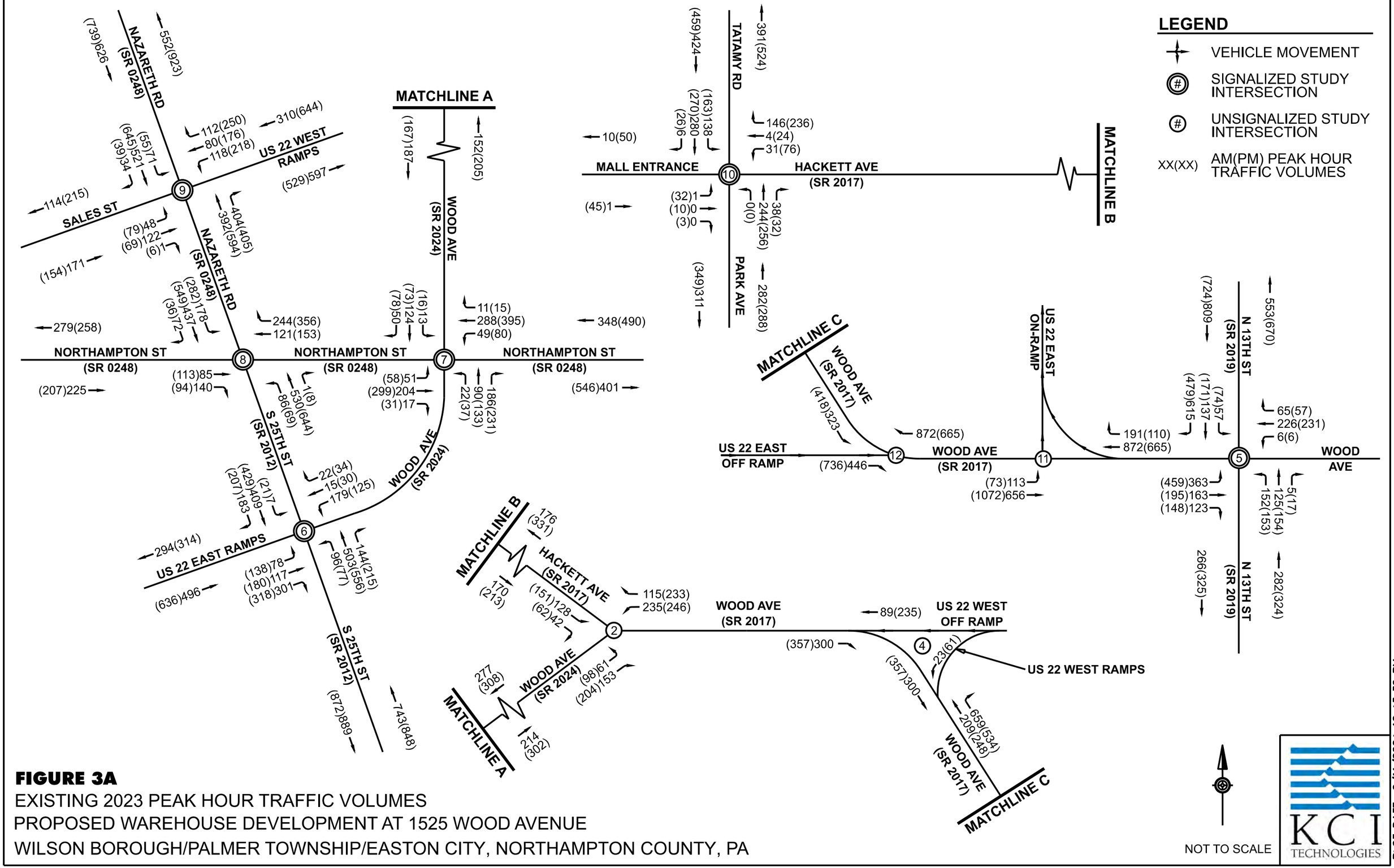


**FIGURE 3A**

EXISTING 2023 PEAK HOUR TRAFFIC VOLUMES
PROPOSED WAREHOUSE DEVELOPMENT AT 1525 WOOD AVENUE
WILSON BOROUGH/PALMER TOWNSHIP/EASTON CITY, NORTHAMPTON COUNTY, PA

NOT TO SCALE

KCI TECHNOLOGIES

PLOT DATE: 6/11/2024 12:43:30 PM

## PEAK HOUR FACTORS

INTERSECTION 2
HACKETT AVE (SR 2017) & WOOD AVE (SR 2024)/(SR 2017)
6:45 AM - 7:45 AM (0.90) 3:15 PM - 4:15 PM (0.91)

INTERSECTION 4
WOOD AVE (SR 2017) & US 22 WEST RAMPS
7:00 AM - 8:00 AM (0.98) 3:15 PM - 4:15 PM (0.94)

INTERSECTION 5
N 13TH ST (SR 2019) & WOOD AVE (SR 2017)
7:15 AM - 8:15 AM (0.94) 3:15 PM - 4:15 PM (0.97)

INTERSECTION 6
S 25TH ST (SR 2012) & WOOD AVE (SR 2024)/US 22 EAST RAMPS
6:45 AM - 7:45 AM (0.92) 3:30 PM - 4:30 PM (0.97)

INTERSECTION 7
WOOD AVE (SR 2024) & NORTHAMPTON ST (SR 0248)
7:00 AM - 8:00 AM (0.89) 3:30 PM - 4:30 PM (0.96)

INTERSECTION 8
S 25TH ST (SR 2012) & NORTHAMPTON ST (SR 0248)
7:00 AM - 8:00 AM (0.96) 3:30 PM - 4:30 PM (0.96)

INTERSECTION 9
S 25TH ST/NAZARETH RD (SR 0248) & SALES ST (SR 2040)/US 22 WEST RAMPS
7:00 AM - 8:00 AM (0.92) 3:45 PM - 4:45 PM (0.96)

INTERSECTION 10
PARK AVE/TATAMY RD & HACKETT AVE (SR 2017)/MALL ENTRANCE DRIVEWAY
7:00 AM - 8:00 AM (0.95) 3:45 PM - 4:45 PM (0.92)

INTERSECTION 11
WOOD AVE (SR 2017) & US 22 EAST ON RAMP
7:00 AM - 8:00 AM (0.92) 4:45 PM - 5:45 PM (0.97)

**INTERSECTION 12 VOLUME DATA WAS OBTAINED BY VOLUME BALANCING BETWEEN INTERSECTION 4 AND INTERSECTION 11*

**FIGURE 3B**
INTERSECTION PEAK HOURS AND PEAK HOUR FACTORS
PROPOSED WAREHOUSE DEVELOPMENT AT 1525 WOOD AVENUE
WILSON BOROUGH/PALMER TOWNSHIP/EASTON CITY, NORTHAMPTON COUNTY, PA

KCI TECHNOLOGIES

PLOT DATE: 6/11/2024 12:39:08 PM

Total Volume In/Out of Network = 2,840 + 654 + 971 + 3,352 + 1,785 + 1,798 + 1,230 + 2,756 + 1,102 + 1,197 + 2,457 + 4,551 = 24,693

**LEGEND**

- VEHICLE MOVEMENT
- (#) SIGNALIZED STUDY INTERSECTION
- (#) UNSIGNALIZED STUDY INTERSECTION
- XX(XX) IN(OUT) % TRIP DISTRIBUTION

12% | 2,840 | NAZARETH RD (SR 0248) | 12% | (12%)
US 22 WEST RAMPS | (18%)
SALES ST | 3% | 654 | 3% | 3%
NAZARETH RD (SR 0248) | (18%) | (12%)
MATCHLINE A
(58%) | 58% | WOOD AVE (SR 2024)
(37%) | (14%) | (7%) | 7%
(7%) | (30%) | (7%)
4% | 971 | NORTHAMPTON ST | (7%)
NORTHAMPTON ST (SR 0248) | 19% | 32% | NORTHAMPTON ST (SR 0248) | 1,785 | 7% | (7%)
4% | 4%
S 25TH ST (SR 2012) | WOOD AVE (SR 2024) | (14%)
US 22 EAST RAMPS | 18% | 18% | 14% | 14%
S 25TH ST (SR 2012) | (14%) | 14% | 3,352 | 14%

7% | 1,798 | TATAMY RD | 7% | 7% | (7%) | (5%)
MALL ENTRANCE | 10 | HACKETT AVE (SR 2017) | 1 | HACKETT AVE (SR 2017)
PARK AVE | 5% | 5% | (5%) | 1,230 | 5%
(35%) | 35% | SITE DRIVEWAY | (23%) | (12%) | 23% | 23% | 12% | (23%) | MATCHLINE B

MATCHLINE C
WOOD AVE (SR 2017) | (30%) | 20%
US 22 EAST OFF RAMP | 12 | WOOD AVE (SR 2017) | 11 | 20%
US 22 EAST ON-RAMP | (10%) | (10%) | (20%)

11% | 2,756 | N 13TH ST (SR 2019) | (11%)
11% | 11% | 4% | 4% | 4% | WOOD AVE | 1,102
(11%) | (4%) | (5%) | 5% | (4%)
(5%) | 5% | N 13TH ST (SR 2019) | 1,197 | 5%

MATCHLINE B
23% | HACKETT AVE (SR 2017) | (23%)
(8%) | (15%) | 8% | (43%)
WOOD AVE (SR 2017) | 2
(58%) | WOOD AVE (SR 2024) | 15% | 43%
MATCHLINE A | 58%

(65%) | SITE DRIVEWAY | 65%
(22%) | (43%) | 22% | 8%
3 | 10% | 10% | US 22 WEST OFF RAMP | 4 | US 22 WEST RAMPS
43% | (8%) | (30%) | 20% | WOOD AVE (SR 2017) | MATCHLINE C

4,551 | 18% | FROM US 22 EAST AND TO US 22 WEST

FROM US 22 WEST AND TO US 22 EAST
2,457 | 10%

**FIGURE 4A**

PROPOSED TRIP DISTRIBUTION - EMPLOYEES/PASSENGER VEHICLES
PROPOSED WAREHOUSE DEVELOPMENT AT 1525 WOOD AVENUE
WILSON BOROUGH/PALMER TOWNSHIP/EASTON CITY, NORTHAMPTON COUNTY, PA

NOT TO SCALE

KCI TECHNOLOGIES

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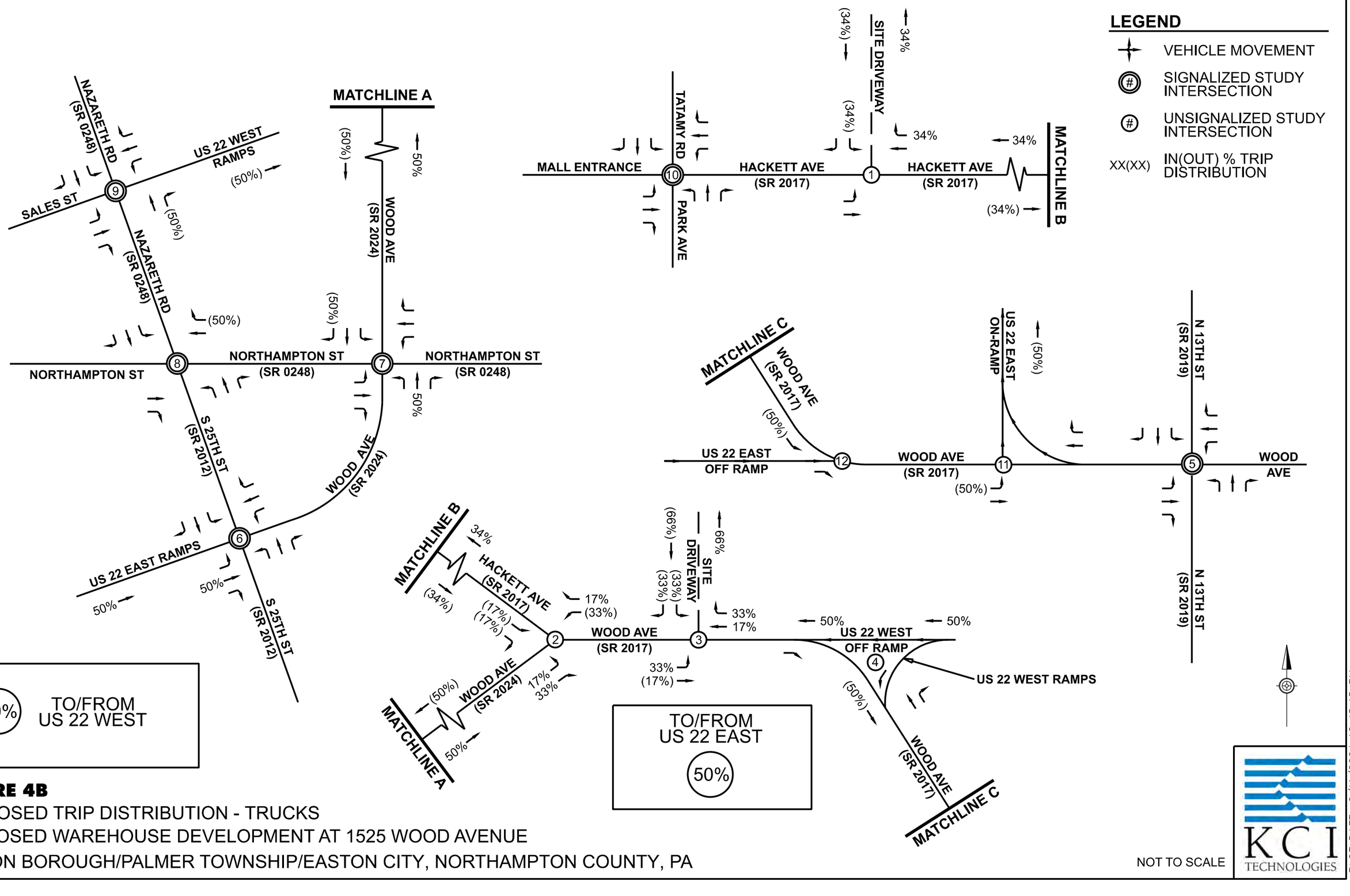


**FIGURE 4B**

PROPOSED TRIP DISTRIBUTION - TRUCKS

PROPOSED WAREHOUSE DEVELOPMENT AT 1525 WOOD AVENUE

WILSON BOROUGH/PALMER TOWNSHIP/EASTON CITY, NORTHAMPTON COUNTY, PA

NOT TO SCALE

KCI TECHNOLOGIES

PLOT DATE: 6/11/2024 12:45:15 PM

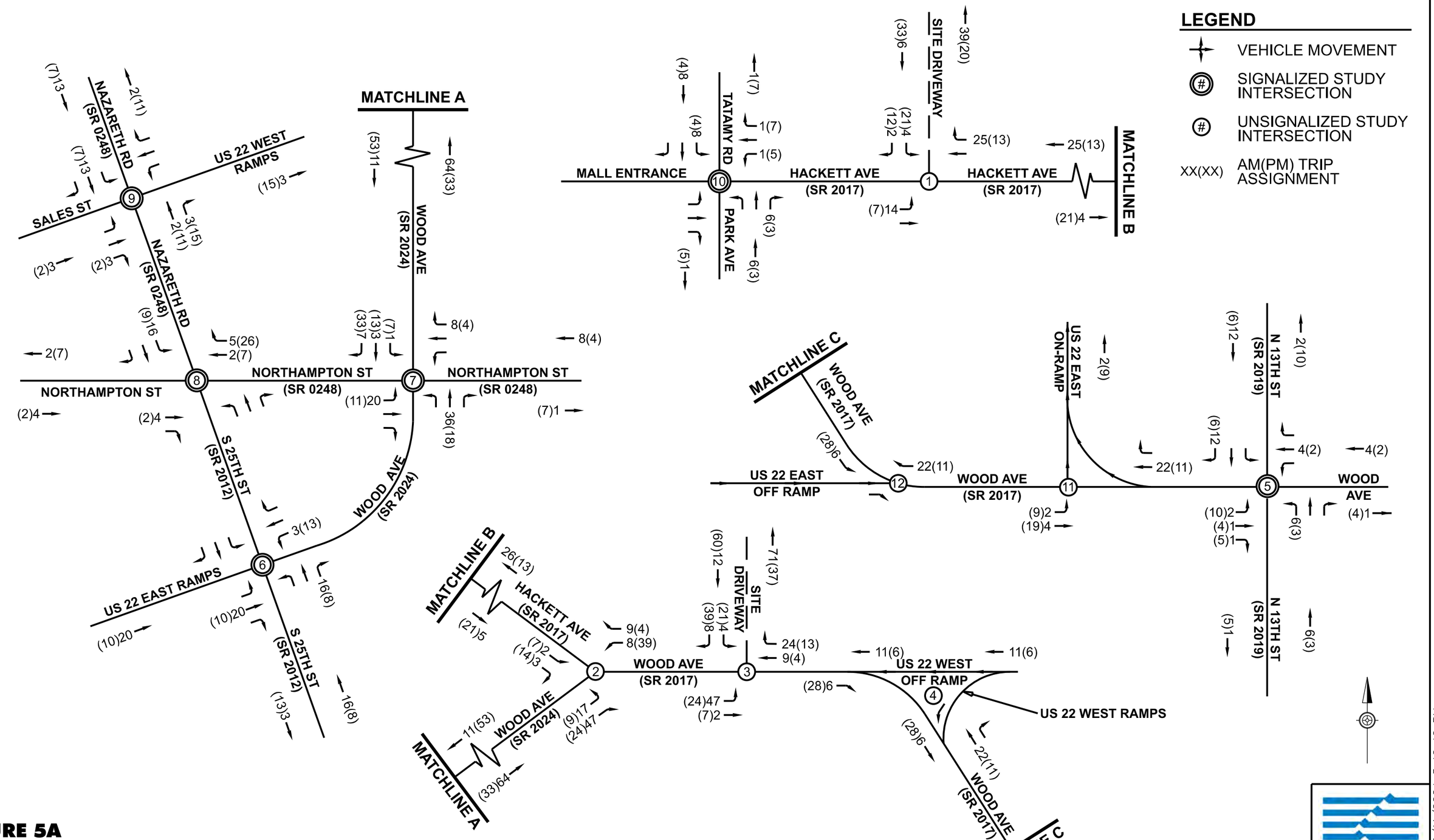


**FIGURE 5A**

PROPOSED EMPLOYEE/PASSENGER SITE TRIP ASSIGNMENT
PROPOSED WAREHOUSE DEVELOPMENT AT 1525 WOOD AVENUE
WILSON BOROUGH/PALMER TOWNSHIP/EASTON CITY, NORTHAMPTON COUNTY, PA

NOT TO SCALE

KCI TECHNOLOGIES

PLOT DATE: 6/11/2024 3:40:46 PM

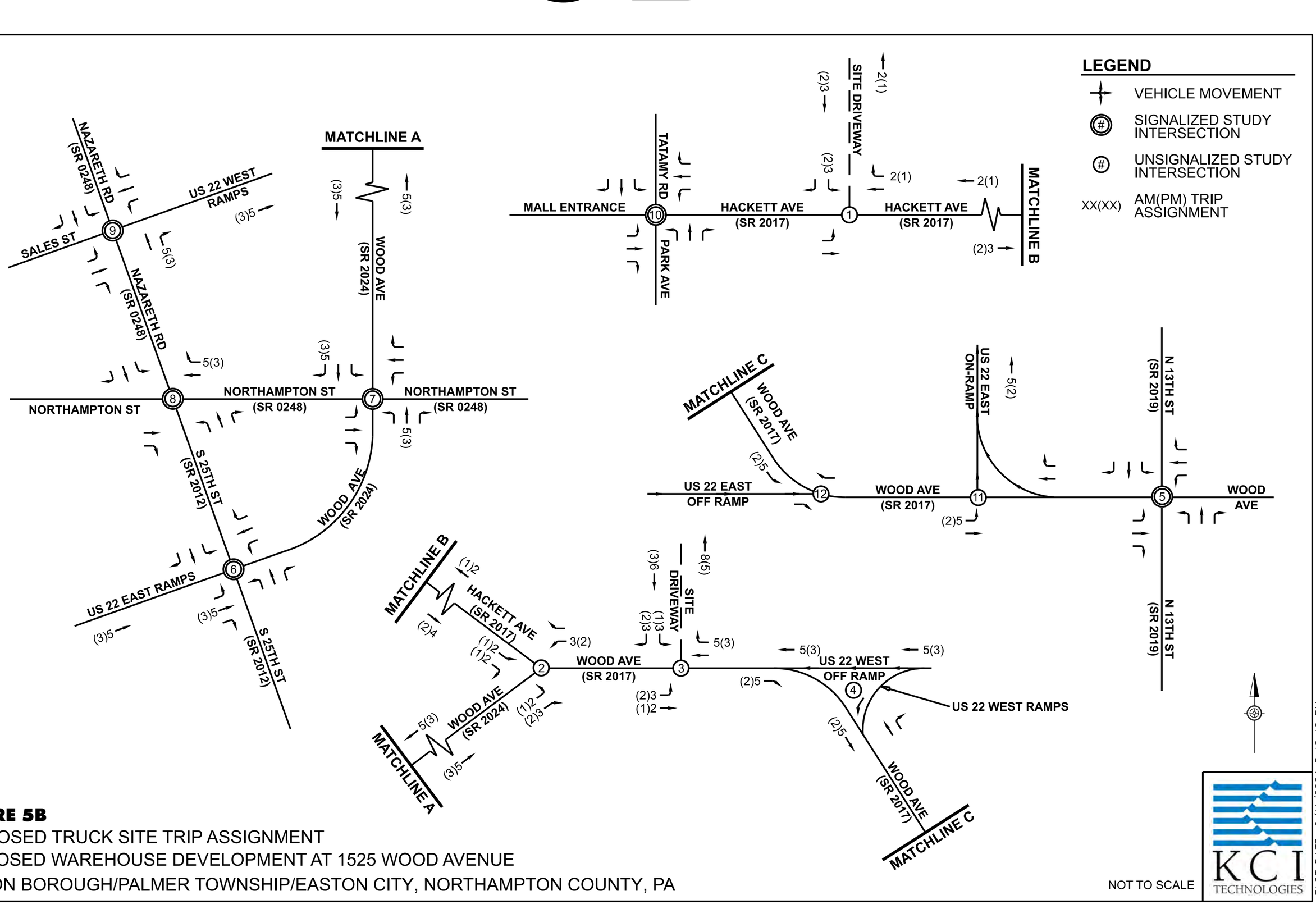


**FIGURE 5B**

PROPOSED TRUCK SITE TRIP ASSIGNMENT

PROPOSED WAREHOUSE DEVELOPMENT AT 1525 WOOD AVENUE

WILSON BOROUGH/PALMER TOWNSHIP/EASTON CITY, NORTHAMPTON COUNTY, PA

NOT TO SCALE

KCI TECHNOLOGIES

PLOT DATE: 6/11/2024 3:40:46 PM

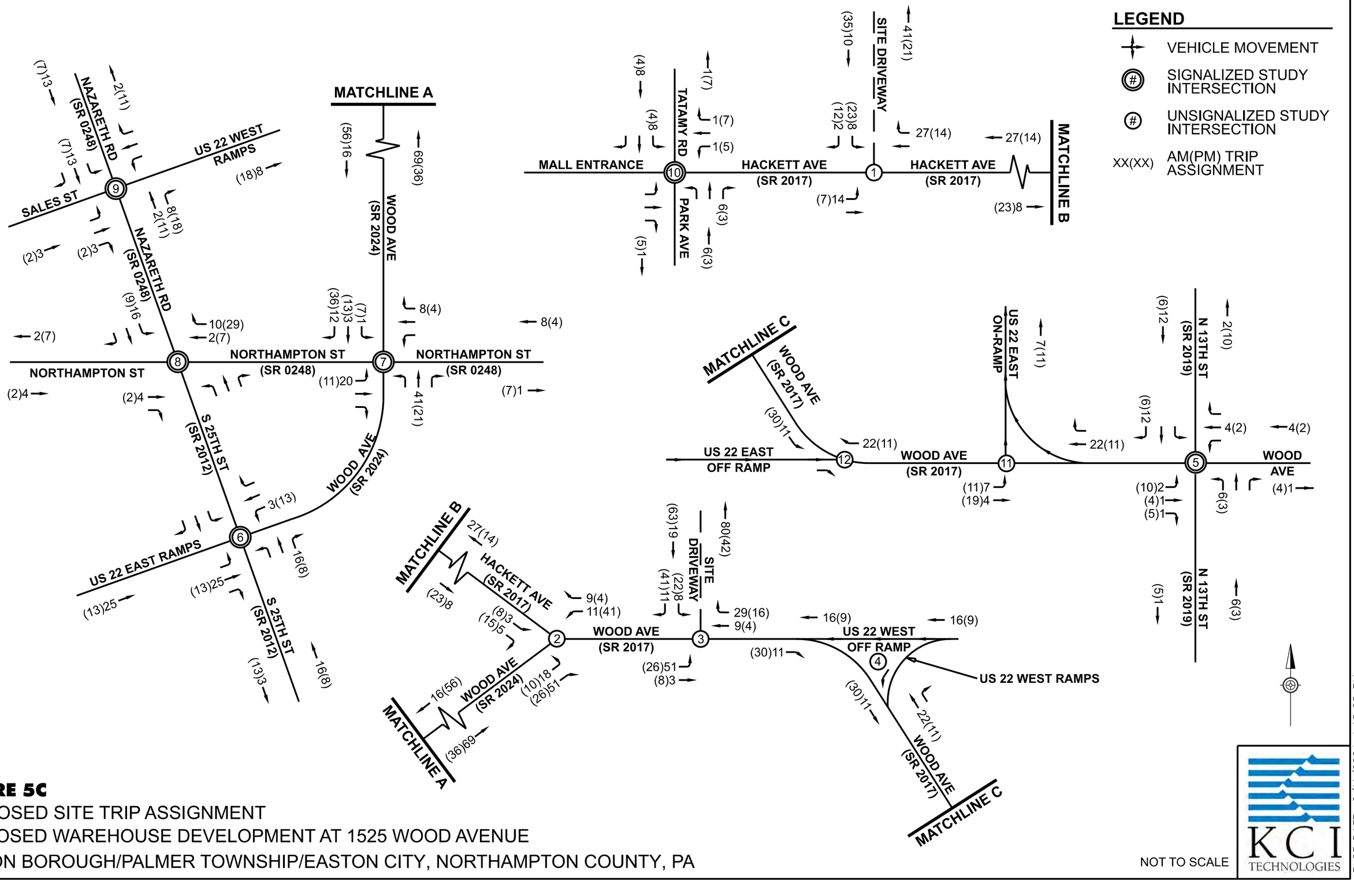


**FIGURE 5C**

PROPOSED SITE TRIP ASSIGNMENT

PROPOSED WAREHOUSE DEVELOPMENT AT 1525 WOOD AVENUE

WILSON BOROUGH/PALMER TOWNSHIP/EASTON CITY, NORTHAMPTON COUNTY, PA

NOT TO SCALE

KCI TECHNOLOGIES

PLOT DATE: 6/11/2024 4:18:05 PM

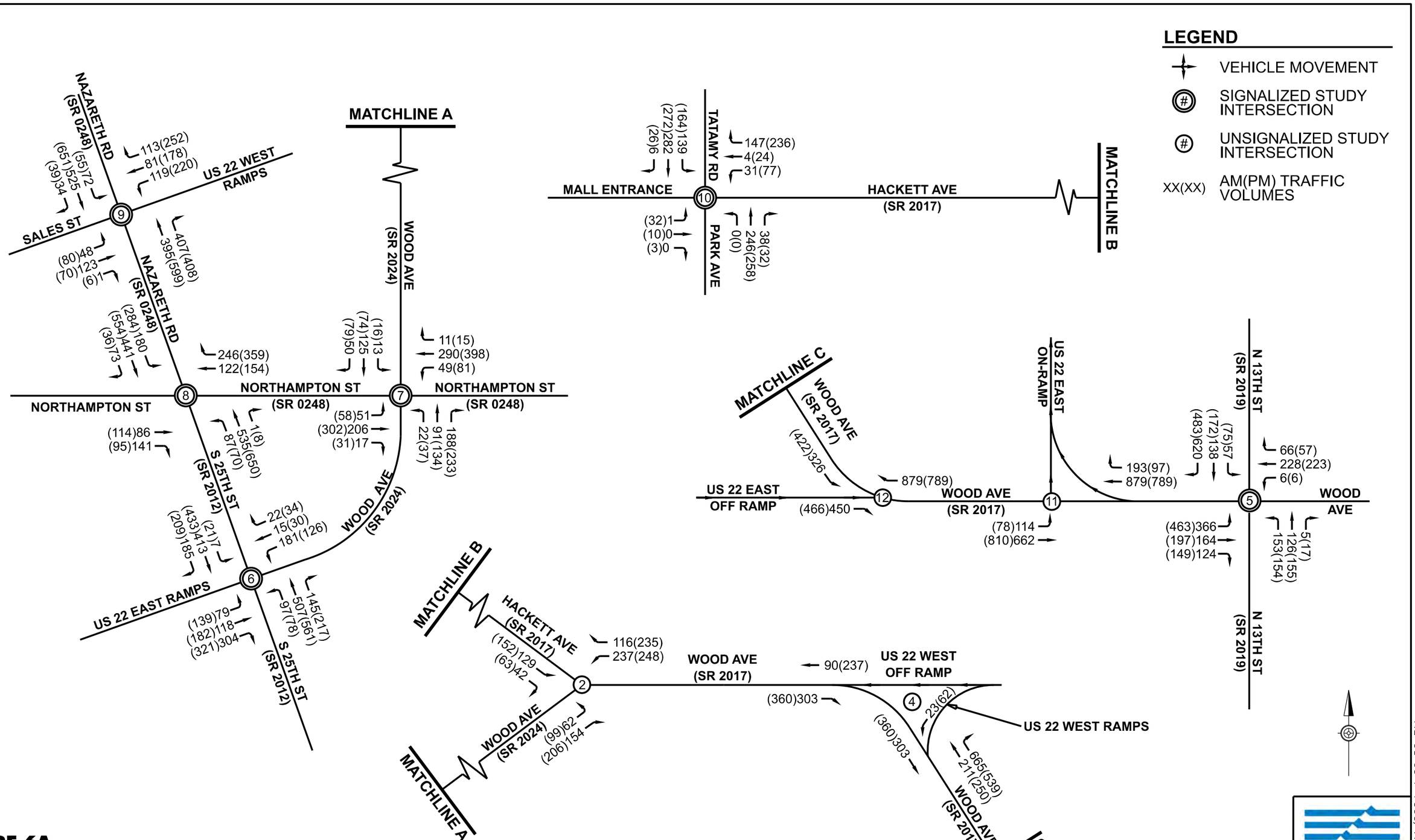


**FIGURE 6A**

2025 WITHOUT DEVELOPMENT PEAK HOUR TRAFFIC VOLUMES

PROPOSED WAREHOUSE DEVELOPMENT AT 1525 WOOD AVENUE

WILSON BOROUGH/PALMER TOWNSHIP/EASTON CITY, NORTHAMPTON COUNTY, PA

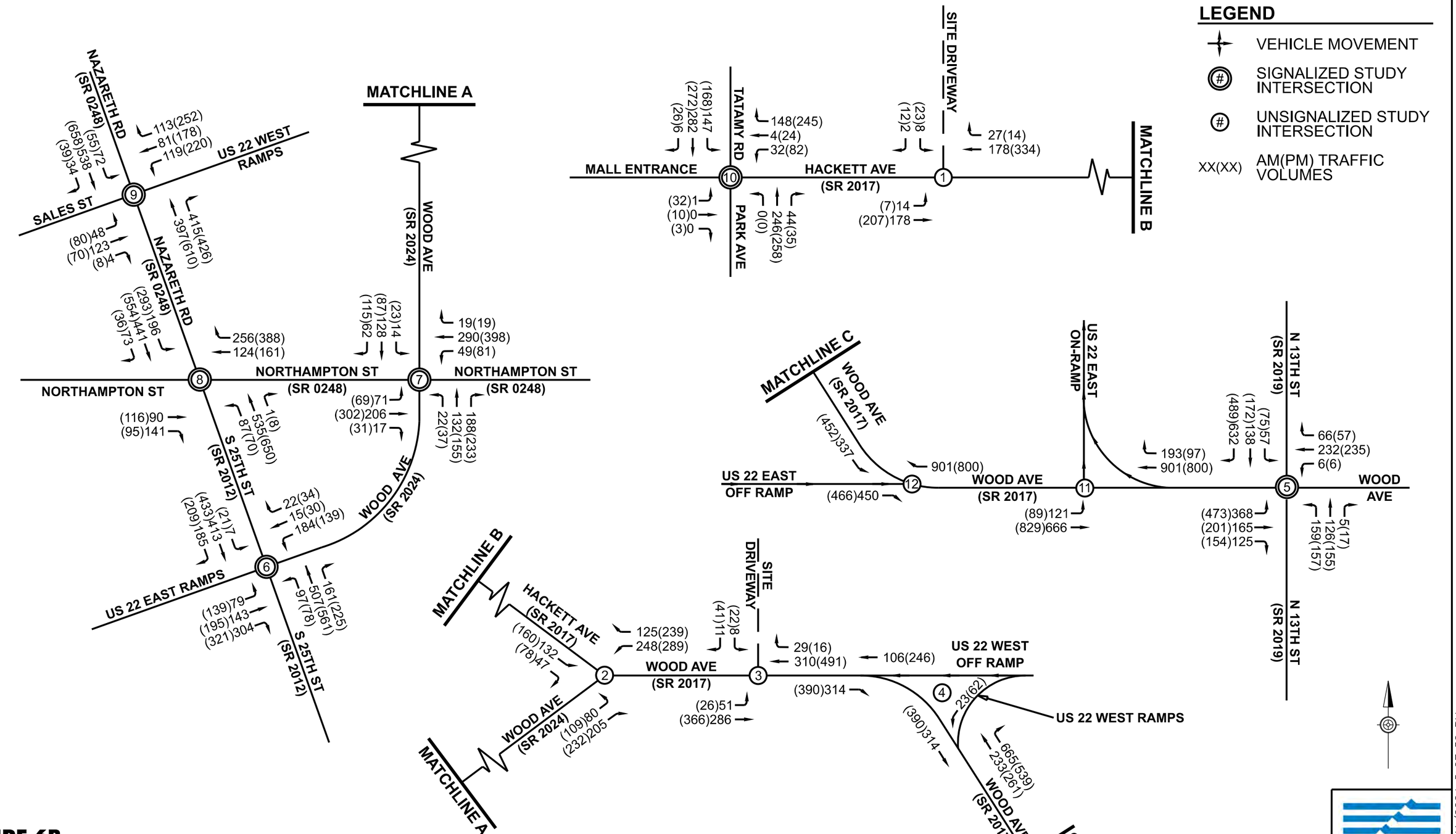


**FIGURE 6B**

2025 WITH DEVELOPMENT PEAK HOUR TRAFFIC VOLUMES

PROPOSED WAREHOUSE DEVELOPMENT AT 1525 WOOD AVENUE

WILSON BOROUGH/PALMER TOWNSHIP/EASTON CITY, NORTHAMPTON COUNTY, PA

NOT TO SCALE

KCI TECHNOLOGIES

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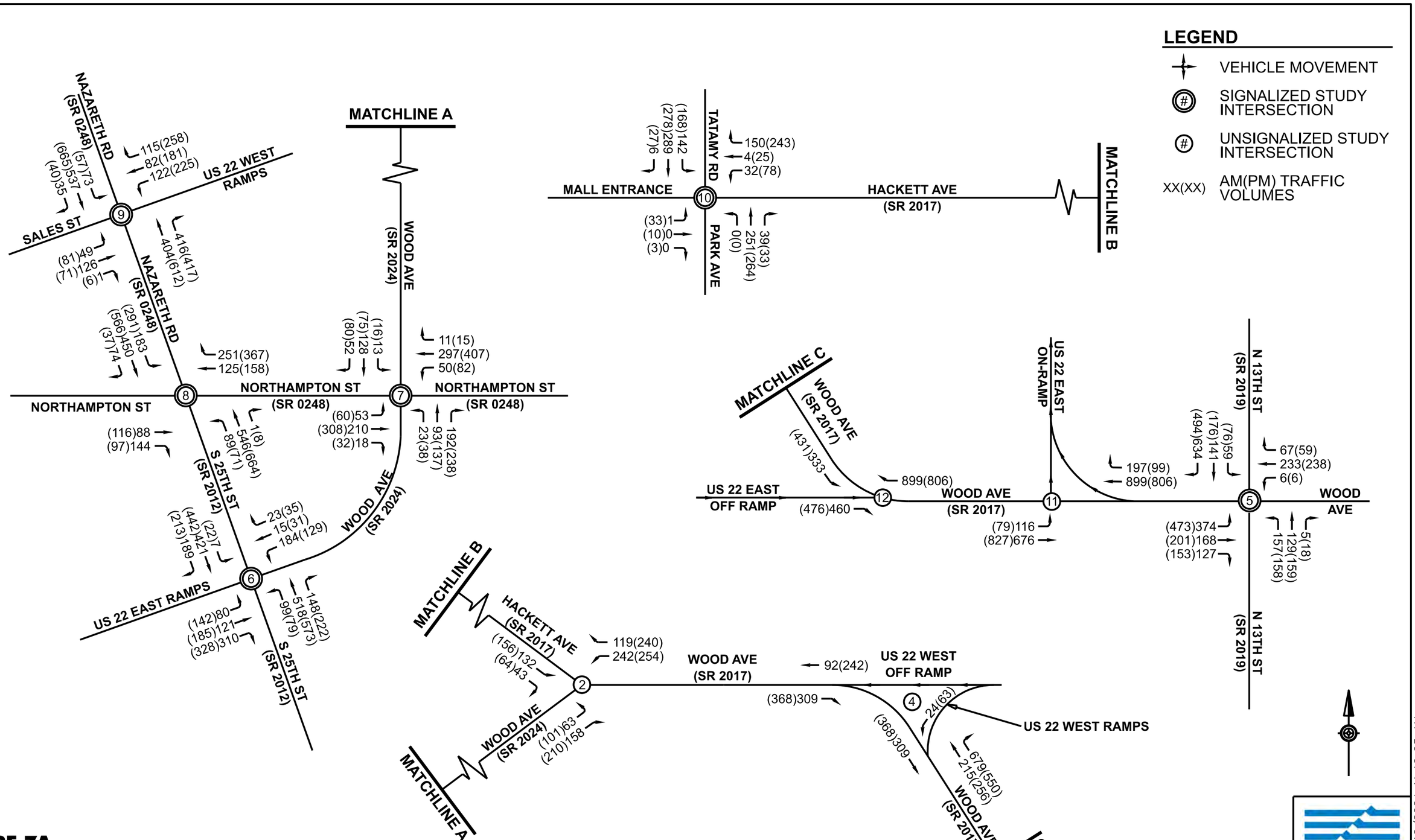


**FIGURE 7A**

2030 WITHOUT DEVELOPMENT PEAK HOUR TRAFFIC VOLUMES

PROPOSED WAREHOUSE DEVELOPMENT AT 1525 WOOD AVENUE

WILSON BOROUGH/PALMER TOWNSHIP/EASTON CITY, NORTHAMPTON COUNTY, PA

NOT TO SCALE

KCI TECHNOLOGIES

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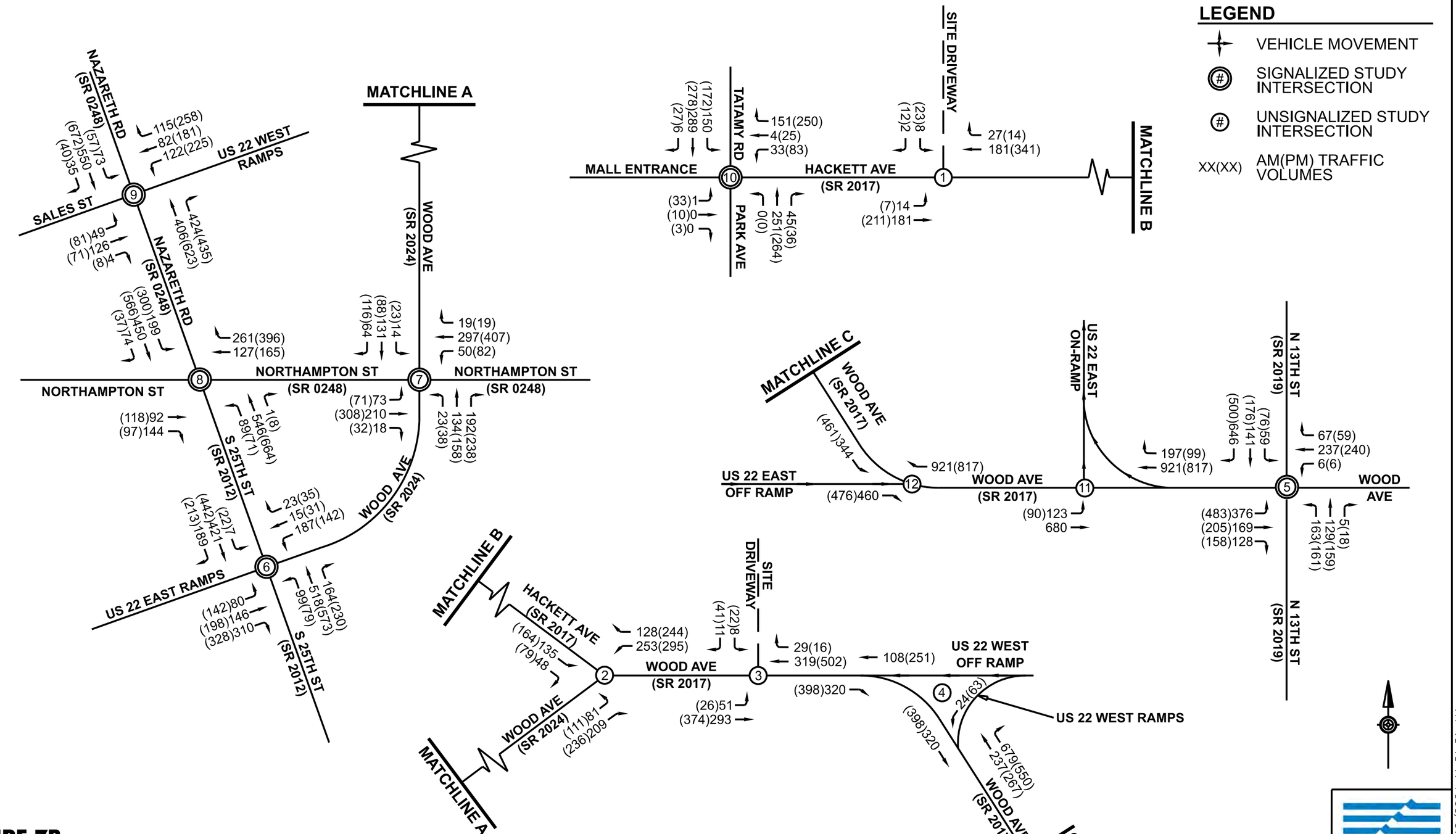


**FIGURE 7B**

2030 WITH DEVELOPMENT PEAK HOUR TRAFFIC VOLUMES

PROPOSED WAREHOUSE DEVELOPMENT AT 1525 WOOD AVENUE

WILSON BOROUGH/PALMER TOWNSHIP/EASTON CITY, NORTHAMPTON COUNTY, PA

NOT TO SCALE

KCI TECHNOLOGIES

PLOT DATE: 6/12/2024 11:51:51 AM

## Table 6: Detailed Level of Service (Overall Intersection)

| Peak Hour | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Hackett Avenue (SR 2017) & Proposed Site Access Driveway *Unsignalized* | N/A | N/A | A<br>0.6 | A<br>0.6 | N/A | A<br>0.6 | A<br>0.6 | N/A | N/A | A<br>0.9 | A<br>0.9 | N/A | A<br>0.9 | A<br>0.9 |
| Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) *Unsignalized* | A<br>5.2 | A<br>5.3 | A<br>5.3 | A<br>5.1 | A<br>5.5 | A<br>7.0 | A<br>5.3 | B<br>11.2 | B<br>11.8 | C<br>23.6 | A<br>8.6 | B<br>13.4 | D<br>27.6 | A<br>9.5 |
| Wood Avenue (SR 2017) & Proposed Site Access Driveway *Unsignalized* | N/A | N/A | A<br>1.0 | A<br>1.0 | N/A | A<br>1.0 | A<br>1.0 | N/A | N/A | A<br>1.3 | A<br>1.3 | N/A | A<br>1.3 | A<br>1.3 |
| Wood Avenue (SR 2017) & US 22 West Ramps *Unsignalized* | A<br>0.9 | A<br>0.9 | A<br>1.0 | N/A | A<br>0.9 | A<br>1.0 | N/A | A<br>2.7 | A<br>2.7 | A<br>2.8 | N/A | A<br>2.7 | A<br>2.8 | N/A |
| Wood Avenue (SR 2017) & N. 13th Street (SR 2019) *Signalized* | D<br>35.5 | D<br>35.8 | D<br>36.7 | N/A | D<br>36.8 | D<br>37.7 | N/A | E<br>60.7 | E<br>62.2 | E<br>65.5 | N/A | E<br>66.7 | E<br>69.5 | N/A |
| S. 25th Street (SR 2012) & Wood Avenue (SR 2024) / US 22 East Ramp *Signalized* | C<br>31.6 | C<br>29.4 | C<br>30.6 | N/A | C<br>29.9 | C<br>31.1 | N/A | D<br>35.4 | C<br>34.8 | D<br>35.7 | N/A | D<br>36.0 | D<br>36.8 | N/A |
| Northampton Street (SR 0248) & Wood Avenue (SR 2024) *Signalized* | B<br>18.7 | B<br>18.7 | B<br>19.6 | N/A | B<br>18.8 | B<br>19.7 | N/A | B<br>17.5 | B<br>17.5 | B<br>18.8 | N/A | B<br>17.6 | B<br>18.9 | N/A |
| Northampton Street (SR 0248) & S. 25th Street (SR 2012)/Nazareth Road (SR 0248) *Signalized* | B<br>15.9 | B<br>15.9 | B<br>16.0 | N/A | B<br>16.0 | B<br>16.2 | N/A | B<br>18.1 | B<br>18.3 | B<br>18.8 | N/A | B<br>18.6 | B<br>19.1 | N/A |
| Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps *Signalized* | B<br>19.7 | B<br>19.8 | B<br>19.9 | N/A | C<br>20.2 | C<br>20.3 | N/A | C<br>33.4 | C<br>33.8 | C<br>34.5 | N/A | D<br>35.1 | D<br>36.4 | N/A |
| Hackett Avenue (SR 2017) / Mall Entrance & Park Avenue / Tatamy Road *Signalized* | A<br>6.8 | A<br>6.8 | A<br>6.9 | N/A | A<br>6.9 | A<br>6.9 | N/A | A<br>8.3 | A<br>8.4 | A<br>8.5 | N/A | A<br>8.5 | A<br>8.6 | N/A |
| Wood Avenue (SR 2017) & US 22 East On Ramp *Unsignalized* | A<br>0.7 | A<br>0.7 | A<br>0.8 | N/A | A<br>0.7 | A<br>0.8 | N/A | A<br>0.5 | A<br>0.5 | A<br>0.5 | N/A | A<br>0.5 | A<br>0.5 | N/A |
| Wood Avenue (SR 2017) & US 22 East Off Ramp *Unsignalized* | A<br>4.1 | A<br>4.1 | A<br>4.1 | N/A | A<br>4.3 | A<br>4.2 | N/A | A<br>4.9 | A<br>5.0 | A<br>5.0 | N/A | A<br>5.2 | A<br>5.3 | N/A |

# Table 6: Detailed Level of Service (Unsignalized)

1. Hackett Avenue (SR 2017) & Proposed Site Access Driveway

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Proposed Site Access Driveway | *SB* | *Left* | N/A | N/A | B | B | N/A | B | B | N/A | N/A | B | B | N/A | B | B |
| | | *Right* | | | 11.1 | 10.9 | | 11.1 | 11.0 | | | 12.7 | 12.6 | | 12.9 | 12.8 |
| Hackett Avenue (SR 2017) | EB | *Left* | | | A | A | | A | A | | | A | A | | A | A |
| | | Thru | | | 0.6 | 8.6 (1) | | 0.6 | 8.6 (1) | | | 0.3 | 9.1 (1) | | 0.3 | 9.1 (1) |
| | WB | Thru | | | (1) | (1) | | (1) | (1) | | | (1) | (1) | | (1) | (1) |
| | | *Right* | | | | (1) | | | (1) | | | | (1) | | | (1) |
| PennDOT Overall (2) | | | | | A | A | | A | A | | | A | A | | A | A |
| | | | | | 0.6 | 0.6 | | 0.6 | 0.6 | | | 0.9 | 0.9 | | 0.9 | 0.9 |

*(1) Free-flow movement*
*(2) LOS for TWSC intersections is defined by the average intersection delay (all movements) - used for application of PennDOT's LOS criteria. Intersection LOS for TWSC is NOT defined by the HCM6 as it masks deficiencies for minor movements*
*Italics denotes proposed movements*

# Table 6: Detailed Level of Service (Unsignalized)

2. Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP(3) | WO/Dev | WD | WD + IMP(3) | Existing | WO/Dev | WD | WD + IMP(3) | WO/Dev | WD | WD + IMP(3) |
| Hackett Avenue (SR 2017) | SB | Left | C | C | D | C | C | D | C | E | F | F | E | F | F | E |
| | | Right | 19.2 | 19.7 | 26.8 | 19.6 | 20.6 | 28.6 | 20.5 | 47.9 | 50.5 | 105.3 | 35.6 | 58.2 | 123.5 | 39.4 |
| Wood Avenue (SR 2024) | EB | Left Thru | A | A | A | A | A | A | A | A | A | A | A | A | A | A |
| | | | 2.6 | 2.7 | 3.0 | 2.6 | 2.7 | 2.6 | 2.6 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 |
| Wood Avenue (SR 2017) | WB | Thru Right | (1) | (1) | (1) | (1)<br>(1) | (1) | (1) | (1)<br>(1) | (1) | (1) | (1) | (1)<br>(1) | (1) | (1) | (1)<br>(1) |
| PennDOT Overall (2) | | | A | A | A | A | A | A | A | B | B | C | A | B | D | A |
| | | | 5.2 | 5.3 | 5.3 | 5.1 | 5.5 | 7.0 | 5.3 | 11.2 | 11.8 | 23.6 | 8.6 | 13.4 | 27.6 | 9.5 |

*(1) Free-flow movement*

*(2) LOS for TWSC intersections is defined by the average intersection delay (all movements) - used for application of PennDOT's LOS criteria. Intersection LOS for TWSC is NOT defined by the HCM6 as it masks deficiencies for minor movements*

*(3) Improvements include: Construct a 125' SBR turn lane and construct a 175' WBR turn lane*

*Italics denotes proposed movements*

# Table 6: Detailed Level of Service (Unsignalized)

3. Wood Avenue (SR 2017) & Proposed Site Access Driveway

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Proposed Site Access Driveway | SB | Left<br>Right | N/A | N/A | B<br>12.9 | B<br>12.6 | N/A | B<br>13.0 | B<br>12.8 | N/A | N/A | C<br>15.6 | C<br>15.4 | N/A | C<br>15.9 | C<br>16.2 |
| Wood Avenue (SR 2017) | EB | *Left*<br>Thru | | | A<br>1.4 | A<br>9.3<br>(1) | | A<br>1.4 | A<br>9.4<br>(1) | | | A<br>0.7 | A<br>9.9<br>(1) | | A<br>0.6 | A<br>10.0<br>(1) |
| | WB | Thru<br>*Right* | | | (1) | (1)<br>(1) | | (1) | (1)<br>(1) | | | (1) | (1)<br>(1) | | (1) | (1)<br>(1) |
| PennDOT Overall (2) | | | | | A<br>1.0 | A<br>1.0 | | A<br>1.0 | A<br>1.0 | | | A<br>1.3 | A<br>1.3 | | A<br>1.3 | A<br>1.3 |

*(1) Free-flow movement*
*(2) LOS for TWSC intersections is defined by the average intersection delay (all movements) - used for application of PennDOT's LOS criteria. Intersection LOS for TWSC is NOT defined by the HCM6 as it masks deficiencies for minor movements*
*Italics denotes proposed movements*

# Table 6: Detailed Level of Service (Unsignalized)

4. Wood Avenue (SR 2017) & US 22 West Ramps

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| US 22 West Off Ramp | SB | Left | B<br>12.5 | B<br>12.5 | B<br>13.0 | N/A | B<br>12.7 | B<br>13.2 | N/A | C<br>17.8 | C<br>18.0 | C<br>19.4 | N/A | C<br>18.5 | C<br>20.0 | N/A |
| | | Right | A<br>9.7 | A<br>9.8 | B<br>10.1 | | A<br>9.8 | B<br>10.1 | | B<br>11.6 | B<br>11.7 | B<br>11.9 | | B<br>11.8 | B<br>12.1 | |
| Wood Avenue (SR 2017) | EB | Thru | (1) | (1) | (1) | | (1) | (1) | | (1) | (1) | (1) | | (1) | (1) | |
| | WB | Thru | (1) | (1) | (1) | | (1) | (1) | | (1) | (1) | (1) | | (1) | (1) | |
| | | Right | (1) | (1) | (1) | | (1) | (1) | | (1) | (1) | (1) | | (1) | (1) | |
| PennDOT Overall (2) | | | A<br>0.9 | A<br>0.9 | A<br>1.0 | | A<br>0.9 | A<br>1.0 | | A<br>2.7 | A<br>2.7 | A<br>2.8 | | A<br>2.7 | A<br>2.8 | |

*(1) Free-flow movement*

*(2) LOS for TWSC intersections is defined by the average intersection delay (all movements) - used for application of PennDOT's LOS criteria. Intersection LOS for TWSC is NOT defined by the HCM6 as it masks deficiencies for minor movements*

*Italics denotes proposed movements*

# Table 6: Detailed Level of Service (Unsignalized)

11. Wood Avenue (SR 2017) & US 22 East On-Ramp

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Wood Avenue (SR 2017) | EB | Left | B | B | B | N/A | B | B | N/A | B | B | B | N/A | B | B | N/A |
| | | | 11.6 | 11.6 | 11.8 | | 11.8 | 11.9 | | 10.9 | 11.0 | 11.0 | | 11.1 | 11.1 | |
| | | Thru | (1) | (1) | (1) | | (1) | (1) | | (1) | (1) | (1) | | (1) | (1) | |
| | WB | Thru | (1) | (1) | (1) | | (1) | (1) | | (1) | (1) | (1) | | (1) | (1) | |
| | | Right | (1) | (1) | (1) | | (1) | (1) | | (1) | (1) | (1) | | (1) | (1) | |
| PennDOT Overall (2) | | | A | A | A | | A | A | | A | A | A | | A | A | |
| | | | 0.7 | 0.7 | 0.8 | | 0.7 | 0.8 | | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | |

*(1) Free-flow movement*

*(2) LOS for TWSC intersections is defined by the average intersection delay (all movements) - used for application of PennDOT's LOS criteria. Intersection LOS for TWSC is NOT defined by the HCM6 as it masks deficiencies for minor movements*

*Italics denotes proposed movements*

# Table 6: Detailed Level of Service (Unsignalized)

12. Wood Avenue (SR 2017) & US 22 East Off-Ramp

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| US 22 East Off-Ramp | NB | Right | C<br>15.0 | C<br>15.2 | C<br>15.4 | | C<br>15.6 | C<br>15.8 | | C<br>17.5 | C<br>17.9 | C<br>18.6 | | C<br>18.7 | C<br>19.4 | |
| Wood Avenue (SR 2017) | EB | Thru | (1) | (1) | (1) | *N/A* | (1) | (1) | *N/A* | (1) | (1) | (1) | *N/A* | (1) | (1) | *N/A* |
| | WB | Thru | (1) | (1) | (1) | | (1) | (1) | | (1) | (1) | (1) | | (1) | (1) | |
| PennDOT Overall (2) | | | A<br>4.1 | A<br>4.1 | A<br>4.1 | | A<br>4.3 | A<br>4.2 | | A<br>4.9 | A<br>5.0 | A<br>5.0 | | A<br>5.2 | A<br>5.3 | |

*(1) Free-flow movement*
*(2) LOS for TWSC intersections is defined by the average intersection delay (all movements) - used for application of PennDOT's LOS criteria. Intersection LOS for TWSC is NOT defined by the HCM6 as it masks deficiencies for minor movements*
*Italics denotes proposed movements*

# Table 6: Detailed Level of Service (Signalized)

5. Wood Avenue (SR 2017) & N. 13th Street (SR 2019)

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| N. 13th Street (SR 2019) | NB | Left | D | D | D | | D | E | | D | D | D | | D | D | |
| | | | 50.1 | 50.7 | 54.0 | | 53.1 | 56.6 | | 36.0 | 36.1 | 36.6 | | 36.6 | 36.9 | |
| | | Thru Right | C | C | C | | C | C | | C | C | C | | C | C | |
| | | | 22.1 | 22.2 | 22.3 | | 22.4 | 22.6 | | 31.2 | 31.6 | 31.9 | | 32.5 | 32.8 | |
| | SB | Left | D | D | D | | D | D | | D | D | D | | D | D | |
| | | | 50.7 | 50.8 | 50.8 | | 51.2 | 50.9 | | 41.5 | 41.5 | 42.0 | | 42.0 | 42.4 | |
| | | Thru | C | C | C | | C | C | | D | D | D | | E | E | |
| | | | 28.8 | 28.9 | 29.0 | | 29.2 | 29.3 | | 50.6 | 51.8 | 53.4 | | 55.3 | 56.8 | |
| | | Right | D | D | E | | E | E | | F | F | F | | F | F | |
| | | | 52.9 | 53.9 | 56.3 | | 57.2 | 60.3 | | 242.0 | 250.3 | 266.9 | | 274.2 | 287.9 | |
| Wood Avenue (SR 2017) | EB | Left | C | C | C | N/A | C | C | N/A | C | C | C | N/A | C | C | N/A |
| | | | 25.3 | 25.4 | 25.4 | | 25.7 | 25.7 | | 25.7 | 26.0 | 28.5 | | 27.9 | 30.5 | |
| | | Thru | B | B | B | | B | B | | B | B | B | | B | B | |
| | | | 19.3 | 19.3 | 19.3 | | 19.3 | 19.3 | | 12.1 | 12.1 | 12.2 | | 12.2 | 12.2 | |
| | | Right | B | B | B | | B | B | | B | B | B | | B | B | |
| | | | 18.0 | 18.0 | 18.0 | | 18.0 | 17.9 | | 11.2 | 11.3 | 11.3 | | 11.3 | 11.3 | |
| | WB | Left | D | D | D | | D | D | | C | C | C | | C | C | |
| | | | 40.4 | 40.4 | 40.5 | | 40.5 | 40.4 | | 32.0 | 32.1 | 32.6 | | 32.7 | 33.1 | |
| | | Thru | D | D | D | | D | D | | C | C | C | | C | C | |
| | | | 41.3 | 41.4 | 41.4 | | 41.4 | 41.2 | | 32.6 | 32.8 | 33.2 | | 33.4 | 33.8 | |
| | | Right | D | D | D | | D | D | | C | C | C | | C | C | |
| | | | 43.0 | 43.0 | 43.0 | | 43.1 | 42.8 | | 33.7 | 33.8 | 34.3 | | 34.5 | 34.9 | |
| PennDOT Overall | | | D | D | D | | D | D | | E | E | E | | E | E | |
| | | | 35.5 | 35.8 | 36.7 | | 36.8 | 37.7 | | 60.7 | 62.2 | 65.5 | | 66.7 | 69.5 | |

# Table 6: Detailed Level of Service (Signalized)

6. S 25th Street (SR 2012) & Wood Avenue (SR 2024) / US 22 East Ramp

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| S. 25th Street (SR 2012) | NB | Left | E<br>67.8 | D<br>49.0 | D<br>48.8 | | D<br>48.9 | D<br>48.7 | | F<br>80.7 | D<br>51.8 | D<br>51.8 | | D<br>52.0 | D<br>52.0 | |
| | | Thru | C<br>25.3 | C<br>22.5 | C<br>24.0 | | C<br>23.2 | C<br>24.7 | | C<br>29.8 | D<br>35.1 | D<br>35.7 | | D<br>37.3 | D<br>37.3 | |
| | | Right | B<br>15.6 | B<br>13.9 | B<br>14.9 | | B<br>14.1 | B<br>15.0 | | B<br>17.6 | B<br>19.2 | B<br>19.4 | | B<br>19.5 | B<br>19.6 | |
| | SB | Left | E<br>56.7 | D<br>50.6 | D<br>50.2 | | D<br>50.6 | D<br>50.2 | | E<br>59.1 | D<br>49.3 | D<br>49.3 | | D<br>49.3 | D<br>49.3 | |
| | | Thru | C<br>31.3 | C<br>28.5 | C<br>30.4 | | C<br>29.6 | C<br>31.6 | | C<br>29.7 | C<br>34.3 | C<br>34.8 | | D<br>35.8 | D<br>35.8 | |
| | | Right | B<br>19.7 | B<br>18.1 | B<br>19.0 | N/A | B<br>18.4 | B<br>19.3 | N/A | C<br>20.6 | C<br>22.5 | C<br>22.7 | N/A | C<br>22.8 | C<br>22.8 | N/A |
| US 22 East Ramps | EB | Left Thru | D<br>44.7 | D<br>45.7 | D<br>47.3 | | D<br>45.9 | D<br>47.4 | | E<br>57.0 | D<br>46.7 | D<br>49.5 | | D<br>47.4 | D<br>51.7 | |
| | | Right | D<br>36.9 | D<br>36.2 | C<br>34.9 | | D<br>35.9 | C<br>34.7 | | C<br>31.7 | C<br>29.1 | C<br>28.9 | | C<br>28.9 | C<br>28.9 | |
| Wood Avenue (SR 2024) | WB | Left | C<br>28.0 | C<br>32.1 | C<br>31.8 | | C<br>32.3 | C<br>31.9 | | C<br>28.5 | C<br>25.6 | C<br>27.1 | | C<br>25.9 | C<br>27.9 | |
| | | Thru Right | C<br>21.1 | C<br>23.1 | C<br>22.2 | | C<br>22.9 | C<br>22.0 | | C<br>20.3 | B<br>18.7 | B<br>18.5 | | B<br>18.5 | B<br>18.5 | |
| PennDOT Overall | | | C<br>31.6 | C<br>29.4 | C<br>30.6 | | C<br>29.9 | C<br>31.1 | | D<br>35.4 | C<br>34.8 | D<br>35.7 | | D<br>36.0 | D<br>36.8 | |

# Table 6: Detailed Level of Service (Signalized)

7. Northampton Street (SR 0248) & Wood Avenue (SR 2024)

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Wood Avenue (SR 2024) | NB | Left | D | D | D | N/A | D | D | N/A | D | D | D | N/A | D | D | N/A |
| | | Thru Right | 43.2 | 43.2 | 42.0 | | 43.1 | 41.9 | | 41.0 | 41.0 | 40.3 | | 40.8 | 40.1 | |
| | SB | Left | D | D | D | | D | D | | D | D | D | | D | D | |
| | | Thru Right | 42.9 | 42.9 | 40.0 | | 42.7 | 39.9 | | 35.6 | 35.6 | 35.5 | | 35.2 | 35.2 | |
| Northampton Street (SR 0248) | EB | Left | A | A | A | | A | A | | B | B | B | | B | B | |
| | | | 7.7 | 7.7 | 9.5 | | 8.0 | 9.9 | | 11.0 | 11.1 | 13.2 | | 11.6 | 13.7 | |
| | | Thru Right | A | A | A | | A | A | | A | A | A | | A | A | |
| | | | 4.2 | 4.2 | 5.1 | | 4.3 | 5.2 | | 6.3 | 6.3 | 6.9 | | 6.5 | 7.2 | |
| | WB | Left | A | A | A | | A | A | | A | A | B | | A | B | |
| | | | 6.5 | 6.5 | 7.7 | | 6.7 | 7.9 | | 9.5 | 9.6 | 11.1 | | 10.0 | 11.4 | |
| | | Thru Right | A | A | A | | A | A | | A | A | A | | A | A | |
| | | | 4.8 | 4.9 | 6.0 | | 5.0 | 6.2 | | 7.4 | 7.4 | 8.2 | | 7.7 | 8.5 | |
| PennDOT Overall | | | B | B | B | | B | B | | B | B | B | | B | B | |
| | | | 18.7 | 18.7 | 19.6 | | 18.8 | 19.7 | | 17.5 | 17.5 | 18.8 | | 17.6 | 18.9 | |

# Table 6: Detailed Level of Service (Signalized)

8. Northampton Street (SR 0248) & S. 25th Street (SR 2012) / Nazareth Road (SR 0248)

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| S. 25th Street (SR 2012) | NB | Left | A | A | A | | A | A | | A | A | A | | A | A | |
| | | | 4.6 | 4.9 | 5.0 | | 5.0 | 5.2 | | 6.9 | 7.1 | 7.6 | | 7.4 | 7.9 | |
| | | Thru Thru Right | B | A | B | | B | B | | B | B | B | | B | B | |
| | | | 10.4 | 10.0 | 10.2 | | 10.1 | 10.4 | | 16.5 | 16.7 | 17.7 | | 17.1 | 18.1 | |
| Nazareth Road (SR 0248) | SB | Left | A | A | A | | A | A | | A | A | A | | A | A | |
| | | | 4.4 | 4.6 | 4.9 | | 4.7 | 5.0 | | 7.7 | 7.9 | 8.6 | | 8.3 | 9.0 | |
| | | Thru Right | B | B | B | | B | B | | B | B | B | | B | B | |
| | | | 10.1 | 10.2 | 10.5 | | 10.5 | 10.8 | | 13.2 | 13.8 | 14.6 | | 14.3 | 15.1 | |
| Northampton Street | EB | Thru | D | D | D | N/A | D | D | N/A | D | D | D | N/A | D | D | N/A |
| | | | 41.1 | 40.6 | 40.2 | | 40.4 | 40.1 | | 36.5 | 36.3 | 35.3 | | 36.1 | 35.1 | |
| | | Right | C | C | C | | C | C | | C | C | C | | C | C | |
| | | | 30.3 | 30.1 | 29.7 | | 29.9 | 29.5 | | 26.9 | 26.3 | 25.5 | | 26.2 | 25.3 | |
| Northampton Street (SR 0248) | WB | Thru | D | D | D | | D | D | | D | D | D | | D | D | |
| | | | 43.0 | 42.4 | 41.8 | | 42.3 | 41.7 | | 37.9 | 37.8 | 36.9 | | 37.7 | 36.7 | |
| | | Right | C | C | C | | C | C | | C | C | C | | C | C | |
| | | | 29.3 | 30.2 | 30.2 | | 30.1 | 30.2 | | 25.0 | 25.0 | 24.5 | | 24.8 | 24.4 | |
| PennDOT Overall | | | B | B | B | | B | B | | B | B | B | | B | B | |
| | | | 15.9 | 15.9 | 16.0 | | 16.0 | 16.2 | | 18.1 | 18.3 | 18.8 | | 18.6 | 19.1 | |

# Table 6: Detailed Level of Service (Signalized)

9. Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Nazareth Road (SR 0248) | NB | Thru | B | B | B | N/A | B | B | N/A | C | D | D | N/A | D | D | N/A |
| | | | 17.1 | 17.2 | 17.4 | | 17.7 | 17.9 | | 33.6 | 37.3 | 38.6 | | 38.7 | 40.2 | |
| | | Thru Right | B | B | B | | B | B | | D | D | D | | D | D | |
| | | | 18.4 | 18.5 | 18.7 | | 19.1 | 19.4 | | 37.1 | 42.2 | 44.2 | | 44.2 | 46.8 | |
| | SB | Left Thru | B | B | B | | B | B | | C | C | C | | C | C | |
| | | | 10.6 | 10.8 | 11.0 | | 11.4 | 11.6 | | 25.5 | 28.9 | 29.2 | | 30.4 | 33.3 | |
| | | Thru | A | A | A | | B | B | | C | C | C | | C | C | |
| | | | 9.7 | 9.8 | 10.0 | | 10.2 | 10.4 | | 21.3 | 23.5 | 23.7 | | 24.4 | 25.8 | |
| | | Right | A | A | A | | A | A | | B | B | B | | B | B | |
| | | | 8.9 | 9.0 | 9.1 | | 9.3 | 9.5 | | 17.7 | 19.0 | 19.1 | | 19.4 | 19.5 | |
| Sales Street (SR 2040) | EB | Left Thru Right | C | C | C | | C | C | | C | C | C | | C | C | |
| | | | 32.2 | 32.1 | 32.1 | | 31.9 | 31.8 | | 22.7 | 21.0 | 21.1 | | 21.0 | 21.0 | |
| US 22 West Ramps | WB | Left Thru Right | D | D | D | | D | D | | D | D | D | | D | D | |
| | | | 40.4 | 40.6 | 40.6 | | 41.0 | 41.0 | | 50.8 | 43.4 | 43.4 | | 45.1 | 45.4 | |
| PennDOT Overall | | | B | B | B | | C | C | | C | C | C | | D | D | |
| | | | 19.7 | 19.8 | 19.9 | | 20.2 | 20.3 | | 33.4 | 33.8 | 34.5 | | 35.1 | 36.4 | |

# Table 6: Detailed Level of Service (Signalized)

10. Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Park Avenue | NB | Left | A | A | A | | A | A | | A | A | A | | A | A | |
| | | Thru Right | 5.8 | 5.8 | 5.9 | | 5.9 | 5.9 | | 6.5 | 6.5 | 6.6 | | 6.5 | 6.5 | |
| Tatamy Road | SB | Left | A | A | A | | A | A | | A | A | A | | A | A | |
| | | Thru Right | 6.7 | 6.8 | 6.8 | | 6.9 | 6.9 | | 8.0 | 8.0 | 8.1 | | 8.1 | 8.1 | |
| Mall Entrance Driveway | EB | Left | B | B | B | | B | B | | B | B | B | | B | B | |
| | | | 10.8 | 10.8 | 10.9 | | 10.9 | 10.9 | | 13.5 | 13.6 | 13.9 | | 14.1 | 14.3 | |
| | | Thru Right | A | A | A | | A | A | | A | A | A | | A | A | |
| | | | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 6.9 | 7.0 | 7.1 | | 7.2 | 7.2 | |
| Hackett Avenue (SR 2017) | WB | Left | A | A | A | | A | A | | A | A | A | | A | A | |
| | | | 8.7 | 8.7 | 8.8 | | 8.7 | 8.8 | | 9.4 | 9.5 | 9.6 | | 9.7 | 9.8 | |
| | | Thru Right | A | A | A | | A | A | | A | B | B | | B | B | |
| | | | 8.4 | 8.4 | 8.5 | | 8.5 | 8.5 | | 9.9 | 10.0 | 10.3 | | 10.5 | 10.6 | |
| PennDOT Overall | | | A | A | A | | A | A | | A | A | A | | A | A | |
| | | | 6.8 | 6.8 | 6.9 | | 6.9 | 6.9 | | 8.3 | 8.4 | 8.5 | | 8.5 | 8.6 | |

*N/A*

# Table 7: 95th Percentile Queue Lengths

1. Hackett Avenue (SR 2017) & Proposed Site Access Driveway

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Proposed Site Access Driveway | SB | *Left* | N/A | | N/A | N/A | 1 | 1 | N/A | 1 | 1 | N/A | N/A | 6 | 6 | N/A | 6 | 6 |
| | | *Right* | | | | | | | | | | | | | | | | |
| Hackett Avenue (SR 2017) | EB | *Left* Thru | | *1,575'* | | | 1 | 1 | | 1 | 1 | | | 0 | 0 | | 0 | 0 |
| | WB | Thru | | *630'* | | | 0 | 0 | | 0 | 0 | | | 0 | 0 | | 0 | 0 |
| | | *Right* | | 200' | | | | 0 | | | 0 | | | | 0 | | | 0 |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

2. Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Hackett Avenue (SR 2017) | SB | Left | *2,280'* | *645'* | 53 | 54 | 80 | 51 | 59 | 87 | 55 | 150 | 157 | 258 | 118 | 175 | 283 | 130 |
| | | Right | | 150' | | | | 5 | | | 6 | | | | 10 | | | 10 |
| Wood Avenue (SR 2024) | EB | Left Thru | *240'* | | 3 | 3 | 4 | 4 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Wood Avenue (SR 2017) | WB | Thru | *805'* | *416'* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Right | | 175' | | | | 0 | | | 0 | | | | 0 | | | 0 |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

# Table 7: 95th Percentile Queue Lengths

3. Wood Avenue (SR 2017) & Proposed Site Access Driveway

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Proposed Site Access Driveway | SB | *Left* | N/A | | N/A | N/A | 3 | 3 | N/A | 4 | 3 | N/A | N/A | 15 | 15 | N/A | 16 | 16 |
| Wood Avenue (SR 2017) | EB | *Left* | | 200' | | | 2 | 5 | | 2 | 5 | | | 1 | 3 | | 1 | 3 |
| | | Thru | | *416'* | | | | 0 | | | 0 | | | | 0 | | | 0 |
| | WB | Thru | | *405'* | | | 0 | 0 | | 0 | 0 | | | 0 | 0 | | 0 | 0 |
| | | *Right* | | 200' | | | | | | | | | | | | | | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

4. Wood Avenue (SR 2017) & US 22 West Ramps

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| US 22 West Ramps | SB | Left | 150' | | 4 | 4 | 4 | | 4 | 4 | | 17 | 17 | 19 | | 18 | 20 | |
| | | Right | *240'* | | 9 | 9 | 11 | | 9 | 12 | | 34 | 34 | 37 | | 36 | 39 | |
| Wood Avenue (SR 2017) | EB | Thru | *1,018'* | *586'* | 0 | 0 | 0 | *N/A* | 0 | 0 | *N/A* | 0 | 0 | 0 | *N/A* | 0 | 0 | *N/A* |
| | WB | Thru | *537'* | | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | |
| | | Right | *537'* | | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 7: 95th Percentile Queue Lengths

5. Wood Avenue (SR 2017) & N. 13th Street (SR 2019)

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| N. 13th Street (SR 2019) | NB | Left | 230' | | 187 | 189 | 202 | | 199 | 210 | | 133 | 134 | 140 | | 141 | 145 | |
| | | Thru Right | *230'* | | 99 | 100 | 100 | | 103 | 104 | | 142 | 145 | 146 | | 153 | 155 | |
| | SB | Left | 105' | | 70 | 70 | 70 | | 73 | 73 | | 71 | 72 | 73 | | 74 | 75 | |
| | | Thru | *1,115'* | | 126 | 127 | 127 | | 132 | 132 | | 192 | 195 | 199 | | 206 | 209 | |
| | | Right | 285' | | 334 | 339 | 351 | | 356 | 370 | | 623 | 638 | 669 | | 685 | 709 | |
| Wood Avenue (SR 2017) | EB | Left | 115' | | 277 | 279 | 281 | *N/A* | 287 | 288 | *N/A* | 242 | 245 | 254 | *N/A* | 255 | 263 | *N/A* |
| | | Thru | *115'* | | 112 | 113 | 114 | | 116 | 117 | | 85 | 86 | 89 | | 89 | 92 | |
| | | Right | 155' | | 35 | 36 | 36 | | 36 | 36 | | 32 | 32 | 33 | | 33 | 34 | |
| | WB | Left Thru | 105' | | 160 | 164 | 166 | | 167 | 170 | | 119 | 121 | 124 | | 126 | 128 | |
| | | Thru | *460'* | | 112 | 113 | 114 | | 116 | 117 | | 85 | 86 | 90 | | 89 | 93 | |
| | | Right | *50'* | | 35 | 36 | 36 | | 36 | 37 | | 32 | 32 | 34 | | 33 | 35 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 7: 95th Percentile Queue Lengths

6. S 25th Street (SR 2012) & Wood Avenue (SR 2024) / US 22 East Ramp

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| S. 25th Street (SR 2012) | NB | Left | 300' | | 150 | 122 | 122 | | 125 | 124 | | 129 | 96 | 96 | | 98 | 98 | |
| | | Thru | *378'* | | 396 | 372 | 384 | | 385 | 398 | | 451 | 480 | 484 | | 504 | 504 | |
| | | Right | 420' | | 55 | 52 | 60 | | 53 | 61 | | 62 | 64 | 67 | | 66 | 69 | |
| | SB | Left | 265' | | 11 | 10 | 10 | | 10 | 10 | | 30 | 26 | 26 | | 27 | 27 | |
| | | Thru | *630'* | | 368 | 351 | 362 | | 364 | 375 | | 359 | 380 | 382 | | 395 | 395 | |
| | | Right | 280' | | 70 | 66 | 68 | N/A | 68 | 70 | N/A | 94 | 98 | 99 | N/A | 101 | 101 | N/A |
| US 22 East Ramps | EB | Left Thru | *1,075'* | | 228 | 231 | 260 | | 236 | 264 | | 373 | 337 | 359 | | 344 | 372 | |
| | | Right | *975'* | | 88 | 87 | 85 | | 88 | 86 | | 93 | 87 | 87 | | 88 | 88 | |
| Wood Avenue (SR 2024) | WB | Left | 400' | | 164 | 179 | 180 | | 182 | 182 | | 106 | 98 | 112 | | 101 | 116 | |
| | | Thru Right | *630'* | | 19 | 20 | 20 | | 20 | 20 | | 29 | 27 | 27 | | 27 | 27 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

# Table 7: 95th Percentile Queue Lengths

7. Northampton Street (SR 0248) & Wood Avenue (SR 2024)

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Wood Avenue (SR 2024) | NB | Left Thru | *330'* | | 208 | 208 | 246 | | 213 | 250 | | 275 | 276 | 293 | | 281 | 297 | |
| | | Right | 130' | | 208 | 208 | 246 | | 213 | 250 | | 275 | 276 | 293 | | 281 | 297 | |
| | SB | Left Thru Right | *4,800'* | | 215 | 216 | 222 | | 220 | 227 | | 145 | 147 | 193 | | 148 | 194 | |
| Northampton Street (SR 0248) | EB | Left | *510'* | | 23 | 23 | 37 | N/A | 25 | 39 | N/A | 31 | 31 | 41 | N/A | 33 | 43 | N/A |
| | | Thru Right | *510'* | | 63 | 63 | 74 | | 67 | 77 | | 117 | 118 | 127 | | 124 | 132 | |
| | WB | Left | 135' | | 20 | 20 | 22 | | 21 | 23 | | 39 | 40 | 43 | | 41 | 45 | |
| | | Thru Right | *335'* | | 94 | 95 | 115 | | 100 | 121 | | 165 | 167 | 182 | | 176 | 191 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

# Table 7: 95th Percentile Queue Lengths

8. Northampton Street (SR 0248) & S. 25th Street (SR 2012) / Nazareth Road (SR 0248)

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| S. 25th Street (SR 2012) | NB | Left | 250' | | 18 | 19 | 19 | | 20 | 20 | | 19 | 20 | 21 | | 20 | 21 | |
| | | Thru | 250' | | 128 | 125 | 128 | | 129 | 132 | | 207 | 209 | 215 | | 216 | 222 | |
| | | Thru Right | *615'* | | 128 | 125 | 128 | | 129 | 132 | | 206 | 209 | 215 | | 215 | 221 | |
| Nazareth Road (SR 0248) | SB | Left | *325'* | | 38 | 39 | 45 | | 41 | 46 | | 88 | 89 | 98 | | 94 | 103 | |
| | | Thru Right | 335' | | 214 | 218 | 221 | N/A | 225 | 228 | N/A | 285 | 294 | 304 | N/A | 306 | 316 | N/A |
| Northampton Street | EB | Thru Right | *310'* | | 91 | 92 | 95 | | 94 | 97 | | 111 | 112 | 112 | | 114 | 114 | |
| | | | *310'* | | 78 | 78 | 77 | | 79 | 78 | | 58 | 58 | 57 | | 60 | 59 | |
| Northampton Street (SR 0248) | WB | Thru | *500'* | | 135 | 135 | 136 | | 138 | 139 | | 156 | 157 | 162 | | 161 | 165 | |
| | | Right | *500'* | | 147 | 150 | 157 | | 154 | 160 | | 219 | 220 | 232 | | 223 | 236 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 7: 95th Percentile Queue Lengths

9. Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Nazareth Road (SR 0248) | NB | Thru | *355' x 2* | | 221 | 223 | 226 | | 231 | 234 | | 372 | 389 | 403 | | 402 | 417 | |
| | | Thru Right | | | 232 | 234 | 237 | | 243 | 246 | | 400 | 423 | 442 | | 440 | 462 | |
| | SB | Left Thru | *922'* | | 142 | 143 | 148 | | 151 | 156 | | 252 | 266 | 269 | | 276 | 285 | |
| | | Thru Right | | | 142 | 144 | 149 | *N/A* | 152 | 157 | *N/A* | 250 | 260 | 263 | *N/A* | 267 | 271 | *N/A* |
| Sales Street (SR 2040) | EB | Left Thru Right | *160'* | | 175 | 176 | 179 | | 179 | 182 | | 125 | 120 | 122 | | 122 | 124 | |
| US 22 West Ramps | WB | Left Thru Right | *295'* | | 282 | 284 | 285 | | 291 | 291 | | 572 | 532 | 532 | | 551 | 553 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 7: 95th Percentile Queue Lengths

10. Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Park Avenue | NB | Left Thru Right | *375'* | | 21 | 22 | 22 | N/A | 23 | 23 | N/A | 32 | 33 | 34 | N/A | 34 | 34 | N/A |
| Tatamy Road | SB | Left Thru Right | *1,300'* | | 37 | 38 | 39 | | 40 | 41 | | 63 | 64 | 65 | | 66 | 68 | |
| Mall Entrance | EB | Left | 50' | | 0 | 0 | 0 | | 0 | 0 | | 9 | 9 | 9 | | 9 | 10 | |
| | | Thru Right | *625'* | | 0 | 0 | 0 | | 0 | 0 | | 2 | 2 | 2 | | 2 | 2 | |
| Hackett Avenue (SR 2017) | WB | Left | 120' | | 4 | 4 | 4 | | 4 | 4 | | 13 | 13 | 14 | | 14 | 15 | |
| | | Thru Right | *770'* | | 18 | 18 | 18 | | 18 | 18 | | 42 | 43 | 46 | | 47 | 49 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 7: 95th Percentile Queue Lengths

11. Wood Avenue (SR 2017) & US 22 East On Ramp

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Wood Avenue (SR 2017) | EB | Left | 50' | 230' | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | | Thru Thru | *570'* | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | WB | Thru Thru | *118'* | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Right | *90'* | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

12. Wood Avenue (SR 2017) & US 22 East Off Ramp

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| US 22 East Off-Ramp | NB | Right | 760' | | 97 | 99 | 101 | | 105 | 107 | | 121 | 125 | 131 | | 134 | 140 | |
| Wood Avenue (SR 2017) | EB | Thru Thru | *325'* | | 0 | 0 | 0 | *N/A* | 0 | 0 | *N/A* | 0 | 0 | 0 | *N/A* | 0 | 0 | *N/A* |
| | WB | Thru Thru | *205'* | | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 8: 50th Percentile Queue Lengths

5. Wood Avenue (SR 2017) & N. 13th Street (SR 2019)

| Peak Hour | | | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | Existing Storage (1) | Proposed Storage (2) | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| N. 13th Street (SR 2019) | NB | Left | 230' | | 104 | 105 | 114 | | 112 | 120 | | 74 | 75 | 78 | | 78 | 81 | |
| | | Thru Right | *230'* | | 55 | 56 | 56 | | 57 | 58 | | 79 | 80 | 81 | | 85 | 86 | |
| | SB | Left | 105' | | 39 | 39 | 39 | | 41 | 40 | | 39 | 40 | 41 | | 41 | 42 | |
| | | Thru | *1,115'* | | 70 | 71 | 71 | | 73 | 73 | | 107 | 110 | 112 | | 117 | 120 | |
| | | Right | 285' | | 214 | 218 | 228 | | 231 | 243 | | 382 | 392 | 411 | | 420 | 435 | |
| Wood Avenue (SR 2017) | EB | Left | 115' | | 170 | 172 | 173 | N/A | 177 | 179 | N/A | 144 | 146 | 153 | N/A | 153 | 160 | N/A |
| | | Thru | *115'* | | 62 | 63 | 63 | | 64 | 65 | | 47 | 48 | 49 | | 50 | 51 | |
| | | Right | 155' | | 19 | 20 | 20 | | 20 | 20 | | 18 | 18 | 18 | | 18 | 19 | |
| | WB | Left Thru | 105' | | 89 | 91 | 92 | | 93 | 95 | | 66 | 67 | 69 | | 70 | 71 | |
| | | Thru | *460'* | | 112 | 113 | 114 | | 116 | 117 | | 85 | 86 | 90 | | 89 | 93 | |
| | | Right | *50'* | | 35 | 36 | 36 | | 36 | 37 | | 32 | 32 | 34 | | 33 | 35 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

# Table 8: 50th Percentile Queue Lengths

6. S 25th Street (SR 2012) & Wood Avenue (SR 2024) / US 22 East Ramp

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| S. 25th Street (SR 2012) | NB | Left | 300' | | 84 | 68 | 68 | | 69 | 69 | | 72 | 53 | 53 | | 54 | 54 | |
| | | Thru | *378'* | | 263 | 244 | 254 | | 254 | 264 | | 307 | 331 | 334 | | 350 | 350 | |
| | | Right | 420' | | 31 | 29 | 33 | | 30 | 34 | | 34 | 36 | 37 | | 37 | 38 | |
| | SB | Left | 265' | | 6 | 6 | 6 | | 6 | 6 | | 17 | 14 | 14 | | 15 | 15 | |
| | | Thru | *630'* | | 241 | 227 | 236 | | 237 | 246 | | 234 | 250 | 252 | | 262 | 262 | |
| | | Right | 280' | | 39 | 37 | 38 | N/A | 38 | 39 | N/A | 52 | 55 | 55 | N/A | 56 | 56 | N/A |
| US 22 East Ramps | EB | Left Thru | *1,075'* | | 133 | 135 | 157 | | 139 | 160 | | 245 | 216 | 234 | | 222 | 244 | |
| | | Right | *975'* | | 49 | 48 | 47 | | 49 | 48 | | 51 | 48 | 48 | | 49 | 49 | |
| Wood Avenue (SR 2024) | WB | Left | 400' | | 91 | 99 | 100 | | 101 | 101 | | 59 | 55 | 62 | | 56 | 65 | |
| | | Thru Right | *630'* | | 11 | 11 | 11 | | 11 | 11 | | 16 | 15 | 15 | | 15 | 15 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

# Table 8: 50th Percentile Queue Lengths

7. Northampton Street (SR 0248) & Wood Avenue (SR 2024)

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Wood Avenue (SR 2024) | NB | Left Thru | *330'* | | 118 | 119 | 147 | | 122 | 150 | | 169 | 169 | 182 | | 173 | 186 | |
| | | Right | 130' | | 118 | 119 | 147 | | 122 | 150 | | 169 | 169 | 182 | | 173 | 186 | |
| | SB | Left Thru Right | *4,800'* | | 124 | 124 | 129 | | 127 | 133 | | 80 | 82 | 108 | | 82 | 109 | |
| Northampton Street (SR 0248) | EB | Left | *510'* | | 13 | 13 | 20 | N/A | 14 | 22 | N/A | 17 | 17 | 23 | N/A | 18 | 24 | N/A |
| | | Thru Right | *510'* | | 35 | 35 | 41 | | 37 | 43 | | 65 | 66 | 71 | | 69 | 74 | |
| | WB | Left | 135' | | 11 | 11 | 12 | | 12 | 13 | | 22 | 22 | 24 | | 23 | 25 | |
| | | Thru Right | *335'* | | 52 | 53 | 64 | | 56 | 67 | | 92 | 93 | 101 | | 98 | 106 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

# Table 8: 50th Percentile Queue Lengths

8. Northampton Street (SR 0248) & S. 25th Street (SR 2012) / Nazareth Road (SR 0248)

| Peak Hour | | | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | Existing Storage (1) | Proposed Storage (2) | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| S. 25th Street (SR 2012) | NB | Left | 250' | | 10 | 10 | 11 | | 11 | 11 | | 11 | 11 | 12 | | 11 | 12 | |
| | | Thru | 250' | | 71 | 70 | 71 | | 72 | 73 | | 118 | 120 | 124 | | 124 | 129 | |
| | | Thru Right | *615'* | | 71 | 70 | 71 | | 72 | 73 | | 117 | 119 | 124 | | 124 | 128 | |
| Nazareth Road (SR 0248) | SB | Left | *325'* | | 21 | 22 | 25 | | 23 | 26 | | 49 | 50 | 55 | | 52 | 57 | |
| | | Thru Right | 335' | | 123 | 126 | 129 | *N/A* | 131 | 134 | *N/A* | 176 | 183 | 191 | *N/A* | 192 | 200 | *N/A* |
| Northampton Street | EB | Thru Right | *310'* | | 51 | 51 | 53 | | 52 | 54 | | 62 | 62 | 62 | | 63 | 63 | |
| | | | *310'* | | 43 | 43 | 43 | | 44 | 44 | | 32 | 32 | 32 | | 33 | 33 | |
| Northampton Street (SR 0248) | WB | Thru | *500'* | | 75 | 75 | 76 | | 77 | 77 | | 87 | 87 | 90 | | 89 | 92 | |
| | | Right | *500'* | | 82 | 84 | 87 | | 86 | 89 | | 127 | 127 | 136 | | 130 | 139 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 8: 50th Percentile Queue Lengths

9. Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Nazareth Road (SR 0248) | NB | Thru | *355' x 2* | | 128 | 129 | 132 | | 135 | 137 | | 244 | 257 | 268 | | 267 | 280 | |
| | | Thru Right | | | 136 | 138 | 140 | | 144 | 147 | | 266 | 284 | 300 | | 298 | 316 | |
| | SB | Left Thru | *922'* | | 79 | 80 | 82 | | 84 | 86 | | 151 | 162 | 164 | | 169 | 176 | |
| | | Thru Right | | | 79 | 80 | 83 | *N/A* | 85 | 87 | *N/A* | 150 | 157 | 159 | *N/A* | 163 | 166 | *N/A* |
| Sales Street (SR 2040) | EB | Left Thru Right | *160'* | | 97 | 98 | 99 | | 99 | 101 | | 69 | 67 | 68 | | 68 | 69 | |
| US 22 West Ramps | WB | Left Thru Right | *295'* | | 174 | 176 | 176 | | 181 | 181 | | 406 | 373 | 373 | | 389 | 391 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 8: 50th Percentile Queue Lengths

10. Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Park Avenue | NB | Left Thru Right | *375'* | | 12 | 12 | 12 | | 13 | 13 | | 18 | 18 | 19 | | 19 | 19 | |
| Tatamy Road | SB | Left Thru Right | *1,300'* | | 21 | 21 | 22 | | 22 | 23 | | 35 | 35 | 36 | | 37 | 38 | |
| Mall Entrance | EB | Left | 50' | | 0 | 0 | 0 | N/A | 0 | 0 | N/A | 5 | 5 | 5 | N/A | 5 | 5 | N/A |
| | | Thru Right | *625'* | | 0 | 0 | 0 | | 0 | 0 | | 1 | 1 | 1 | | 1 | 1 | |
| Hackett Avenue (SR 2017) | WB | Left | 120' | | 2 | 2 | 2 | | 2 | 2 | | 7 | 7 | 8 | | 8 | 8 | |
| | | Thru Right | *770'* | | 10 | 10 | 10 | | 10 | 10 | | 23 | 24 | 25 | | 26 | 27 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

**PROPOSED WAREHOUSE DEVELOPMENT AT 1525 WOOD AVENUE**

*ROADWAY IMPROVEMENT CONCEPT PLAN - SR 2017*

*WILSON BOROUGH/PALMER TOWNSHIP/EASTON CITY, NORTHAMPTON COUNTY*

Proposed Asphalt Pavement

Proposed Mast Arm w/Overhead Lane Use Control Signing

KCI TECHNOLOGIES

# APPENDIX A

## *Correspondence*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue

KCI TECHNOLOGIES
ISO 9001:2015 CERTIFIED
ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS
5001 Louise Drive, Suite 201 • Mechanicsburg, PA 17055 • Phone 717-691-1340 • Fax 717-691-3470

June 17, 2024

Ms. Marah Haddad
PennDOT Engineering District 5-0
1002 Hamilton Street
Allentown, PA 18101

Re: Highway Occupancy Permit Application No. 320663, Cycle No. 2 – Returned for Revisions
TIS for proposed Warehouse Development at 1525 Wood Avenue
Easton Wood Avenue PropCo, LLC
KCI Project No. 222209756

Dear Ms. Haddad:

KCI Technologies, Inc. has prepared this response letter to address the Department's comments dated January 25, 2024 regarding the revised TIS for the proposed Warehouse Development at 1525 Wood Avenue in Wilson Borough, Palmer Township, and Easton Township of Northampton County.

## Form Letter Notes

1. ** Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found in the plan set. A copy of these comments and any previously submitted plans should also be provided. * Additional comments may follow upon review of the resubmitted application. If you have any questions pertaining to the technical aspects of this review, please contact the Department. * For guidance on Highway Occupancy Permit applications refer to PA Code Title 67, Chapter 441, Chapter 459 and PennDOT Publication 282. This will help expedite the review."*

   Acknowledged. Note that since the Cycle 2 TIS submission, the land use has been confirmed to be the 1,006,880 SF high-cube fulfillment center warehouse, which was the land use in the original Cycle 1 TIS submission. The TIS has been revised to address PennDOT Cycle 2 TIS comments and change the land use back to the larger fulfilment center warehouse layout that was originally documented in the TIS scoping application and Cycle 1 TIS.

## General

1. *You are reminded to provide Borough, City, and Township review comments and/or approvals with your resubmission. The TIS cannot be approved without their review of the report and proposed roadway improvements. The applicant should forward the Department's review comments to date to the municipalities for their consideration.*

The Department's review comments to date were included in the Cycle 2 TIS submission to the municipalities. They have declined to review based on the inconsistency between the land use in the current site/LD plan vs. the Cycle 2 TIS. The Cycle 3 TIS addresses all Department comments from Cycle 2 and changes the land use back to the larger high-cube fulfillment center warehouse layout. This Cycle 3 TIS is being submitted concurrently to the Department and municipalities for review.

## Application

1. *Please provide proof of ownership in the form of a deed or agreement of sale to verify that the Highway Occupancy Permit application for the proposed driveway is in the name of the current property owner.*

   To be provided in a later application cycle.

2. *Show the estimated number of trips and vehicles that will use the proposed driveways (separately) on an average day in the driveway Work IDs. One entering trip and one exiting trip equal one vehicle.*

   Revised Word IDs to include updated driveway ADT.

## Transportation Impact Study/Transportation Impact Assessment

1. *You are reminded that all intersections where truck turning movements are anticipated must be able to accommodate the truck turning movements without encroaching on opposing lanes of traffic (i.e., site driveways, Wood Avenue/Hackett Avenue, Wood Avenue/US 22 East On-Ramp, etc.).*

   Acknowledged – turning movement exhibits to be provided in a subsequent submission after TIS approval.

2. *Add shoulder widths to the Unsignalized Field Measurements table in Appendix H.*

   Shoulder widths have been added as requested.

3. *The capacity analyses for the EB Route 22 off-ramp/Wood Avenue intersection (Int. #12) shows the ramp approach as stop controlled, but the conceptual improvement plan shows the stop control to be removed. Please revise the improvement plan to maintain the ramp stop-control. Also, provide directional count information identifying the amount of ramp traffic turning left, though, and right at the N. 13th Street intersection.*

   Volume data for Intersection #12 was obtained by volume balancing between Wood Avenue (SR 2017) & US 22 West Off Ramp (Intersection #4) and Wood Avenue (SR 2017) & US 22 East On-Ramp (Intersection #11). A note explaining such is added to Figure 3B. Concept plan was revised to maintain ramp stop control.

4. *Revise Table 7 to correctly label the Weekday PM Peak Hour Columns.*

   Revised.

5. *Add the Intersection #12 peak hour information to Figure 3B.*

   Volume data for Intersection #12 was obtained by volume balancing between Wood Avenue (SR 2017) & US 22 West Off Ramp (Intersection #4) and Wood Avenue (SR 2017) & US 22 East On-Ramp (Intersection #11). No turning movement count data is provided. A note explaining such is added to Figure 3B.

6. *Provide initial queue observations for all study area intersections for both AM and PM peak hour periods. Incorporate any initial queue in the capacity analyses. Include peak hour field observations to document the initial queue per approach in Appendix H. Also include a discussion of the initial queue observations in the Traffic Count Data section of the study.*

   Following peak hour field observations, initial queue observations are not warranted for all study area intersections. Initial queues were observed at Wood Avenue (SR 2017) & N. 13th Street (SR 2019) (Intersection #5) only. These field observations are included in H.

7. *The left turn lane warrant analyses for Wood Avenue at Hackett Avenue show that a left turn lane is warranted in the AM and PM peak hours. Please add this left turn lane to the conceptual improvement plans.*

   The eastbound left turn lane that is warranted at Hackett Avenue (SR 2017) & Wood Avenue (SR 2024)/(SR 2017) (Intersection #2) is infeasible due to the existing roadway geometry. This is described in the recommended improvements section of the report and a concept plan to showing the eastbound left turn lane infeasibility is included in Appendix I.

8. *The trip generation table includes a footnote indicating that delivery service provider vans are expected to account for 68% of total trips. Include this ecommerce data in Appendix B for the Department to review.*

   The trip generation has been revised. The revised trip generation no longer includes delivery service provider vans.

9. *The following comments pertain to the Conceptual Improvement Plans:*

   a. *Provide a minimum 4-ft. shoulder adjacent to proposed right turn lanes.*

      4' shoulder is depicted on the revised concept plan for uncurbed right turn lanes.

   b. *Increase the Hackett Avenue right turn bay taper for the site driveway to 80-feet.*

See revised concept plan – increased as requested.

c. *Since the estimated Hackett Avenue left turn queue length at Wood Avenue is expected to be 171-feet, the proposed eastbound Hackett Avenue right turn lane should be extended to 175-feet to allow right turning vehicles the ability to access the right turn lane without being blocked by the left turn queue.*

The anticipated 95th percentile Hackett Avenue left turn queue length at Wood Avenue is 130'. The proposed southbound Hackett Avenue right turn lane was extended to 150' accordingly.

d. *The left and right turn Hackett Avenue approach lanes to Wood Avenue must be separated by a concrete channelization island. Two lane, stop-controlled approaches present a safety issue with vehicles side-by-side blocking each other's sight distance.*

Concrete channelization island is depicted on the revised concept plan. It will be designed to address sight distance concerns.

e. *Provide an exclusive eastbound Wood Avenue left turn lane at the Hackett Avenue intersection.*

An exclusive eastbound left turn lane at Hackett Avenue (SR 2017) & Wood Avenue (SR 2024)/(SR 2017) is infeasible due to the existing roadway geometry and impacts to the US 22 bridge piers. Additional commentary and concept sketches were added to the report.

f. *Label the lane transition lengths for the proposed left turn lanes on the plans.*

Will be addressed in HOP/design.

g. *Adjust the Wood Avenue left turn storage at the proposed site driveway to end prior to the edge of driveway. As shown, the storage extends into the driveway intersection.*

Adjusted.

Should you have any questions regarding the revised TIS or response to comments letter, please contact me.

Regards,

Ian Preston

Ian Preston, PE
Project Engineer
KCI Technologies Inc.

pennsylvania
DEPARTMENT OF TRANSPORTATION

**Date:** 01/25/2024

**Subject:** Highway Occupancy Permit Application No. 320663, Cycle No.2 - Returned For Revisions

**To:** Easton Wood Avenue PropCo, LLC
8801 River Crossing Blvd
Suite 300
Indianapolis, IN 46240

**From:** PennDOT Engineering District 5-0
1002 Hamilton Street
Allentown, PA 18101

Dear Applicant,

PennDOT has reviewed your application for completeness, consistency and compliance with applicable Department Regulations. This review has identified issues that must be addressed in order for our review to continue.

The Department's review comments are attached.

Once the comments have been addressed, please resubmit the application and associated material for further review.

Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found. This will help expedite the review. For guidance on HOP applications refer to 67 PA Code, Chapter 441, Chapter 459 and PennDOT Publication 282, "Highway Occupancy Permit Guidelines". Additional comments may follow upon review of the resubmitted application.

If you have any questions regarding this matter, you may contact Marah Haddad, District Permit Manager, at (610) 871-4467.

pennsylvania
DEPARTMENT OF TRANSPORTATION

**Response Comments**
**Date:** 01/25/2024
**Application Number:** 320663, Cycle No.2

**Form Letter Notes**

(1) * Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found in the plan set. A copy of these comments and any previously submitted plans should also be provided.

* Additional comments may follow upon review of the resubmitted application. If you have any questions pertaining to the technical aspects of this review, please contact the Department.

* For guidance on Highway Occupancy Permit applications refer to PA Code Title 67, Chapter 441, Chapter 459 and PennDOT Publication 282. This will help expedite the review."

**General**

(1) You are reminded to provide Borough, City and Township review comments and/or approvals with your resubmission. The TIS cannot be approved without their review of the report and proposed roadway improvements. The applicant should forward the Department's review comments to date to the municipalities for their consideration.

**Application**

(1) Please provide proof of ownership in the form of a deed or agreement of sale to verify that the Highway Occupancy Permit application for the proposed driveway is in the name of the current property owner.
(2) Show the estimated number of trips and vehicles that will use the proposed driveways (separately) on an average day in the driveway Work IDs. One entering trip and one exiting trip equal one vehicle.

**Transportation Impact Study/Transportation Impact Assessment**

(1) You are reminded that all intersections where truck turning movement are anticipated must be able to accommodate the truck turning movements without encroaching on opposing lanes of traffic (i.e., site driveways, Wood Avenue/Hackett Avenue, Wood Avenue/US 22 East On-Ramp, etc.).
(2) Add shoulder widths to the Unsignalized Field Measurements table in Appendix H.
(3) The capacity analyses for the EB Route 22 off-ramp/Wood Avenue intersection (Int. #12) shows the

ramp approach as stop controlled, but the conceptual improvement plan shows the stop control to be removed. Please revise the improvement plan to maintain the ramp stop-control. Also, provide directional count information identifying the amount of ramp traffic turning left, through and right at the N. 13th Street intersection.

(4) Revise Table 7 to correctly label the Weekday PM Peak Hour columns.

(5) Add the Intersection #12 peak hour information to Figure 3B.

(6) Provide initial queue observations for all study area intersections for both AM and PM peak hour periods. Incorporate any initial queue in the capacity analyses. Include peak hour field observations to document the initial queues per approach in Appendix H. Also include a discussion of the initial queue observations in the Traffic Count Data section of the study.

(7) The left turn lane warrant analyses for Wood Avenue at Hackett Avenue show that a left turn lane is warranted in the AM and PM peak hours. Please add this left turn lane to the conceptual improvement plans.

(8) The trip generation table includes a footnote indicating that delivery service provider vans are expected to account for 68% of total trips. Include this ecommerce data in Appendix B for Department review.

(9) The following comments pertain the Conceptual Improvement Plans:

Provide a minimum 4-ft. shoulder adjacent to proposed right turn lanes.

Increase the Hackett Avenue right turn bay taper for the site driveway to 80-feet.

Since the estimated Hackett Avenue left turn queue length at Wood Avenue is expected to be 171-feet, the proposed eastbound Hackett Avenue right turn lane should be extended to 175-feet to allow right turning vehicles the ability to access the right turn lane without being blocked by the left turn queue.

The left and right turn Hackett Avenue approach lanes to Wood Avenue must be separated by a concrete channelization island. Two lane, stop-controlled approaches present a safety issue with vehicles side-by-side blocking each others sight distance.

Provide an exclusive eastbound Wood Avenue left turn lane at the Hackett Avenue intersection.

Label the lane transition lengths for the proposed left turn lanes on the plans.

Adjust the Wood Avenue left turn storage at the proposed site driveway to end prior to the edge of driveway. As shown, the storage extends into the driveway intersection.

pennsylvania
DEPARTMENT OF TRANSPORTATION

**Date:** 11/06/2023

**Subject:** Highway Occupancy Permit Application No. 320663, Cycle No.1 - Returned For Revisions

**To:** Easton Wood Avenue PropCo, LLC
8801 River Crossing Blvd
Suite 300
Indianapolis, IN 46240

**From:** PennDOT Engineering District 5-0
1002 Hamilton Street
Allentown, PA 18101

Dear Applicant,

PennDOT has reviewed your application for completeness, consistency and compliance with applicable Department Regulations. This review has identified issues that must be addressed in order for our review to continue.

The Department's review comments are attached.

Once the comments have been addressed, please resubmit the application and associated material for further review.

Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found. This will help expedite the review. For guidance on HOP applications refer to 67 PA Code, Chapter 441, Chapter 459 and PennDOT Publication 282, "Highway Occupancy Permit Guidelines". Additional comments may follow upon review of the resubmitted application.

If you have any questions regarding this matter, you may contact Marah Haddad, District Permit Manager, at (610) 871-4467.

pennsylvania
DEPARTMENT OF TRANSPORTATION

**Response Comments**
**Date:** 11/06/2023
**Application Number:** 320663, Cycle No.1

**Form Letter Notes**

(1) * Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found in the plan set. A copy of these comments and any previously submitted plans should also be provided.

* Additional comments may follow upon review of the resubmitted application. If you have any questions pertaining to the technical aspects of this review, please contact the Department.

* For guidance on Highway Occupancy Permit applications refer to PA Code Title 67, Chapter 441, Chapter 459 and PennDOT Publication 282. This will help expedite the review."

**General**

(1) Please provide Borough. City and Township review comments and/or approvals with your resubmission.
(2) Include a complete site plan for the proposed development as a separate attachment in EPS. The site plan should show the entire property, proposed buildings, parking areas, internal traffic circulation, site access points, existing roads, topography, etc.

**Application**

(1) Enter the scoping application number in EPS.
(2) List the classification of the proposed driveways in the Work IDs.
(3) Revise the Work IDs for the proposed driveways to show the segment/offset of the driveway centerline. Also, show the estimated number of trips and vehicles that will use the proposed driveway (separately) on an average day in the driveway Work IDs. One entering trip and one exiting trip equal one vehicle.
(4) List the proposed roadway improvements as a separate Work ID from the proposed driveways in the Work Summary & Locations section and select the segment and offset of the proposed driveway/local road centerline for this item. Only the proposed roadway improvements item should have a segment/offset range.
(5) Please provide proof of ownership in the form of a deed or agreement of sale to verify that the Highway Occupancy Permit application for the proposed driveway is in the name of the current

property owner.

**Transportation Impact Study/Transportation Impact Assessment**

(1) Correct the Traffic Count Data section of the report to state that the traffic counts were conducted on February 22, 2023.

(2) Confirm that initial queues were considered in the capacity analyses. Include peak hour field observations to document the initial queues per approach.

(3) Figures 5A through 7B are missing from the report. Please provide.

(4) Provide a figure showing the intersection controls and lane configurations for all study intersections.

(5) Provide Level of Service figures.

(6) Ensure the traffic volumes shown on the figures match those used in the capacity analyses. For example, Figure 3A shows different volumes at intersections #1, #3 and #7.

(7) The capacity analyses includes study intersection #11 (Wood Avenue/US 22 East Ramps). Revise the report and figures to include/identify this intersection number.

(8) Capacity analyses for intersection #5 (Wood Avenue/13th Street) show separate westbound through and right turn lanes, however this approach should be configured as a shared through/right lane due to the short length of the right turn lane. Similarly, intersection #7 (Northampton Street/Wood Avenue) shows a separate northbound right turn lane when it should be a shared left/through/right lane. Please revise the analyses accordingly.

(9) Use a maximum peak hour factor of 0.90 for the proposed driveway intersections.

(10) The level of service summary tables for the study area intersections show numerous instances where a movement is designated as free-flow when it is not. There are also instances where right turn free-flow movements are not identified. Please revise the tables accordingly.

(11) Provide lane widths, shoulder widths and approach grades for all unsignalized intersections, including the approaches to proposed driveways. This can be shown on sketches in the appendix.

(12) Include left turn lane warrant investigations for the Hackett Avenue site driveway in Appendix E.

(13) Include required and available truck sight distances at the proposed site driveways in Table 3.

(14) Confirm with the municipalities in the area that there are no other area developments that could affect the study intersections. Include a statement in the TIS if there are none. Otherwise, include other area development traffic in the no-build and build analyses.

(15) Provide level of service and queue length summary tables in the Executive Summary section of the report.

(16) Revise the Crash Analysis to include a discussion of any crash patterns and any measures that

could be taken to correct safety issues.

(17) Provide conceptual improvement plans illustrating the proposed improvements, legal right-of-way, existing lanes and shoulders, existing driveways, etc. The traffic impact study cannot be approved if the recommended improvements are not feasible. Be sure to show property lines and label property owners for all areas adjacent to any proposed improvements. Note that additional comments will be provided following review of the improvement plans.

(18) Provide analyses of the Wood Avenue/US 22 East Off-Ramp intersection in the report.

(19) The study shows that no truck traffic is anticipated to/from the west on Hackett Avenue. However, a GPS search for destinations north and west of the site produces preferred travel route that uses Hackett Avenue to the west via Tatamy Road and Route 33. Provide justification for the assumption that no truck traffic will utilize Hackett Avenue west of the site.

(20) The Hackett Avenue approach to Wood Avenue degrades from a LOS D to a LOS F due to the proposed development. This degradation must be mitigated.

(21) Be advised that all intersections where truck turning movement are anticipated must be able to accommodate the truck turning movements without encroaching on opposing lanes of traffic (i.e., site driveways, Wood Avenue/Hackett Avenue, Wood Avenue/US 22 East On-Ramp, etc.).

KCI TECHNOLOGIES

ISO 9001:2015 CERTIFIED

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

5001 Louise Drive, Suite 201 • Mechanicsburg, PA 17055 • Phone 717-691-1340 • Fax 717-691-3470

December 27, 2023

Ms. Marah Haddad
PennDOT Engineering District 5-0
1002 Hamilton Street
Allentown, PA. 18101

Re: Highway Occupancy Permit Application No. 320663, Cycle No.1 – Returned for Revisions
TIS for proposed Warehouse Development at 1525 Wood Avenue
Easton Wood Avenue PropCo, LLC.
KCI Project No. 222209756

Dear Ms. Haddad:

KCI Technologies, Inc. has prepared this response letter to address the Department's comments dated November 6, 2023 regarding the revised TIS scoping application for the proposed Warehouse Development at 1525 Wood Avenue in Wilson Borough, Palmer Township, and Easton Township of Northampton County.

## Form Letter Notes

1. ** Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found in the plan set. A copy of these comments and any previously submitted plans should also be provided. * Additional comments may follow upon review of the resubmitted application. If you have any questions pertaining to the technical aspects of this review, please contact the Department. * For guidance on Highway Occupancy Permit applications refer to PA Code Title 67, Chapter 441, Chapter 459 and PennDOT Publication 282. This will help expedite the review."*

   Acknowledged.

## General

1. *Please provide Borough. City and Township review comments and/or approvals with your resubmission.*

   Municipal correspondence and/or approvals will be included in the Cycle 3 TIS submission. The municipalities have thus far declined to provide review comments on the TIS that was submitted concurrently with the Cycle 1 PennDOT TIS submission.

2. *Include a complete site plan for the proposed development as a separate attachment in EPS. The site plan should show the entire property, proposed buildings, parking areas, internal traffic circulation, site access points, existing roads, topography, etc.*

   The revised site plan for the proposed development is included as a separate attachment in EPS. Note that the proposed land use is now a 221,256 SF high-cube fulfillment center warehouse (sort). A sort facility is a fulfillment center that ships out smaller items, requiring extensive sorting, typically by manual means. Despite the significant reduction in building size, the anticipated site-generated peak hour traffic is higher for one of the peak hours.

   Peak hour traffic will now consist of vans (freight/delivery) and passenger vehicles (employees). No semitrailer/heavy truck traffic is anticipated during the peak hours. The access driveways and proposed roadway improvements will still be designed to accommodate WB-62 semitrailer deliveries during off-peak times.

## Application

1. *Enter the scoping application number in EPS.*

   Scoping number S0520220124 was linked in EPS.

2. *List the classification of the proposed driveways in the Work IDs.*

   Both driveways are listed as low volume driveways in the Work and Location Details.

3. *Revise the Work IDs for the proposed driveways to show the segment/offset of the driveway centerline. Also, show the estimated number of trips and vehicles that will use the proposed driveway (separately) on an average day in the driveway Work IDs. One entering trip and one exiting trip equal one vehicle.*

   EPS Application was revised as requested.

4. *List the proposed roadway improvements as a separate Work ID from the proposed driveways in the Work Summary & Locations section and select the segment and offset of the proposed driveway/local road centerline for this item. Only the proposed roadway improvements item should have a segment/offset range.*

   EPS Application was revised as requested.

5. *Please provide proof of ownership in the form of a deed or agreement of sale to verify that the Highway Occupancy Permit application for the proposed driveway is in the name of the current property owner.*

   Deed will be provided in Cycle 3 TIS submission.

## Transportation Impact Study/Transportation Impact Assessment

1. *Correct the Traffic Count Data section of the report to state that the traffic counts were conducted on February 22, 2023.*

   Revised.

2. *Confirm that initial queues were considered in the capacity analyses. Include peak hour field observations to document the initial queues per approach.*

   Field observations were completed December 14th, 2023 from 3:15 PM to 3:45 PM at intersection 5, Wood Avenue (SR 2017) & 13th Street (SR 2019). The observed queuing of the eastbound left turn lane is noted in Appendix H. For a conservative analysis, the maximum number of vehicles observed in the initial queue was used to calculate $d_3$, the initial queue delay. The initial queue delay was added to the Vistro scenarios during the weekday afternoon peak hour.

3. *Figures 5A through 7B are missing from the report. Please provide.*

   All figures are provided in the Cycle 2 TIS.

4. *Provide a figure showing the intersection controls and lane configurations for all study intersections.*

   Existing lane use configuration figure has been added.

5. *Provide Level of Service Figures*

   Level of Service tables are provided in Appendix G and immediately following the report. Level of service figures are provided in the Vistro reports. More detailed LOS figures are not a specific

requirement of the Publication 282 Appendix A TIS guidelines and are no longer required in most PennDOT Districts as they provide less detail than LOS tables and are not used by reviewers to verify operations and mitigation requirements.

6. *Ensure the traffic volumes shown on the figures match those used in the capacity analyses. For example, Figure 3A shows different volumes at intersections #1, #3, and #7.*

   Revised.

7. *The capacity analyses includes study intersection #11 (Wood Avenue/US 22 East Ramps). Revise the report and figures to include/identify this intersection number.*

   Intersection #11, Wood Avenue (SR 2017) & US 22 East On-Ramp is included in the Cycle 2 TIS.

8. *Capacity analyses for intersection #5 (Wood Avenue/13th Street) show separate westbound through and right turn lanes, however this approach should be configured as a shared through/right lane due to the short length of the right turn lane. Similarly, intersection #7 (Northampton Street/Wood Avenue) shows a separate northbound right turn lane when it should be a shared left/through/right lane. Please revise analyses accordingly.*

   Revised.

9. *Use a maximum peak hour factor of 0.90 for the proposed driveway intersections*

   Peak hour of 0.90 is used for the proposed driveway intersections.

10. *The level of service summary tables for the study area intersections show numerous instances where a movement is designated as free-flow when it is not. There are also instances where right turn free-flow movements are not identified. Please revise the tables accordingly.*

    Revised accordingly.

11. *Provide lane widths, shoulder widths, and approach grades for all unsignalized intersections, including the approaches to the proposed driveways. This can be shown on sketches in the appendix.*

    Unsignalized field measurements are included in Appendix H.

12. *Include left turn lane warrant investigations for the Hackett Avenue site driveway in Appendix E.*

    Included in Appendix E.

13. *Include required and available truck sight distances at the proposed site driveways in Table 3.*

    Sight distance will be improved by construction of roadway improvements and the site driveways have been located to maximize potential sight distance. Truck/semitrailer traffic will be a small portion of daily traffic at the proposed warehouse facility and will fall primarily outside of the peak hours.

14. *Confirm with the municipalities in the area that there are no other area developments that could affect the study intersections. Include a statement in the TIS if there are none. Otherwise, include other area development traffic in the no-build and build analyses.*

    Based on coordination with each municipality in the TIS scoping process, there are no planned developments in the area with significant anticipated traffic impacts to the study area roadway network that warrant inclusion in the *Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue*. TIS was revised as requested.

15. *Provide level of service and queue length summary tables in the Executive Summary section of the report.*

    The overall intersection LOS table is included in the TIS report text. The detailed LOS/Queue Tables immediately follow the report text and are also included in Appendix G. The TIS meets all requirements of PennDOT's Publication 282 Appendix A TIS guidelines.

16. *Revise the Crash Analysis to include a discussion of any crash patterns and any measures that could be taken to correct safety issues.*

    Crash analysis was revised to include additional commentary and HSM Tool 'A' analysis results for the intersections with >5 crashes in a 12-month peruid.

17. *Provide conceptual improvement plan illustrating the proposed improvements, legal right-of-way, existing lanes and shoulders, existing driveways, etc. The traffic impact study cannot be approved if the recommended improvements are not feasible. Be sure to show property lines and label property owners for all areas adjacent to any proposed improvements. Note that additional comments will be provided following review of the improvement plans.*

    Detailed concept plans are included in the Cycle 2 TIS.

18. *Provide analyses of the Wood Avenue/US 22 East Off-Ramp intersection in the report.*

    Wood Avenue (SR 2017) & US 22 East Off-Ramp intersection (Intersection #12) is now included in the report and analysis.

19. *The study shows that no truck traffic is anticipated to/from the west on Hackett Avenue. However, a GPS search for destinations north and west of the site produces preferred travel route that uses Hackett Avenue to the west via Tatamy Road and Route 33. Provide justification for the assumption that no truck traffic will utilize Hackett Avenue west of the site.*

    See revised TIS. Semitrailer traffic is anticipated to fall almost entirely outside of the weekday peak hours and the revised Cycle 2 TIS utilizes a single distribution for all site-generated traffic.

20. *The Hackett Avenue approach to Wood Avenue degrades from a LOS D to a LOS F due to the proposed development. This degradation must be mitigated.*

    Mitigation is proposed in the Cycle 2 TIS.

21. *Be advised that all intersections where truck turning movement are anticipated must be able to accommodate the truck turning movements without encroaching on opposing lanes of traffic (i.e., site driveways, Wood Avenue/Hackett Avenue, Wood Avenue/US 22 East On-Ramp, etc.).*

    Acknowledged.

Should you have any questions regarding the TIA or response to comments letter, please contact me.

Regards,

Ian Preston

Ian Preston, PE
Project Engineer
KCI Technologies

## Ian Preston

**From:** ePermitting Help <penndotepermittinghelp@pa.gov>
**Sent:** Friday, March 10, 2023 11:11 AM
**To:** David.Salinas@scannellproperties.com; Robert Nuss; Vanessa Galeone; Ian Preston; mmaupin@pa.gov; mshankweil@pa.gov; namitchell@pa.gov; mhaddad@pa.gov; hcero@pa.gov; rboretski@pa.gov; EArmitage@Pennoni.com; KKostick@Pennoni.com; jdimmerling@dimmerlingconsulting.com; BRIBOYER@pa.gov; jbenco@lvpc.org; jseitz@lvpc.org; brivera@lvpc.org; bhite@lvpc.org; boroughsecretary@wilsonborough.org; mhammerstone@easton-pa.gov; dhopkins@easton-pa.gov; acatucci@palmertwp.com; kbaird@palmertwp.com; Mwall@tandmassociates.com
**Cc:** RA-PDEPSPROD@pa.gov
**Subject:** [External Email] :: Scoping Meeting Application - Returned - Application Number is : S0520220124 (Sent on: 03/10/2023 11:11:06 AM)

***From IT@KCI.COM 410-316-7820 *** This is an External Email from outside of KCI.***

**PennDOT has completed its review of the TIS Determination and Scoping Meeting Application.**

**Please address the following comments below, and resubmit the application to PennDOT for review.**

**PennDOT Review Comments :**
1. Provide 1-mile and 2-mile locations maps for the proposed project.
2. As previously noted, to be consistent with other industrial developments within the District, a westbound right turn lane will be required at the proposed Hackett Avenue driveway and a westbound right turn lane and eastbound left turn lane will be required at the Wood Avenue driveway.
3. Provide City and Township scoping review comments with your resubmission.
4. Provide a response letter, addressing each review comment, with your resubmission.

**Click here to access the Scoping Application**

PENNDOT EPERMIT - PLEASE DO NOT REPLY TO THIS EMAIL

April 4, 2023

Ms. Marah Haddad
District Permit Manager for Lehigh and Northampton Counties
PennDOT Engineering District 5-0
1002 Hamilton Street
Allentown, PA 18101

Re: TIS Scoping Application S0520220124
Proposed Warehouse Development at 1525 Wood Avenue
Scannell Properties LLC
KCI Project No. 222209756

Dear Ms. Haddad:

KCI Technologies, Inc. has prepared this response letter to address the Department's comments dated March 10, 2023 regarding the Transportation Impact Study (TIS) Scoping Application for the proposed warehouse development at 1525 Wood Avenue (SR 2017) in Wilson Borough, Palmer Township and the City of Easton in Northampton County.

PennDOT Review Comments

1. *Provide 1-mile and 2-mile locations maps for the proposed project.*

   The 1-mile and 2-mile location maps were included as separate attachments in the revised EPS scoping application.

2. *As previously noted, to be consistent with other industrial developments within the District, a westbound right turn lane will be required at the proposed Hackett Avenue driveway and a westbound right turn lane and eastbound left turn lane will be required at the Wood Avenue driveway.*

   We acknowledge the Department's requested turn lane configuration based on the scoping application. The TIS will identify auxiliary turn lane recommendations based on the results of the turn lane warrants, truck turning movements and the Department's initial request in the TIS scoping review process.

3. *Provide City and Township scoping review comments with your resubmission.*

   The TIS scoping application package has been provided to Palmer Township and City of Easton, both of which have declined to provide input thus far. You indicated in an email to Rob Nuss on March 30, 2023 that the scoping application may be resubmitted without comments from the municipality for now but that additional municipal correspondence must be provided following submission of the full TIS.



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4. *Provide a response letter, addressing each review comment, with your resubmission.*

   This response letter addresses each of the Department's review comments.

Should you have any questions regarding the TIS or response to comments letter, please contact me.

Regards,

Ian Preston

Ian Preston, PE
Project Engineer

cc Jim Dimmerling, PE
Dimmerling Consulting Inc.

Rob Nuss, PE
KCI Technologies Inc.



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## Ian Preston

**From:** Ian Preston
**Sent:** Tuesday, January 3, 2023 11:45 AM
**To:** boroughsecretary@wilsonborough.org; Mwall@tandmassociates.com
**Cc:** Vanessa Galeone
**Subject:** Proposed Warehouse Development at 1525 Wood Ave - TIS Scoping Package for Review
**Attachments:** 1525 Wood Ave_Site Plan_10-7-2022.pdf; PennDOT TIS Scoping Review Comments_S0520220124.pdf; S0520220124_1525 Wood Ave_PennDOT TIS Scoping Application.pdf; 1525 Wood Ave_Scoping Location Map_Revised.pdf

Monica –

The attached TIS Scoping Application materials are for the proposed warehouse development (just over 1 million SF) at 1525 Wood Ave. The site is the former Venator Materials pigment plant that closed in 2017 and the actual property (see location map) is partially within Wilson Borough, Palmer Township and Easton City.

PennDOT District 5-0 reviewed an initial TIS scoping application (PennDOT EPS Scoping Application No. S0520220124) in December. We have revised the scoping application (attached) to address District 5-0 comments. At this point, we are providing the revised scoping application to all three municipalities and we are seeking your comments or concurrence on the TIS scoping package.

**Please provide comments or concurrence on the TIS scoping package by 1/24. In particular, if you are aware of any proposed developments with formal LD or TIS submissions that merit inclusion as background/in-process traffic we would appreciate all relevant information.** Any questions on the proposed development or attached materials please give me a call to discuss.

Thanks/Happy New Year!

- Ian
724-316-8280

**Ian Preston, PE**
*Project Engineer*

KCI

**KCI TECHNOLOGIES INC.**
5001 Louise Drive, Suite 201, Mechanicsburg, PA 17055
ian.preston@kci.com
o: 717.610.1756 Ext. 2756 | c: 724.316.8280
www.kci.com

RISE TO THE CHALLENGE

## Ian Preston

**From:** Ian Preston
**Sent:** Tuesday, January 3, 2023 11:48 AM
**To:** ccarman@palmertwp.com; rwilliams@palmertwp.com
**Cc:** Vanessa Galeone
**Subject:** Proposed Warehouse Development at 1525 Wood Ave - TIS Scoping Package for Review
**Attachments:** 1525 Wood Ave_Scoping Location Map_Revised.pdf; 1525 Wood Ave_Site Plan_10-7-2022.pdf; PennDOT TIS Scoping Review Comments_S0520220124.pdf; S0520220124_1525 Wood Ave_PennDOT TIS Scoping Application.pdf

Bob and Cynthia –

The attached TIS Scoping Application materials are for the proposed warehouse development (just over 1 million SF) at 1525 Wood Ave. The site is the former Venator Materials pigment plant that closed in 2017 and the actual property (see location map) is partially within Wilson Borough, Palmer Township and Easton City.

PennDOT District 5-0 reviewed an initial TIS scoping application (PennDOT EPS Scoping Application No. S0520220124) in December. We have revised the scoping application (attached) to address District 5-0 comments. At this point, we are providing the revised scoping application to all three municipalities and we are seeking your comments or concurrence on the TIS scoping package.

**Please provide comments or concurrence on the TIS scoping package by 1/24. In particular, if you are aware of any proposed developments with formal LD or TIS submissions that merit inclusion as background/in-process traffic we would appreciate all relevant information.** Any questions on the proposed development or attached materials please give me a call to discuss.

Thanks/Happy New Year!

- Ian
724-316-8280

**Ian Preston, PE**
*Project Engineer*

KCI

**KCI TECHNOLOGIES INC.**
5001 Louise Drive, Suite 201, Mechanicsburg, PA 17055
ian.preston@kci.com
o: 717.610.1756 Ext. 2756 | c: 724.316.8280
www.kci.com

RISE TO THE CHALLENGE

## Ian Preston

**From:** Ian Preston
**Sent:** Tuesday, January 3, 2023 11:49 AM
**To:** mhammerstone@easton-pa.gov; dhopkins@easton-pa.gov
**Cc:** Vanessa Galeone
**Subject:** Proposed Warehouse Development at 1525 Wood Ave - TIS Scoping Package for Review
**Attachments:** 1525 Wood Ave_Scoping Location Map_Revised.pdf; 1525 Wood Ave_Site Plan_10-7-2022.pdf; PennDOT TIS Scoping Review Comments_S0520220124.pdf; S0520220124_1525 Wood Ave_PennDOT TIS Scoping Application.pdf

Mark and Dave –

The attached TIS Scoping Application materials are for the proposed warehouse development (just over 1 million SF) at 1525 Wood Ave. The site is the former Venator Materials pigment plant that closed in 2017 and the actual property (see location map) is partially within Wilson Borough, Palmer Township and Easton City.

PennDOT District 5-0 reviewed an initial TIS scoping application (PennDOT EPS Scoping Application No. S0520220124) in December. We have revised the scoping application (attached) to address District 5-0 comments. At this point, we are providing the revised scoping application to all three municipalities and we are seeking your comments or concurrence on the TIS scoping package.

**Please provide comments or concurrence on the TIS scoping package by 1/24. In particular, if you are aware of any proposed developments with formal LD or TIS submissions that merit inclusion as background/in-process traffic we would appreciate all relevant information.** Any questions on the proposed development or attached materials please give me a call to discuss.

Thanks/Happy New Year!

- Ian
724-316-8280

**Ian Preston, PE**
*Project Engineer*

KCI

**KCI TECHNOLOGIES INC.**
5001 Louise Drive, Suite 201, Mechanicsburg, PA 17055
ian.preston@kci.com
o: 717.610.1756 Ext. 2756 | c: 724.316.8280
www.kci.com

RISE TO THE CHALLENGE

pennsylvania
DEPARTMENT OF TRANSPORTATION

# TRANSPORTATION IMPACT STUDY (TIS) DETERMINATION & SCOPING MEETING APPLICATION

## Scoping Meeting Application: Completed

Scoping Meeting Date: _____ Scoping Number: S0520220124

Tax Parcel Number: L9-23-1-0837

Project/Development Name: 1525 Wood Ave

## Applicant Information:

Business Partner ID: _____

Applicant Name: Scannell Properties LLC

Phone: 312-656-7491 Email 1: David.Salinas@scannellproperties.com

Primary Contact: David Salinas Email 2: _____

## Additional Engineering Firm Information:

Business Partner ID: 000011

Engineering Firm: KCI Technologies Inc

Phone: 717-516-7597 Email 1: robert.nuss@kci.com

Primary Contact: Rob Nuss Email 2: vanessa.galeone@kci.com

## Creator Information:

Business Partner ID: 000011 Firm Name: KCI Technologies, Inc.

Phone: 717-610-1756 Email 1: ian.preston@kci.com

## (1) LOCATION OF PROPOSED DEVELOPMENT:

PennDOT Engineering District: 05 Email: _____

County: Northampton Email: jbenco@lvpc.org; jseitz@lvpc.org; brivera@lvpc.org; bhite@lvpc.org

Municipality: WILSON Email: boroughsecretary@wilsonborough.org

Municipality: EASTON Email: mhammerstone@easton-pa.gov; dhopkins@easton-pa.gov

Municipality: PALMER Email: kbaird@palmertwp.com; rwilliams@palmertwp.com

Municipality: WILSON Email: Mwall@tandmassociates.com

| NO. | SR | Segment | Offset | Average Daily Trips | Driveway Classification | Local Road |
|---|---|---|---|---|---|---|
| 1 | 2017 | 0024 | 0430 | 1207 | Low Volume | No |
| 2 | 2017 | 0030 | 0910 | 604 | Low Volume | No |

Are there any vehicle weight or size restrictions along the SR in accordance with 75 PA C.S. ss 4902? : No

## (2) DESCRIPTION OF PROPOSED DEVELOPMENT (Attach site plan if available):

**Proposed site access:**
The proposed development will be served by one full-movement driveway on Wood Avenue (SR 2017) and one full-movement driveway on Hackett Avenue (SR 2017)

**Proposed land uses:**
LUC 155: One (1) High-Cube warehouse - 1,000,320 SF

**Community linkages** *(access to neighboring properties, cross easements, pedestrian and transit accommodations):*
N/A (drainage easements on the edge of the property along Bushkill Creek)

## (3) DEVELOPMENT SCHEDULE AND STAGING:

Anticipated Opening Date: 07-01-2024
Full Buildout Date: 07-01-2024

**Describe Proposed Development Schedule/Staging:**
One proposed warehouse building (single phase)

## (4) TRIP GENERATION:

| Land Use & Size | Land Use Code | Were ITE results used? | Daily Trips | AM Peak Hour | | PM Peak Hour | | Saturday Peak Hour | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Enter | Exit | Enter | Exit | Enter | Exit |
| High-Cube Fulfillment Center Warehouse 1.0003 MSF | 155 | Yes | 1811 | 121 | 29 | 62 | 98 | | |
| | | **TOTAL:** | 1811 | 121 | 29 | 62 | 98 | 0 | 0 |

## (5) TRANSPORTATION IMPACT STUDY REQUIRED?

Transportation Impact Study Required? Yes

If Yes, based on:
During any one-hour time period, 100 or more vehicle trips entering or exiting a development.

**Other considerations as described below:**

## (6) TRANSPORTATION IMPACT ASSESSMENT REQUIRED?

Transportation Impact Assessment Required? No

## (7) STUDY AREA:

**Roadway and Study Intersections:**

1. Hackett Ave (SR 2017) & Pr. Site Access 2. Hackett Ave (SR 2017) & Wood Ave (SR 2017) 3. Wood Ave (SR 2017) & Pr. Site Access 4. Wood Ave (SR 2017) & US 22 W Ramp 5. Wood Ave (SR 2017) & 13th St (SR 2019) & US 22 E Ramps 6. 25th St (SR 2012) & Wood Ave (SR 2024)/US 22 E Ramps 7. Northampton St (SR 0248) & Wood Ave (SR 2024) 8. Northampton St (SR 0248) & 25th St (SR 2012) 9. 25th St (SR 0248) & Sales St (SR 2040)/US 22 W Ramps 10. Hackett Ave (SR 2017) & Tatamy Rd/Park Ave

**Land use context (Refer to PennDOT Design Manual, Part 1X, Appendix B):**
The site is located on a large tract in a transition area between Town/Village Neighborhood land use context (Wilson Borough and City of Easton) & Suburban Neighborhood land use context (Palmer Township)

**Known Congestion Areas:**
US 22 during weekday morning & afternoon peak periods & along 25th St (SR 2012) in the vicinity US 22 interchange.

**Known Safety Concerns:**
None

**Known Environmental Constraints:**
N/A

**Pedestrian/Bike Review (Community Centers, Parks, Schools, etc.):**
Hackett Park (City of Easton) is located just west of the site. Meuser Park and Fisk Field are located along Wood Avenue between the site and 25th St (SR 0248). Wilson Bike Path (off-street trail) crosses 25th St. (SR 0248), Wood Ave (SR 2017/SR 2024) and Hackett Ave (SR 2017) in the TIS study area.

**Transit Review (Current routes/stops):**
LANTA Bus Route 101, 106, and 216 operates within the TIS study area on 25th St (SR 0248) & Northampton St

## (8) STUDY AREA TYPE:

**Study Area Type:** Urban

## (9) TIS ANALYSIS PERIODS AND TIMES:

**Analysis period and times notes:**
Scenarios - (1) Existing (2023) Conditions; (2) Build-Out Year 2024 without Development; (3) Build-Out Year 2024 with Development; (4) Horizon Year 2029 without Development; (5) Horizon Year 2029 with Development; Time Periods - (1) Weekday Morning (AM) Peak Hour; (2) Weekday Afternoon (PM) Peak Hour.

## (10) TRAFFIC ADJUSTMENT FACTORS:

**(a) Seasonal Adjustment (Identify counts requiring adjustment and methodology):**
N/A

**(b) Annual Base Traffic Growth:** 0.47 %/yr. **Source:** PennDOT BPR (2022 - 2023); Urban/Non-Interstate

**(c) Pass-By Trips (Attach justification where required):**

| NO. | Land Use | % | Source |
|---|---|---|---|
| | | | |

**(d) Captured Trips for Multi-Use Sites:**
N/A

**(e) Modal Split Reductions:**
N/A

**(f) Other Reductions:**

N/A

## (11) OTHER PROJECTS WITHIN STUDY AREA TO BE ADDED TO BASE TRAFFIC:

**Notes:**
None known at this time; to be confirmed with LVPC.

## (12) TRIP DISTRIBUTION AND ASSIGNMENT:

**Trip Distribution Notes:**
New Trip Distribution will be based on existing peak hour traffic volumes in/out of the TIS study area roadway network. Separate trip distributions will be prepared for employee/passenger vehicles and trucks/heavy vehicles.

## (13) APPROVAL OF DATA COLLECTION ELEMENTS AND METHODOLOGIES:

| NO. | Location | Period | Type |
|---|---|---|---|
| 1 | All Study Intersections (See TIS Location Map) | AM Peak (6-9 AM) | Turning Movement Counts |
| 2 | All Study Intersections (See TIS Location Map) | PM Peak (3-6 PM) | Turning Movement Counts |

## (14) CAPACITY/LOS ANALYSIS:

| NO. | Location | Period | Type |
|---|---|---|---|
| 1 | All Study Intersections (See TIS Location Map) | AM Peak Hour | HCM 6/7 (PTV Vistro 2022) |
| 2 | All Study Intersections (See TIS Location Map) | PM Peak Hour | HCM 6/7 (PTV Vistro 2022) |

## (15) ROADWAY IMPROVEMENTS/MODIFICATIONS BY OTHERS TO BE INCLUDED:

**Roadway Improvements:**
From PennDOT OneMap - LVTS Low Cost Signal Upgrades at three signalized study area intersections. US 22 Bridge Rehabilitations. None anticipated to impact TIS analyses.

## (16) OTHER NEEDED ANALYSES:

**(a) Sight Distance Analysis:**
Ch. 441 & Pub 282; site access intersections and where warranted based on off-site improvements.

**(b) Signal Warrant Analysis (Identify locations):**
Unsignalized study area intersections where mitigation is required.

**(c) Required Signal Phasing/Timing Modifications (Determine for all signalized intersections; specify methodology):**
Signalized intersections if mitigation required.

**(d) Traffic Signal Corridor/Network Analysis (Identify locations/methodology):**
I48-001 - Palmer/Wilson - 25th St (Study Intersections #5 - #8).

**(e) Analysis of the Need for Turning Lanes (Identify locations/methodology):**
PennDOT Pub. 46 methodology at primary site access intersections and where off-site mitigation is required. District 5-0 has requested the following turn lane configuration in TIS scoping review: WB right turn lanes at both site access driveways and an EB left turn lane at the Wood Avenue driveway. The TIS will identify turn lane recommendations based on the results of the turn lane warrants, truck turning movements and the Department's requested turn lane configuration.

**(f) Turning Lane Lengths (Identify methodology to be used):**

PennDOT Pub. 46 & HCM 6 95th percentile queues as required.

**(g) Left Turn Signal Phasing Analysis (Identify locations/methodology):**
Left turn phasing analysis improvements will be considered at intersections where mitigation is required.

**(h) Queuing Analysis (Identify locations/methodology):**
50th and 95th percentile queues (HCM 6) - all study intersections.

**(i) Gap Studies (Identify locations/methodology):**
Where HCM 6 analysis indicates failing side street LOS at TWSC intersections.

**(j) Crash Analysis (Identify locations):**
All study intersections via PCIT - a crash analysis will be prepared using the most recent five years of crash data.

**(k) Weaving Analysis (Identify locations):**
N/A

**(l) Other Required Studies (Specify locations/methodology):**
N/A

## (17) ADDITIONAL COMMENTS OR RECOMMENDATIONS RELATIVE TO THE SCOPE OF THE TIS:

**Additional Comments:**
Wilson Borough has concern with trucks utilizing local roadways to gain access to the regional highway network. Signing and turning movement restrictions will be considered in the TIS to restrict truck traffic to/from the proposed warehouse development to the preferred routes to the interchanges.

## PennDOT Review Comments: (Current Cycle Comments)

***After review of the scoping meeting application, the Department will contact the applicant regarding the need for a scoping meeting prior to applying for a highway occupancy permit.***

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## Proposed TIS Study Intersections

1. Hackett Avenue (SR 2017) & Proposed Site Access Driveway
2. Hackett Avenue (SR 2017) & Wood Avenue (SR 2017/SR 2024)
3. Wood Avenue (SR 2017) & Proposed Site Access Driveway
4. Wood Avenue (SR 2017) & US 22 West Ramps
5. Wood Avenue (SR 2017) & 13th Street (SR 2019) & US 22 East Ramps
6. 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramps
7. Northampton Street (SR 0248) & Wood Avenue (SR 2024)
8. Northampton Street (SR 0248) & 25th Street (SR 2012)
9. 25th Street (SR 0248) & Sales Street (SR 2040)/US 22 West Ramps
10. Tatamy Road/Hackett Avenue (SR 2017) & Park Avenue & Mall Entrance

# Proposed Warehouse Development at 1525 Wood Avenue (SR 2017)

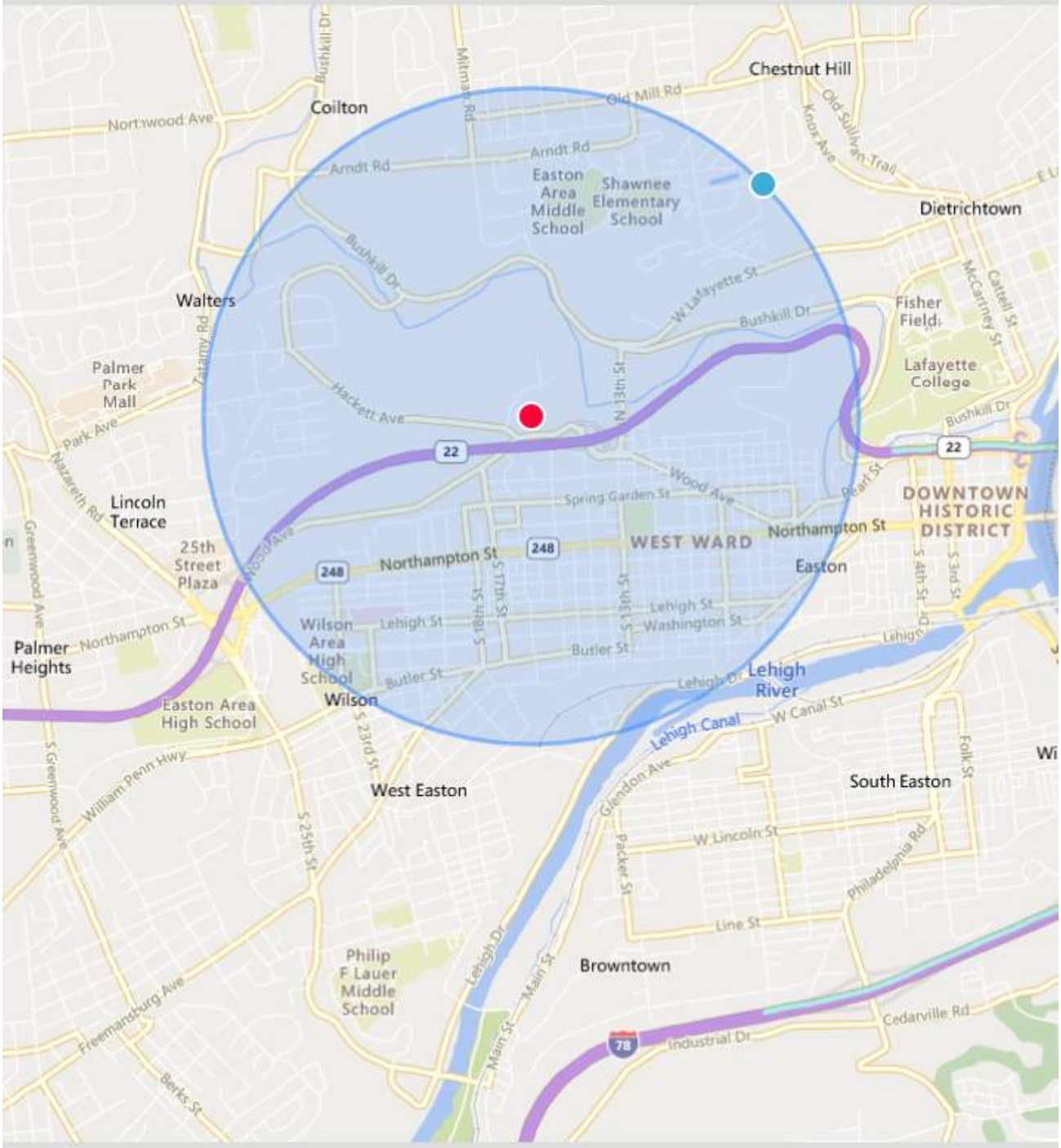
## PennDOT Transporation Impact Study Scoping - Site Location Map

*Wilson Borough/Pamer Township/Easton City, Northampton County*

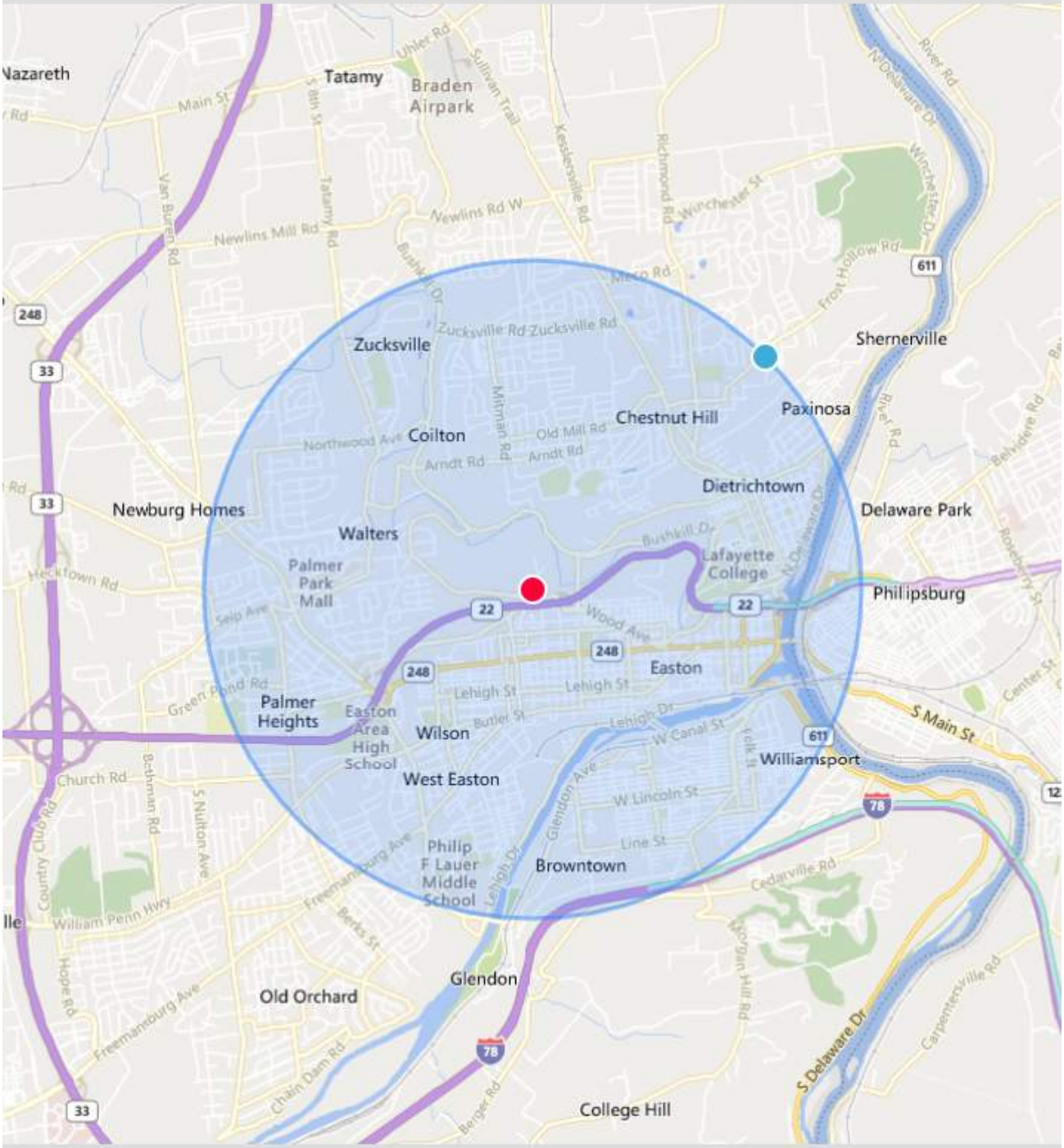
(#) **Proposed TIS Study Intersection**

KCI TECHNOLOGIES

**calcmaps.com**
**Radius:** 1609 m | 1.61 km | 1.00 mi | 5279 ft | 1759.6 yd | 0.87 nm
**Circle Area:** 8133210 $m^2$ | 8.13 $km^2$ | 3.14 $mi^2$ | 87545144 $ft^2$
**Lat,Lon:** 40.69587,-75.23053



**calcmaps.com**
**Radius:** 3218 m | 3.22 km | 2.00 mi | 10558 ft | 3519.2 yd | 1.74 nm
**Circle Area:** 32532838 $m^2$ | 32.53 $km^2$ | 12.56 $mi^2$ | 350180578 $ft^2$
**Lat,Lon:** 40.69587,-75.23353



# APPENDIX B

## *Trip Generation and Distribution*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue

| Proposed Warehouse Development at 1525 Wood Avenue - Site Trip Generation | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ITE LAND USE CODE | DESCRIPTION | SIZE | | DAILY TRIPS | WEEKDAY AM PEAK HOUR | | | WEEKDAY PM PEAK HOUR | | |
| | | | | | IN | OUT | TOTAL | IN | OUT | TOTAL |
| 155 | High-Cube Fulfillment Center Warehouse - *Passenger Vehicles* | 1,006,880 | SF | 1,590 | 112 | 19 | 131 | 58 | 93 | 151 |
| 155 | High-Cube Fulfillment Center Warehouse - *Trucks* | 1,006,880 | SF | 232 | 10 | 10 | 20 | 5 | 5 | 10 |
| 155 | High-Cube Fulfillment Center Warehouse - *Total* | 1,006,880 | SF | 1,822 | 122 | 29 | 151 | 63 | 98 | 161 |

# High-Cube Fulfillment Center Warehouse - Non-Sort
(155)

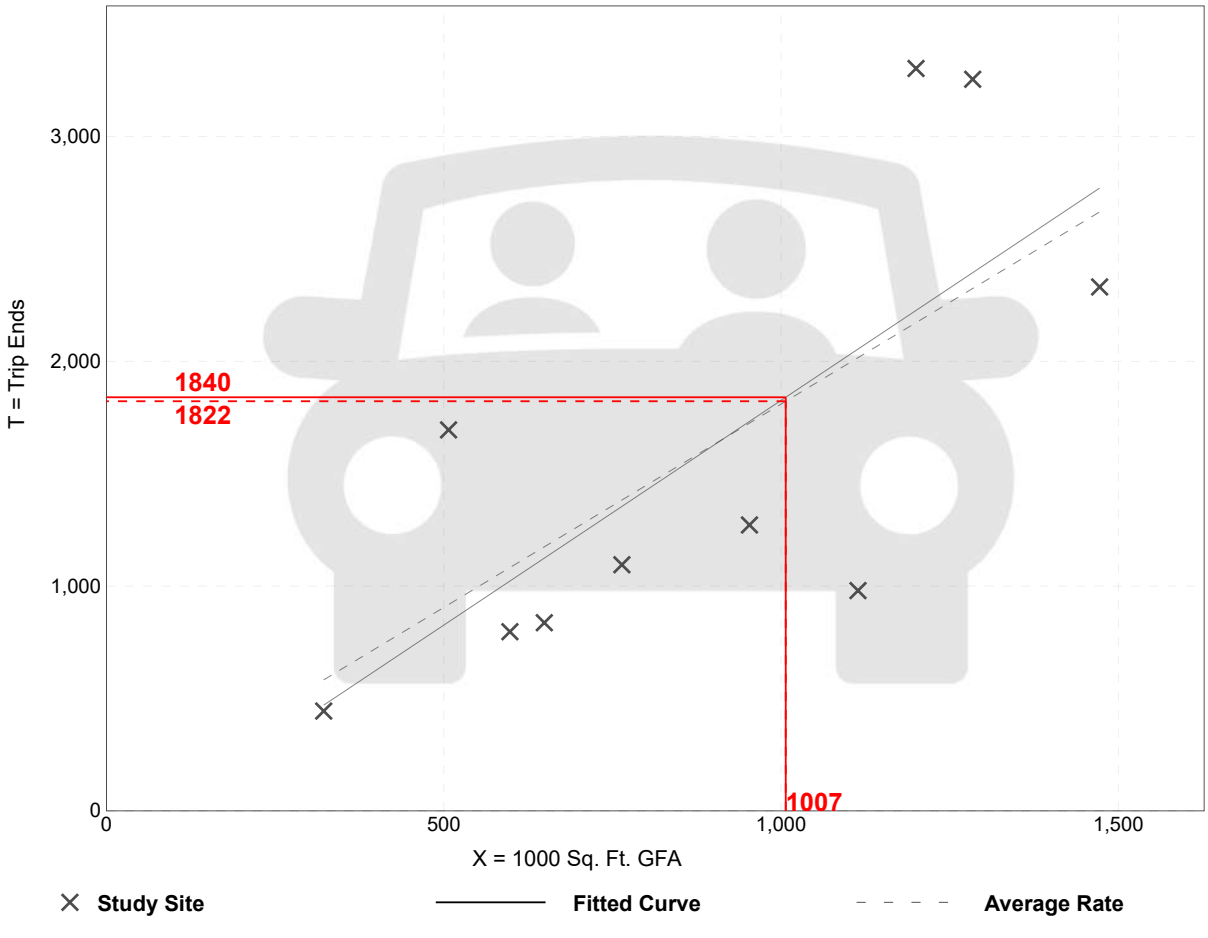
**Vehicle Trip Ends vs:** **1000 Sq. Ft. GFA**
**On a:** **Weekday**

**Setting/Location:** **General Urban/Suburban**
Number of Studies: 10
Avg. 1000 Sq. Ft. GFA: 886
Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

| Average Rate | Range of Rates | Standard Deviation |
|---|---|---|
| 1.81 | 0.88 - 3.34 | 0.76 |

## Data Plot and Equation




**Fitted Curve Equation: T = 2.00(X) - 173.61**

**$R^2$= 0.54**

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# High-Cube Fulfillment Center Warehouse - Non-Sort
(155)

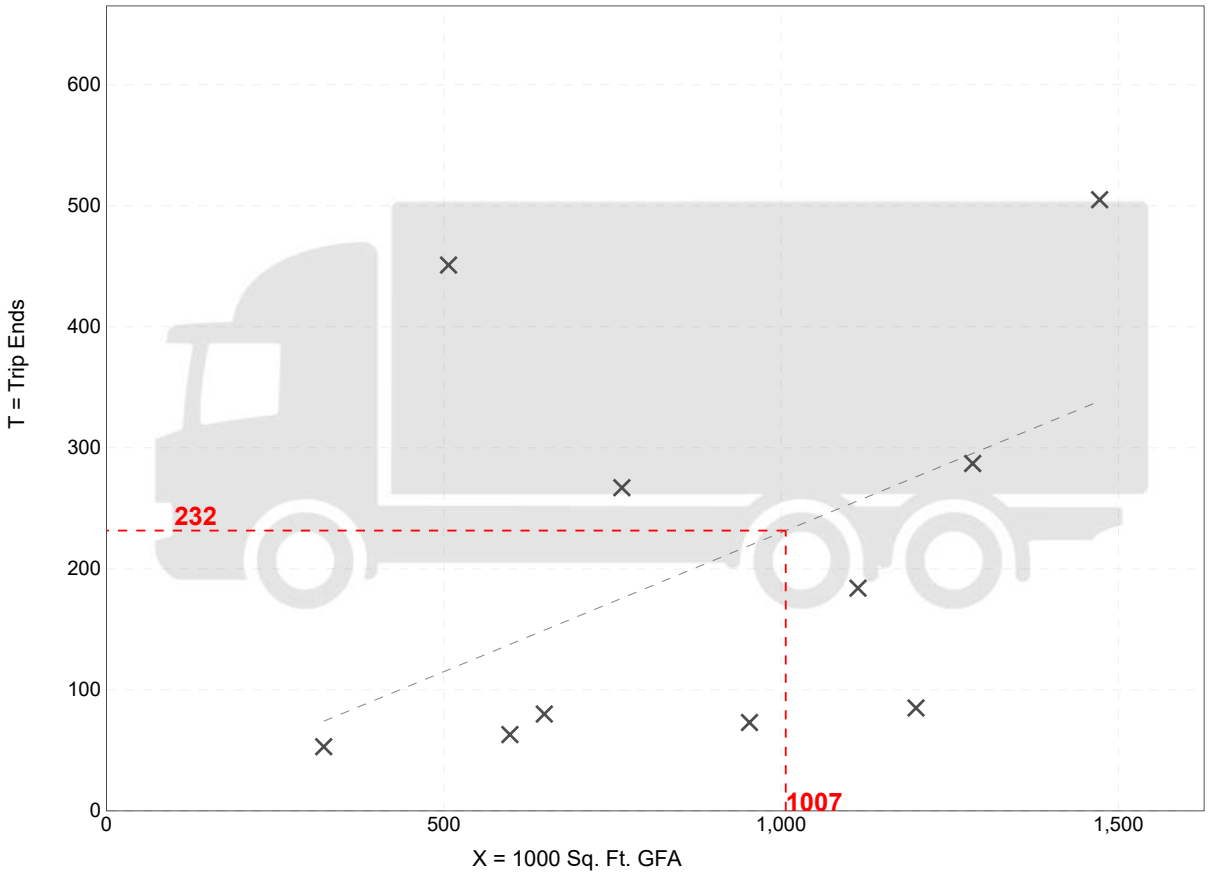
**Truck Trip Ends vs:** **1000 Sq. Ft. GFA**
**On a:** **Weekday**

**Setting/Location:** **General Urban/Suburban**
Number of Studies: 10
Avg. 1000 Sq. Ft. GFA: 886
Directional Distribution: 50% entering, 50% exiting

## Truck Trip Generation per 1000 Sq. Ft. GFA

| Average Rate | Range of Rates | Standard Deviation |
|---|---|---|
| 0.23 | 0.07 - 0.89 | 0.20 |

## Data Plot and Equation




**Fitted Curve Equation: Not Given**

**$R^2$= ****

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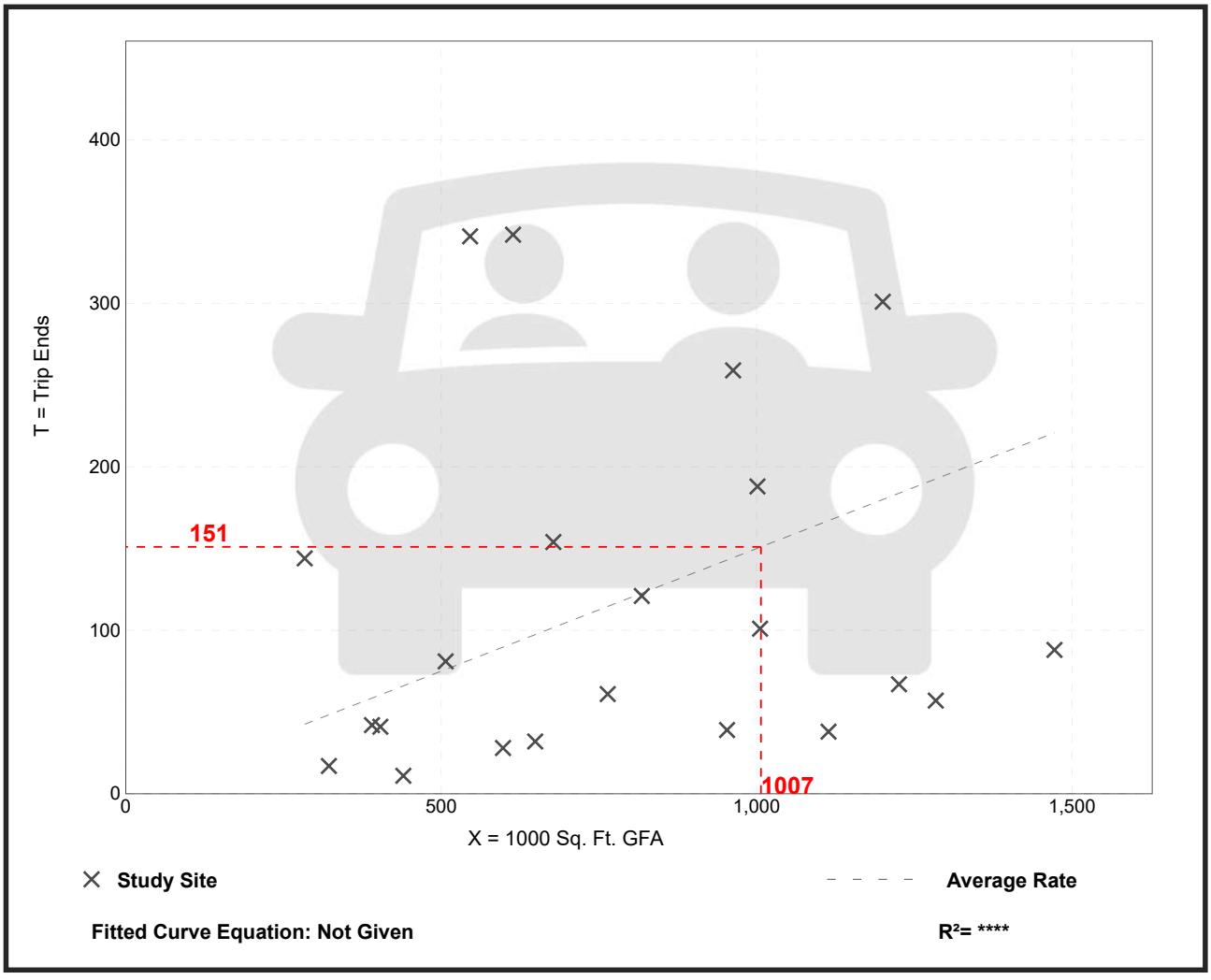
# High-Cube Fulfillment Center Warehouse - Non-Sort
(155)

**Vehicle Trip Ends vs:** **1000 Sq. Ft. GFA**
**On a:** **Weekday,**
**Peak Hour of Adjacent Street Traffic,**
**One Hour Between 7 and 9 a.m.**
**Setting/Location:** **General Urban/Suburban**
Number of Studies: 22
Avg. 1000 Sq. Ft. GFA: 783
Directional Distribution: 81% entering, 19% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

| Average Rate | Range of Rates | Standard Deviation |
|---|---|---|
| 0.15 | 0.03 - 0.62 | 0.15 |

## Data Plot and Equation

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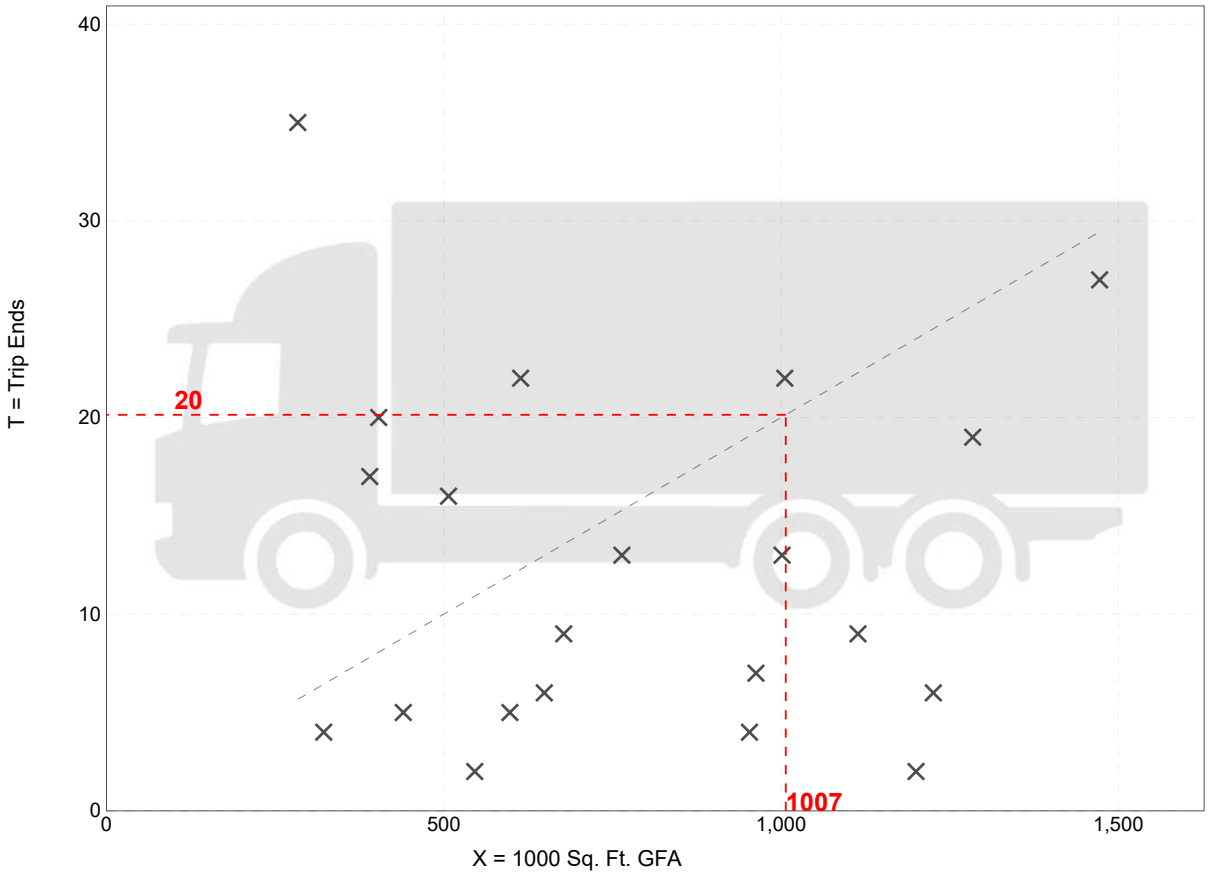
# High-Cube Fulfillment Center Warehouse - Non-Sort
(155)

**Truck Trip Ends vs:** **1000 Sq. Ft. GFA**
**On a:** **Weekday,**
**Peak Hour of Adjacent Street Traffic,**
**One Hour Between 7 and 9 a.m.**
**Setting/Location:** **General Urban/Suburban**
Number of Studies: 21
Avg. 1000 Sq. Ft. GFA: 782
Directional Distribution: 50% entering, 50% exiting

## Truck Trip Generation per 1000 Sq. Ft. GFA

| Average Rate | Range of Rates | Standard Deviation |
|---|---|---|
| 0.02 | 0.00 - 0.12 | 0.02 |

## Data Plot and Equation




**Fitted Curve Equation: Not Given**

**$R^2$= ******

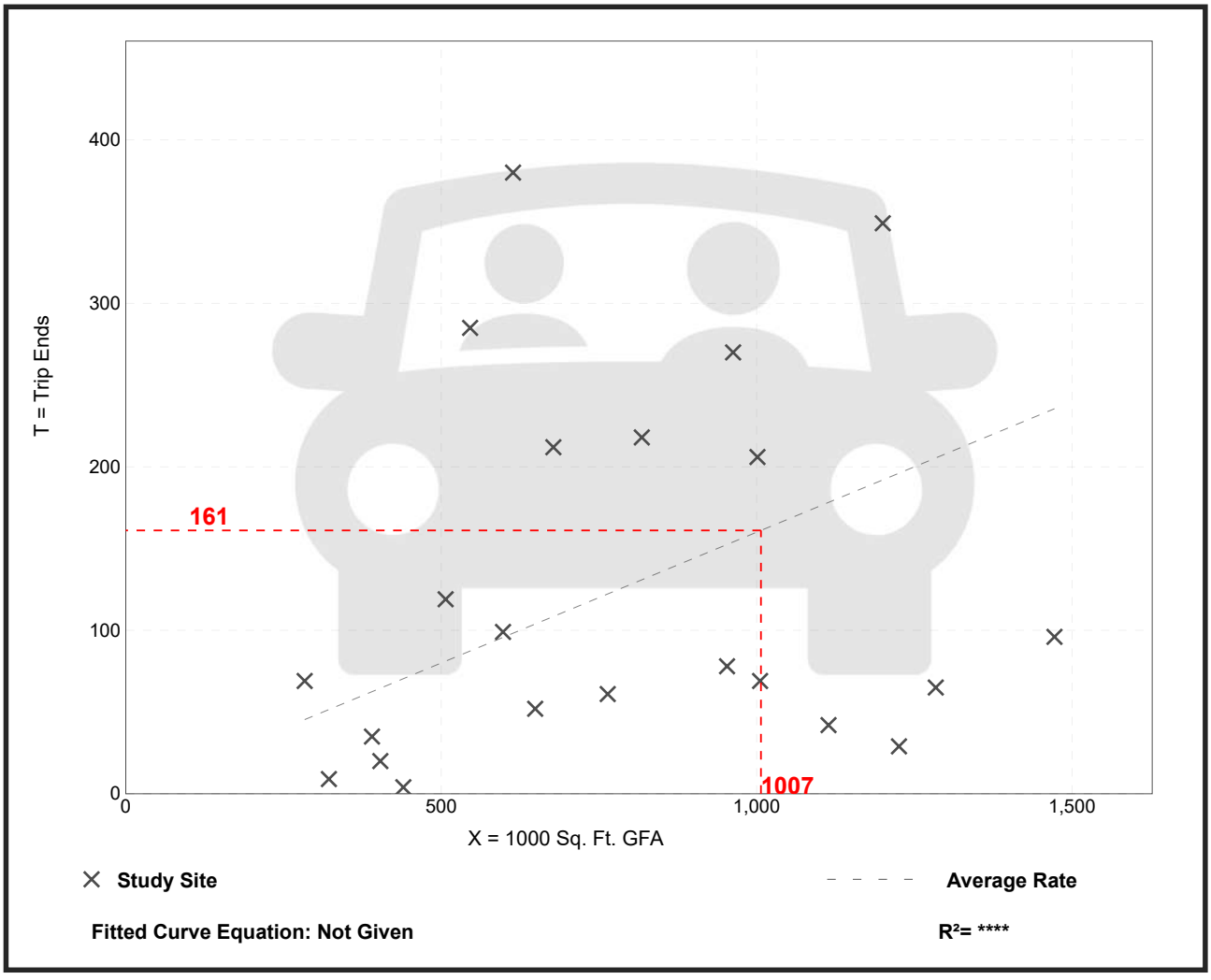
# High-Cube Fulfillment Center Warehouse - Non-Sort
(155)

**Vehicle Trip Ends vs:** **1000 Sq. Ft. GFA**
**On a:** **Weekday,**
**Peak Hour of Adjacent Street Traffic,**
**One Hour Between 4 and 6 p.m.**
**Setting/Location:** **General Urban/Suburban**
Number of Studies: 22
Avg. 1000 Sq. Ft. GFA: 783
Directional Distribution: 39% entering, 61% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

| Average Rate | Range of Rates | Standard Deviation |
|---|---|---|
| 0.16 | 0.01 - 0.62 | 0.15 |

## Data Plot and Equation



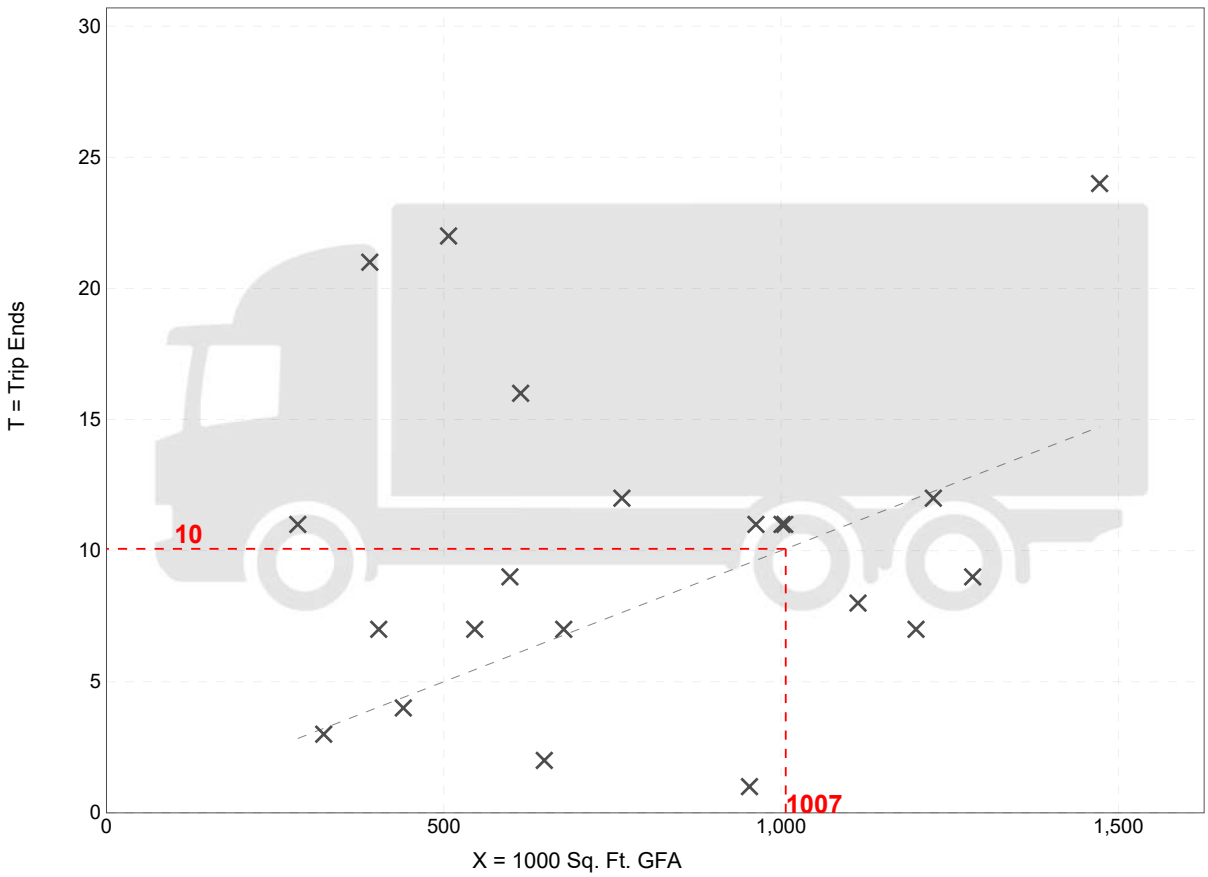
# High-Cube Fulfillment Center Warehouse - Non-Sort
(155)

**Truck Trip Ends vs:** **1000 Sq. Ft. GFA**
**On a:** **Weekday,**
**Peak Hour of Adjacent Street Traffic,**
**One Hour Between 4 and 6 p.m.**
**Setting/Location:** **General Urban/Suburban**
Number of Studies: 21
Avg. 1000 Sq. Ft. GFA: 782
Directional Distribution: 46% entering, 54% exiting

## Truck Trip Generation per 1000 Sq. Ft. GFA

| Average Rate | Range of Rates | Standard Deviation |
|---|---|---|
| 0.01 | 0.00 - 0.05 | 0.01 |

## Data Plot and Equation




**Fitted Curve Equation: Not Given**

**$R^2$= ******

INTERSECTION 1

| AM | Prop. Site Access | | Hackett Ave (SR 2017) | | | |
|---|---|---|---|---|---|---|
| | SBL | SBR | EBL | EBT | WBT | WBR |
| Base Volume | 0 | 0 | 0 | 176 | 176 | 0 |
| HV% | 2% | 2% | 0% | 3% | 1% | 0% |
| PV | 0 | 0 | 0 | 171 | 174 | 0 |
| HV | 0 | 0 | 0 | 5 | 2 | 0 |
| 2025 Growth PV | 0 | 0 | 0 | 172 | 175 | 0 |
| 2025 Growth HV | 0 | 0 | 0 | 5 | 2 | 0 |
| 2030 Growth PV | 0 | 0 | 0 | 176 | 179 | 0 |
| 2030 Growth HV | 0 | 0 | 0 | 5 | 2 | 0 |
| Site PV | 4 | 2 | 14 | 0 | 0 | 25 |
| Site HV | 3 | 0 | 0 | 0 | 0 | 2 |
| Site Total | 7 | 2 | 14 | 0 | 0 | 27 |
| 2025 Future PV | 4 | 2 | 14 | 172 | 175 | 25 |
| 2025 Future HV | 3 | 0 | 0 | 5 | 2 | 2 |
| 2025 Total Volume | 7 | 2 | 14 | 177 | 177 | 27 |
| 2025 HV% | 43% | 0% | 0% | 3% | 1% | 7% |
| 2030 Future PV | 4 | 2 | 14 | 176 | 179 | 25 |
| 2030 Future HV | 3 | 0 | 0 | 5 | 2 | 2 |
| 2030 Total Volume | 7 | 2 | 14 | 181 | 181 | 27 |
| 2030 HV% | 43% | 0% | 0% | 3% | 1% | 7% |

| PM | Prop. Site Access | | Hackett Ave (SR 2017) | | | |
|---|---|---|---|---|---|---|
| | SBL | SBR | EBL | EBT | WBT | WBR |
| Base Volume | 0 | 0 | 0 | 205 | 331 | 0 |
| HV% | 0% | 0% | 0% | 2% | 2% | 0% |
| PV | 0 | 0 | 0 | 201 | 324 | 0 |
| HV | 0 | 0 | 0 | 4 | 7 | 0 |
| 2025 Growth PV | 0 | 0 | 0 | 203 | 327 | 0 |
| 2025 Growth HV | 0 | 0 | 0 | 4 | 7 | 0 |
| 2030 Growth PV | 0 | 0 | 0 | 207 | 334 | 0 |
| 2030 Growth HV | 0 | 0 | 0 | 4 | 7 | 0 |
| Site PV | 21 | 12 | 7 | 0 | 0 | 13 |
| Site HV | 2 | 0 | 0 | 0 | 0 | 1 |
| Site Total | 23 | 12 | 7 | 0 | 0 | 14 |
| 2025 Future PV | 21 | 12 | 7 | 203 | 327 | 13 |
| 2025 Future HV | 2 | 0 | 0 | 4 | 7 | 1 |
| 2025 Total Volume | 23 | 12 | 7 | 207 | 334 | 14 |
| 2025 HV% | 9% | 0% | 0% | 2% | 2% | 7% |
| 2030 Future PV | 21 | 12 | 7 | 207 | 334 | 13 |
| 2030 Future HV | 2 | 0 | 0 | 4 | 7 | 1 |
| 2030 Total Volume | 23 | 12 | 7 | 211 | 341 | 14 |
| 2030 HV% | 9% | 0% | 0% | 2% | 2% | 7% |

INTERSECTION 2

| AM | Hackett Ave (SR 2017) | | Wood Ave (SR 2024) | | Wood Ave (SR 2017) | |
|---|---|---|---|---|---|---|
| | SBL | SBR | EBL | EBT | WBT | WBR |
| Base Volume | 128 | 42 | 61 | 153 | 235 | 115 |
| HV% | 0% | 2% | 5% | 5% | 6% | 2% |
| PV | 128 | 41 | 58 | 145 | 221 | 113 |
| HV | 0 | 1 | 3 | 8 | 14 | 2 |
| 2025 Growth PV | 129 | 41 | 58 | 146 | 223 | 114 |
| 2025 Growth HV | 0 | 1 | 3 | 8 | 14 | 2 |
| 2030 Growth PV | 132 | 42 | 60 | 149 | 228 | 116 |
| 2030 Growth HV | 0 | 1 | 3 | 8 | 14 | 2 |
| Site PV | 2 | 3 | 17 | 47 | 8 | 9 |
| Site HV | 2 | 2 | 2 | 3 | 3 | 0 |
| Site Total | 4 | 5 | 19 | 50 | 11 | 9 |
| 2025 Future PV | 131 | 44 | 75 | 193 | 231 | 123 |
| 2025 Future HV | 2 | 3 | 5 | 11 | 17 | 2 |
| 2025 Total Volume | 133 | 47 | 80 | 204 | 248 | 125 |
| 2025 HV% | 2% | 6% | 6% | 5% | 7% | 2% |
| 2030 Future PV | 134 | 45 | 77 | 196 | 236 | 125 |
| 2030 Future HV | 2 | 3 | 5 | 11 | 17 | 2 |
| 2030 Total Volume | 136 | 48 | 82 | 207 | 253 | 127 |
| 2030 HV% | 1% | 6% | 6% | 5% | 7% | 2% |

| PM | Hackett Ave (SR 2017) | | Wood Ave (SR 2024) | | Wood Ave (SR 2017) | |
|---|---|---|---|---|---|---|
| | SBL | SBR | EBL | EBT | WBT | WBR |
| Base Volume | 151 | 62 | 98 | 204 | 246 | 233 |
| HV% | 3% | 2% | 2% | 2% | 3% | 2% |
| PV | 146 | 61 | 96 | 200 | 239 | 228 |
| HV | 5 | 1 | 2 | 4 | 7 | 5 |
| 2025 Growth PV | 147 | 62 | 97 | 202 | 241 | 230 |
| 2025 Growth HV | 5 | 1 | 2 | 4 | 7 | 5 |
| 2030 Growth PV | 150 | 63 | 99 | 206 | 246 | 235 |
| 2030 Growth HV | 5 | 1 | 2 | 4 | 7 | 5 |
| Site PV | 7 | 14 | 9 | 24 | 39 | 4 |
| Site HV | 1 | 1 | 1 | 2 | 2 | 0 |
| Site Total | 8 | 15 | 10 | 26 | 41 | 4 |
| 2025 Future PV | 154 | 76 | 106 | 226 | 280 | 234 |
| 2025 Future HV | 6 | 2 | 3 | 6 | 9 | 5 |
| 2025 Total Volume | 160 | 78 | 109 | 232 | 289 | 239 |
| 2025 HV% | 4% | 3% | 3% | 3% | 3% | 2% |
| 2030 Future PV | 157 | 77 | 108 | 230 | 285 | 239 |
| 2030 Future HV | 6 | 2 | 3 | 6 | 9 | 5 |
| 2030 Total Volume | 163 | 79 | 111 | 236 | 294 | 244 |
| 2030 HV% | 4% | 3% | 3% | 3% | 3% | 2% |

INTERSECTION 3

| AM | Prop. Site Access | | Wood Ave (SR 2017) | | | |
|---|---|---|---|---|---|---|
| | SBL | SBR | EBL | EBT | WBT | WBR |
| Base Volume | 0 | 0 | 0 | 281 | 290 | 0 |
| HV% | 0% | 0% | 0% | 2% | 2% | 0% |
| PV | 0 | 0 | 0 | 275 | 284 | 0 |
| HV | 0 | 0 | 0 | 6 | 6 | 0 |
| 2025 Growth PV | 0 | 0 | 0 | 277 | 286 | 0 |
| 2025 Growth HV | 0 | 0 | 0 | 6 | 6 | 0 |
| 2030 Growth PV | 0 | 0 | 0 | 283 | 293 | 0 |
| 2030 Growth HV | 0 | 0 | 0 | 6 | 6 | 0 |
| Site PV | 4 | 8 | 47 | 2 | 9 | 24 |
| Site HV | 3 | 3 | 3 | 2 | 0 | 5 |
| Site Total | 7 | 11 | 50 | 4 | 9 | 29 |
| 2025 Future PV | 4 | 8 | 47 | 279 | 295 | 24 |
| 2025 Future HV | 3 | 3 | 3 | 8 | 6 | 5 |
| 2025 Total Volume | 7 | 11 | 50 | 287 | 301 | 29 |
| 2025 HV% | 43% | 27% | 6% | 3% | 2% | 17% |
| 2030 Future PV | 4 | 8 | 47 | 285 | 302 | 24 |
| 2030 Future HV | 3 | 3 | 3 | 8 | 6 | 5 |
| 2030 Total Volume | 7 | 11 | 50 | 293 | 308 | 29 |
| 2030 HV% | 43% | 27% | 6% | 3% | 2% | 17% |

| PM | Prop. Site Access | | Wood Ave (SR 2017) | | | |
|---|---|---|---|---|---|---|
| | SBL | SBR | EBL | EBT | WBT | WBR |
| Base Volume | 0 | 0 | 0 | 355 | 483 | 0 |
| HV% | 0% | 0% | 0% | 2% | 2% | 0% |
| PV | 0 | 0 | 0 | 348 | 473 | 0 |
| HV | 0 | 0 | 0 | 7 | 10 | 0 |
| 2025 Growth PV | 0 | 0 | 0 | 351 | 477 | 0 |
| 2025 Growth HV | 0 | 0 | 0 | 7 | 10 | 0 |
| 2030 Growth PV | 0 | 0 | 0 | 359 | 487 | 0 |
| 2030 Growth HV | 0 | 0 | 0 | 7 | 10 | 0 |
| Site PV | 21 | 39 | 24 | 7 | 4 | 13 |
| Site HV | 1 | 2 | 2 | 1 | 0 | 3 |
| Site Total | 22 | 41 | 26 | 8 | 4 | 16 |
| 2025 Future PV | 21 | 39 | 24 | 358 | 481 | 13 |
| 2025 Future HV | 1 | 2 | 2 | 8 | 10 | 3 |
| 2025 Total Volume | 22 | 41 | 26 | 366 | 491 | 16 |
| 2025 HV% | 5% | 5% | 8% | 2% | 2% | 19% |
| 2030 Future PV | 21 | 39 | 24 | 366 | 491 | 13 |
| 2030 Future HV | 1 | 2 | 2 | 8 | 10 | 3 |
| 2030 Total Volume | 22 | 41 | 26 | 374 | 501 | 16 |
| 2030 HV% | 5% | 5% | 8% | 2% | 2% | 19% |

INTERSECTION 4

| AM | US 22 W Ramps | | Wood Ave (SR 2017) | | |
|---|---|---|---|---|---|
| | SBL | SBR | EBT | WBT | WBR |
| Base Volume | 23 | 89 | 300 | 209 | 659 |
| HV% | 0% | 3% | 4% | 2% | 1% |
| PV | 23 | 86 | 288 | 205 | 652 |
| HV | 0 | 3 | 12 | 4 | 7 |
| 2025 Growth PV | 23 | 87 | 290 | 207 | 658 |
| 2025 Growth HV | 0 | 3 | 12 | 4 | 7 |
| 2030 Growth PV | 24 | 89 | 297 | 211 | 672 |
| 2030 Growth HV | 0 | 3 | 12 | 4 | 7 |
| Site PV | 0 | 11 | 6 | 22 | 0 |
| Site HV | 0 | 5 | 5 | 0 | 0 |
| Site Total | 0 | 16 | 11 | 22 | 0 |
| 2025 Future PV | 23 | 98 | 296 | 229 | 658 |
| 2025 Future HV | 0 | 8 | 17 | 4 | 7 |
| 2025 Total Volume | 23 | 106 | 313 | 233 | 665 |
| 2025 HV% | 0% | 8% | 5% | 2% | 1% |
| 2030 Future PV | 24 | 100 | 303 | 233 | 672 |
| 2030 Future HV | 0 | 8 | 17 | 4 | 7 |
| 2030 Total Volume | 24 | 108 | 320 | 237 | 679 |
| 2030 HV% | 0% | 7% | 5% | 2% | 1% |

| PM | US 22 W Ramps | | Wood Ave (SR 2017) | | |
|---|---|---|---|---|---|
| | SBL | SBR | EBT | WBT | WBR |
| Base Volume | 61 | 235 | 357 | 248 | 534 |
| HV% | 100% | 3% | 1% | 4% | 2% |
| PV | 0 | 228 | 353 | 238 | 523 |
| HV | 61 | 7 | 4 | 10 | 11 |
| 2025 Growth PV | 0 | 230 | 356 | 240 | 527 |
| 2025 Growth HV | 62 | 7 | 4 | 10 | 11 |
| 2030 Growth PV | 0 | 235 | 364 | 245 | 539 |
| 2030 Growth HV | 63 | 7 | 4 | 10 | 11 |
| Site PV | 0 | 6 | 28 | 11 | 0 |
| Site HV | 0 | 3 | 2 | 0 | 0 |
| Site Total | 0 | 9 | 30 | 11 | 0 |
| 2025 Future PV | 0 | 236 | 384 | 251 | 527 |
| 2025 Future HV | 62 | 10 | 6 | 10 | 11 |
| 2025 Total Volume | 62 | 246 | 390 | 261 | 538 |
| 2025 HV% | 100% | 4% | 2% | 4% | 2% |
| 2030 Future PV | 0 | 241 | 392 | 256 | 539 |
| 2030 Future HV | 63 | 10 | 6 | 10 | 11 |
| 2030 Total Volume | 63 | 251 | 398 | 266 | 550 |
| 2030 HV% | 100% | 4% | 2% | 4% | 2% |

INTERSECTION 5

| AM | N 13th St (SR 2019) | | | | | | Wood Ave (SR 2017) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR |
| Base Volume | 152 | 125 | 5 | 57 | 137 | 615 | 363 | 163 | 123 | 6 | 226 | 65 |
| HV% | 2% | 3% | 0% | 4% | 7% | 3% | 4% | 2% | 1% | 0% | 1% | 9% |
| PV | 149 | 121 | 5 | 55 | 127 | 597 | 348 | 160 | 122 | 6 | 224 | 59 |
| HV | 3 | 4 | 0 | 2 | 10 | 18 | 15 | 3 | 1 | 0 | 2 | 6 |
| 2025 Growth PV | 150 | 122 | 5 | 55 | 128 | 602 | 351 | 161 | 123 | 6 | 226 | 60 |
| 2025 Growth HV | 3 | 4 | 0 | 2 | 10 | 18 | 15 | 3 | 1 | 0 | 2 | 6 |
| 2030 Growth PV | 154 | 125 | 5 | 57 | 131 | 615 | 359 | 165 | 126 | 6 | 231 | 61 |
| 2030 Growth HV | 3 | 4 | 0 | 2 | 10 | 19 | 15 | 3 | 1 | 0 | 2 | 6 |
| Site PV | 6 | 0 | 0 | 0 | 0 | 12 | 2 | 1 | 1 | 0 | 4 | 0 |
| Site HV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site Total | 6 | 0 | 0 | 0 | 0 | 12 | 2 | 1 | 1 | 0 | 4 | 0 |
| 2025 Future PV | 156 | 122 | 5 | 55 | 128 | 614 | 353 | 162 | 124 | 6 | 230 | 60 |
| 2025 Future HV | 3 | 4 | 0 | 2 | 10 | 18 | 15 | 3 | 1 | 0 | 2 | 6 |
| 2025 Total Volume | 159 | 126 | 5 | 57 | 138 | 632 | 368 | 165 | 125 | 6 | 232 | 66 |
| 2025 HV% | 2% | 3% | 0% | 4% | 7% | 3% | 4% | 2% | 1% | 0% | 1% | 9% |
| 2030 Future PV | 160 | 125 | 5 | 57 | 131 | 627 | 361 | 166 | 127 | 6 | 235 | 61 |
| 2030 Future HV | 3 | 4 | 0 | 2 | 10 | 19 | 15 | 3 | 1 | 0 | 2 | 6 |
| 2030 Total Volume | 163 | 129 | 5 | 59 | 141 | 646 | 376 | 169 | 128 | 6 | 237 | 67 |
| 2030 HV% | 2% | 3% | 0% | 3% | 7% | 3% | 4% | 2% | 1% | 0% | 1% | 9% |

| PM | N 13th St (SR 2019) | | | | | | Wood Ave (SR 2017) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR |
| Base Volume | 153 | 154 | 17 | 74 | 171 | 479 | 459 | 195 | 148 | 6 | 231 | 57 |
| HV% | 4% | 5% | 13% | 7% | 2% | 5% | 2% | 2% | 3% | 0% | 1% | 14% |
| PV | 147 | 146 | 15 | 69 | 168 | 455 | 450 | 191 | 144 | 6 | 229 | 49 |
| HV | 6 | 8 | 2 | 5 | 3 | 24 | 9 | 4 | 4 | 0 | 2 | 8 |
| 2025 Growth PV | 148 | 147 | 15 | 70 | 169 | 459 | 454 | 193 | 145 | 6 | 231 | 49 |
| 2025 Growth HV | 6 | 8 | 2 | 5 | 3 | 24 | 9 | 4 | 4 | 0 | 2 | 8 |
| 2030 Growth PV | 151 | 150 | 15 | 71 | 173 | 469 | 464 | 197 | 148 | 6 | 236 | 50 |
| 2030 Growth HV | 6 | 8 | 2 | 5 | 3 | 25 | 9 | 4 | 4 | 0 | 2 | 8 |
| Site PV | 3 | 0 | 0 | 0 | 0 | 6 | 10 | 4 | 5 | 0 | 2 | 0 |
| Site HV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site Total | 3 | 0 | 0 | 0 | 0 | 6 | 10 | 4 | 5 | 0 | 2 | 0 |
| 2025 Future PV | 151 | 147 | 15 | 70 | 169 | 465 | 464 | 197 | 150 | 6 | 233 | 49 |
| 2025 Future HV | 6 | 8 | 2 | 5 | 3 | 24 | 9 | 4 | 4 | 0 | 2 | 8 |
| 2025 Total Volume | 157 | 155 | 17 | 75 | 172 | 489 | 473 | 201 | 154 | 6 | 235 | 57 |
| 2025 HV% | 4% | 5% | 12% | 7% | 2% | 5% | 2% | 2% | 3% | 0% | 1% | 14% |
| 2030 Future PV | 154 | 150 | 15 | 71 | 173 | 475 | 474 | 201 | 153 | 6 | 238 | 50 |
| 2030 Future HV | 6 | 8 | 2 | 5 | 3 | 25 | 9 | 4 | 4 | 0 | 2 | 8 |
| 2030 Total Volume | 160 | 158 | 17 | 76 | 176 | 500 | 483 | 205 | 157 | 6 | 240 | 58 |
| 2030 HV% | 4% | 5% | 12% | 7% | 2% | 5% | 2% | 2% | 3% | 0% | 1% | 14% |

INTERSECTION 6

| AM | S 25th St (SR 2012) | | | | | | US 22 East Ramps | | | Wood Ave (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR |
| Base Volume | 96 | 503 | 144 | 7 | 409 | 183 | 78 | 117 | 301 | 179 | 15 | 22 |
| HV% | 2% | 7% | 15% | 0% | 6% | 1% | 3% | 4% | 15% | 8% | 0% | 9% |
| PV | 94 | 468 | 122 | 7 | 384 | 181 | 76 | 112 | 256 | 165 | 15 | 20 |
| HV | 2 | 35 | 22 | 0 | 25 | 2 | 2 | 5 | 45 | 14 | 0 | 2 |
| 2025 Growth PV | 95 | 472 | 123 | 7 | 387 | 183 | 77 | 113 | 258 | 166 | 15 | 20 |
| 2025 Growth HV | 2 | 35 | 22 | 0 | 25 | 2 | 2 | 5 | 45 | 14 | 0 | 2 |
| 2030 Growth PV | 97 | 482 | 126 | 7 | 396 | 187 | 78 | 115 | 264 | 170 | 15 | 21 |
| 2030 Growth HV | 2 | 36 | 23 | 0 | 26 | 2 | 2 | 5 | 46 | 14 | 0 | 2 |
| Site PV | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 20 | 0 | 3 | 0 | 0 |
| Site HV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 |
| Site Total | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 25 | 0 | 3 | 0 | 0 |
| 2025 Future PV | 95 | 472 | 139 | 7 | 387 | 183 | 77 | 133 | 258 | 169 | 15 | 20 |
| 2025 Future HV | 2 | 35 | 22 | 0 | 25 | 2 | 2 | 10 | 45 | 14 | 0 | 2 |
| 2025 Total Volume | 97 | 507 | 161 | 7 | 412 | 185 | 79 | 143 | 303 | 183 | 15 | 22 |
| 2025 HV% | 2% | 7% | 14% | 0% | 6% | 1% | 3% | 7% | 15% | 8% | 0% | 9% |
| 2030 Future PV | 97 | 482 | 142 | 7 | 396 | 187 | 78 | 135 | 264 | 173 | 15 | 21 |
| 2030 Future HV | 2 | 36 | 23 | 0 | 26 | 2 | 2 | 10 | 46 | 14 | 0 | 2 |
| 2030 Total Volume | 99 | 518 | 165 | 7 | 422 | 189 | 80 | 145 | 310 | 187 | 15 | 23 |
| 2030 HV% | 2% | 7% | 14% | 0% | 6% | 1% | 3% | 7% | 15% | 7% | 0% | 9% |

| PM | S 25th St (SR 2012) | | | | | | US 22 East Ramps | | | Wood Ave (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR |
| Base Volume | 77 | 556 | 215 | 21 | 429 | 207 | 138 | 180 | 318 | 125 | 30 | 34 |
| HV% | 3% | 3% | 5% | 0% | 1% | 1% | 0% | 2% | 3% | 2% | 0% | 9% |
| PV | 75 | 539 | 204 | 21 | 425 | 205 | 138 | 176 | 308 | 122 | 30 | 31 |
| HV | 2 | 17 | 11 | 0 | 4 | 2 | 0 | 4 | 10 | 3 | 0 | 3 |
| 2025 Growth PV | 76 | 544 | 206 | 21 | 429 | 207 | 139 | 178 | 311 | 123 | 30 | 31 |
| 2025 Growth HV | 2 | 17 | 11 | 0 | 4 | 2 | 0 | 4 | 10 | 3 | 0 | 3 |
| 2030 Growth PV | 77 | 555 | 210 | 22 | 438 | 211 | 142 | 181 | 317 | 126 | 31 | 32 |
| 2030 Growth HV | 2 | 18 | 11 | 0 | 4 | 2 | 0 | 4 | 10 | 3 | 0 | 3 |
| Site PV | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 10 | 0 | 13 | 0 | 0 |
| Site HV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| Site Total | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 13 | 0 | 13 | 0 | 0 |
| 2025 Future PV | 76 | 544 | 214 | 21 | 429 | 207 | 139 | 188 | 311 | 136 | 30 | 31 |
| 2025 Future HV | 2 | 17 | 11 | 0 | 4 | 2 | 0 | 7 | 10 | 3 | 0 | 3 |
| 2025 Total Volume | 78 | 561 | 225 | 21 | 433 | 209 | 139 | 195 | 321 | 139 | 30 | 34 |
| 2025 HV% | 3% | 3% | 5% | 0% | 1% | 1% | 0% | 4% | 3% | 2% | 0% | 9% |
| 2030 Future PV | 77 | 555 | 218 | 22 | 438 | 211 | 142 | 191 | 317 | 139 | 31 | 32 |
| 2030 Future HV | 2 | 18 | 11 | 0 | 4 | 2 | 0 | 7 | 10 | 3 | 0 | 3 |
| 2030 Total Volume | 79 | 573 | 229 | 22 | 442 | 213 | 142 | 198 | 327 | 142 | 31 | 35 |
| 2030 HV% | 3% | 3% | 5% | 0% | 1% | 1% | 0% | 4% | 3% | 2% | 0% | 9% |

INTERSECTION 7

| AM | Wood Ave (SR 2024) | | | | | | Northampton St (SR 0248) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR |
| Base Volume | 22 | 90 | 186 | 13 | 124 | 50 | 51 | 204 | 17 | 49 | 288 | 11 |
| HV% | 0% | 8% | 6% | 8% | 2% | 12% | 6% | 4% | 0% | 6% | 3% | 0% |
| PV | 22 | 83 | 175 | 12 | 122 | 44 | 48 | 196 | 17 | 46 | 279 | 11 |
| HV | 0 | 7 | 11 | 1 | 2 | 6 | 3 | 8 | 0 | 3 | 9 | 0 |
| 2025 Growth PV | 22 | 84 | 177 | 12 | 123 | 44 | 48 | 198 | 17 | 46 | 281 | 11 |
| 2025 Growth HV | 0 | 7 | 11 | 1 | 2 | 6 | 3 | 8 | 0 | 3 | 9 | 0 |
| 2030 Growth PV | 23 | 86 | 180 | 12 | 126 | 45 | 49 | 202 | 18 | 47 | 288 | 11 |
| 2030 Growth HV | 0 | 7 | 11 | 1 | 2 | 6 | 3 | 8 | 0 | 3 | 9 | 0 |
| Site PV | 0 | 36 | 0 | 1 | 3 | 7 | 20 | 0 | 0 | 0 | 0 | 8 |
| Site HV | 0 | 5 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site Total | 0 | 41 | 0 | 1 | 3 | 12 | 20 | 0 | 0 | 0 | 0 | 8 |
| 2025 Future PV | 22 | 120 | 177 | 13 | 126 | 51 | 68 | 198 | 17 | 46 | 281 | 19 |
| 2025 Future HV | 0 | 12 | 11 | 1 | 2 | 11 | 3 | 8 | 0 | 3 | 9 | 0 |
| 2025 Total Volume | 22 | 132 | 188 | 14 | 128 | 62 | 71 | 206 | 17 | 49 | 290 | 19 |
| 2025 HV% | 0% | 9% | 6% | 7% | 2% | 18% | 4% | 4% | 0% | 6% | 3% | 0% |
| 2030 Future PV | 23 | 122 | 180 | 13 | 129 | 52 | 69 | 202 | 18 | 47 | 288 | 19 |
| 2030 Future HV | 0 | 12 | 11 | 1 | 2 | 11 | 3 | 8 | 0 | 3 | 9 | 0 |
| 2030 Total Volume | 23 | 134 | 191 | 14 | 131 | 63 | 72 | 210 | 18 | 50 | 297 | 19 |
| 2030 HV% | 0% | 9% | 6% | 7% | 2% | 17% | 4% | 4% | 0% | 6% | 3% | 0% |

| PM | Wood Ave (SR 2024) | | | | | | Northampton St (SR 0248) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR |
| Base Volume | 37 | 133 | 231 | 16 | 73 | 78 | 58 | 299 | 31 | 80 | 395 | 15 |
| HV% | 0% | 5% | 4% | 0% | 3% | 12% | 0% | 1% | 0% | 1% | 1% | 8% |
| PV | 37 | 126 | 222 | 16 | 71 | 69 | 58 | 296 | 31 | 79 | 391 | 14 |
| HV | 0 | 7 | 9 | 0 | 2 | 9 | 0 | 3 | 0 | 1 | 4 | 1 |
| 2025 Growth PV | 37 | 127 | 224 | 16 | 72 | 70 | 58 | 299 | 31 | 80 | 394 | 14 |
| 2025 Growth HV | 0 | 7 | 9 | 0 | 2 | 9 | 0 | 3 | 0 | 1 | 4 | 1 |
| 2030 Growth PV | 38 | 130 | 229 | 16 | 73 | 71 | 60 | 305 | 32 | 81 | 403 | 14 |
| 2030 Growth HV | 0 | 7 | 9 | 0 | 2 | 9 | 0 | 3 | 0 | 1 | 4 | 1 |
| Site PV | 0 | 18 | 0 | 7 | 13 | 33 | 11 | 0 | 0 | 0 | 0 | 4 |
| Site HV | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site Total | 0 | 21 | 0 | 7 | 13 | 36 | 11 | 0 | 0 | 0 | 0 | 4 |
| 2025 Future PV | 37 | 145 | 224 | 23 | 85 | 103 | 69 | 299 | 31 | 80 | 394 | 18 |
| 2025 Future HV | 0 | 10 | 9 | 0 | 2 | 12 | 0 | 3 | 0 | 1 | 4 | 1 |
| 2025 Total Volume | 37 | 155 | 233 | 23 | 87 | 115 | 69 | 302 | 31 | 81 | 398 | 19 |
| 2025 HV% | 0% | 6% | 4% | 0% | 2% | 10% | 0% | 1% | 0% | 1% | 1% | 5% |
| 2030 Future PV | 38 | 148 | 229 | 23 | 86 | 104 | 71 | 305 | 32 | 81 | 403 | 18 |
| 2030 Future HV | 0 | 10 | 9 | 0 | 2 | 12 | 0 | 3 | 0 | 1 | 4 | 1 |
| 2030 Total Volume | 38 | 158 | 238 | 23 | 88 | 116 | 71 | 308 | 32 | 82 | 407 | 19 |
| 2030 HV% | 0% | 6% | 4% | 0% | 2% | 10% | 0% | 1% | 0% | 1% | 1% | 5% |

INTERSECTION 8

| AM | S 25th St (SR 2012) | | | Nazareth Rd (SR 0248) | | | Northampton St | | Northampton St (SR 0248) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | NBL | NBT | NBR | SBL | SBT | SBR | EBT | EBR | WBT | WBR |
| Base Volume | 86 | 530 | 1 | 178 | 437 | 72 | 85 | 140 | 121 | 244 |
| HV% | 1% | 7% | 0% | 3% | 3% | 6% | 8% | 1% | 6% | 4% |
| PV | 85 | 493 | 1 | 173 | 424 | 68 | 78 | 139 | 114 | 234 |
| HV | 1 | 37 | 0 | 5 | 13 | 4 | 7 | 1 | 7 | 10 |
| 2025 Growth PV | 86 | 497 | 1 | 174 | 428 | 69 | 79 | 140 | 115 | 236 |
| 2025 Growth HV | 1 | 37 | 0 | 5 | 13 | 4 | 7 | 1 | 7 | 10 |
| 2030 Growth PV | 88 | 508 | 1 | 178 | 437 | 70 | 80 | 143 | 117 | 241 |
| 2030 Growth HV | 1 | 38 | 0 | 5 | 13 | 4 | 7 | 1 | 7 | 10 |
| Site PV | 0 | 0 | 0 | 16 | 0 | 0 | 4 | 0 | 2 | 5 |
| Site HV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Site Total | 0 | 0 | 0 | 16 | 0 | 0 | 4 | 0 | 2 | 10 |
| 2025 Future PV | 86 | 497 | 1 | 190 | 428 | 69 | 83 | 140 | 117 | 241 |
| 2025 Future HV | 1 | 37 | 0 | 5 | 13 | 4 | 7 | 1 | 7 | 15 |
| 2025 Total Volume | 87 | 534 | 1 | 195 | 441 | 73 | 90 | 141 | 124 | 256 |
| 2025 HV% | 1% | 7% | 0% | 3% | 3% | 5% | 8% | 1% | 6% | 6% |
| 2030 Future PV | 88 | 508 | 1 | 194 | 437 | 70 | 84 | 143 | 119 | 246 |
| 2030 Future HV | 1 | 38 | 0 | 5 | 13 | 4 | 7 | 1 | 7 | 15 |
| 2030 Total Volume | 89 | 546 | 1 | 199 | 450 | 74 | 91 | 144 | 126 | 261 |
| 2030 HV% | 1% | 7% | 0% | 3% | 3% | 5% | 8% | 1% | 6% | 6% |

| PM | S 25th St (SR 2012) | | | Nazareth Rd (SR 0248) | | | Northampton St | | Northampton St (SR 0248) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | NBL | NBT | NBR | SBL | SBT | SBR | EBT | EBR | WBT | WBR |
| Base Volume | 69 | 644 | 8 | 282 | 549 | 36 | 113 | 94 | 153 | 356 |
| HV% | 3% | 3% | 0% | 0% | 1% | 5% | 2% | 3% | 4% | 1% |
| PV | 67 | 625 | 8 | 282 | 544 | 34 | 111 | 91 | 147 | 352 |
| HV | 2 | 19 | 0 | 0 | 5 | 2 | 2 | 3 | 6 | 4 |
| 2025 Growth PV | 68 | 630 | 8 | 284 | 549 | 34 | 112 | 92 | 148 | 355 |
| 2025 Growth HV | 2 | 19 | 0 | 0 | 5 | 2 | 2 | 3 | 6 | 4 |
| 2030 Growth PV | 69 | 644 | 8 | 291 | 561 | 35 | 114 | 94 | 151 | 363 |
| 2030 Growth HV | 2 | 20 | 0 | 0 | 5 | 2 | 2 | 3 | 6 | 4 |
| Site PV | 0 | 0 | 0 | 9 | 0 | 0 | 2 | 0 | 7 | 26 |
| Site HV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Site Total | 0 | 0 | 0 | 9 | 0 | 0 | 2 | 0 | 7 | 29 |
| 2025 Future PV | 68 | 630 | 8 | 293 | 549 | 34 | 114 | 92 | 155 | 381 |
| 2025 Future HV | 2 | 19 | 0 | 0 | 5 | 2 | 2 | 3 | 6 | 7 |
| 2025 Total Volume | 70 | 649 | 8 | 293 | 554 | 36 | 116 | 95 | 161 | 388 |
| 2025 HV% | 3% | 3% | 0% | 0% | 1% | 6% | 2% | 3% | 4% | 2% |
| 2030 Future PV | 69 | 644 | 8 | 300 | 561 | 35 | 116 | 94 | 158 | 389 |
| 2030 Future HV | 2 | 20 | 0 | 0 | 5 | 2 | 2 | 3 | 6 | 7 |
| 2030 Total Volume | 71 | 664 | 8 | 300 | 566 | 37 | 118 | 97 | 164 | 396 |
| 2030 HV% | 3% | 3% | 0% | 0% | 1% | 5% | 2% | 3% | 4% | 2% |

INTERSECTION 9

| AM | Nazareth Rd (SR 0248) | | | | | Sales St (SR 2040) | | | US 22 W Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR |
| Base Volume | 392 | 404 | 71 | 521 | 34 | 48 | 122 | 1 | 118 | 80 | 112 |
| HV% | 7% | 9% | 3% | 4% | 0% | 2% | 1% | 0% | 2% | 1% | 3% |
| PV | 365 | 368 | 69 | 500 | 34 | 47 | 121 | 1 | 116 | 79 | 109 |
| HV | 27 | 36 | 2 | 21 | 0 | 1 | 1 | 0 | 2 | 1 | 3 |
| 2025 Growth PV | 368 | 371 | 70 | 504 | 34 | 47 | 122 | 1 | 117 | 80 | 110 |
| 2025 Growth HV | 27 | 36 | 2 | 21 | 0 | 1 | 1 | 0 | 2 | 1 | 3 |
| 2030 Growth PV | 376 | 379 | 71 | 515 | 35 | 48 | 125 | 1 | 120 | 81 | 112 |
| 2030 Growth HV | 28 | 37 | 2 | 22 | 0 | 1 | 1 | 0 | 2 | 1 | 3 |
| Site PV | 2 | 3 | 0 | 13 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Site HV | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site Total | 2 | 8 | 0 | 13 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| 2025 Future PV | 370 | 374 | 70 | 517 | 34 | 47 | 122 | 4 | 117 | 80 | 110 |
| 2025 Future HV | 27 | 41 | 2 | 21 | 0 | 1 | 1 | 0 | 2 | 1 | 3 |
| 2025 Total Volume | 397 | 415 | 72 | 538 | 34 | 48 | 123 | 4 | 119 | 81 | 113 |
| 2025 HV% | 7% | 10% | 3% | 4% | 0% | 2% | 1% | 0% | 2% | 1% | 3% |
| 2030 Future PV | 378 | 382 | 71 | 528 | 35 | 48 | 125 | 4 | 120 | 81 | 112 |
| 2030 Future HV | 28 | 42 | 2 | 22 | 0 | 1 | 1 | 0 | 2 | 1 | 3 |
| 2030 Total Volume | 406 | 424 | 73 | 550 | 35 | 49 | 126 | 4 | 122 | 82 | 115 |
| 2030 HV% | 7% | 10% | 3% | 4% | 0% | 2% | 1% | 0% | 2% | 1% | 3% |

| PM | Nazareth Rd (SR 0248) | | | | | Sales St (SR 2040) | | | US 22 W Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR |
| Base Volume | 594 | 405 | 55 | 645 | 39 | 79 | 69 | 6 | 218 | 176 | 250 |
| HV% | 2% | 4% | 0% | 1% | 0% | 1% | 0% | 0% | 1% | 1% | 1% |
| PV | 582 | 389 | 55 | 639 | 39 | 78 | 69 | 6 | 216 | 174 | 247 |
| HV | 12 | 16 | 0 | 6 | 0 | 1 | 0 | 0 | 2 | 2 | 3 |
| 2025 Growth PV | 587 | 392 | 55 | 644 | 39 | 79 | 70 | 6 | 218 | 175 | 249 |
| 2025 Growth HV | 12 | 16 | 0 | 6 | 0 | 1 | 0 | 0 | 2 | 2 | 3 |
| 2030 Growth PV | 600 | 401 | 57 | 658 | 40 | 80 | 71 | 6 | 223 | 179 | 255 |
| 2030 Growth HV | 12 | 16 | 0 | 6 | 0 | 1 | 0 | 0 | 2 | 2 | 3 |
| Site PV | 11 | 15 | 0 | 7 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| Site HV | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site Total | 11 | 18 | 0 | 7 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 2025 Future PV | 598 | 407 | 55 | 651 | 39 | 79 | 70 | 8 | 218 | 175 | 249 |
| 2025 Future HV | 12 | 19 | 0 | 6 | 0 | 1 | 0 | 0 | 2 | 2 | 3 |
| 2025 Total Volume | 610 | 426 | 55 | 657 | 39 | 80 | 70 | 8 | 220 | 177 | 252 |
| 2025 HV% | 2% | 4% | 0% | 1% | 0% | 1% | 0% | 0% | 1% | 1% | 1% |
| 2030 Future PV | 611 | 416 | 57 | 665 | 40 | 80 | 71 | 8 | 223 | 179 | 255 |
| 2030 Future HV | 12 | 19 | 0 | 6 | 0 | 1 | 0 | 0 | 2 | 2 | 3 |
| 2030 Total Volume | 623 | 435 | 57 | 671 | 40 | 81 | 71 | 8 | 225 | 181 | 258 |
| 2030 HV% | 2% | 4% | 0% | 1% | 0% | 1% | 0% | 0% | 1% | 1% | 1% |

INTERSECTION 10

| AM | Park Ave | | | Tatamy Rd | | | Mall Entrance | | | Hackett Ave (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR |
| Base Volume | 0 | 244 | 38 | 138 | 280 | 6 | 1 | 0 | 0 | 31 | 4 | 146 |
| HV% | 0% | 10% | 6% | 1% | 5% | 17% | 100% | 0% | 0% | 13% | 25% | 3% |
| PV | 0 | 220 | 36 | 137 | 266 | 5 | 0 | 0 | 0 | 27 | 3 | 142 |
| HV | 0 | 24 | 2 | 1 | 14 | 1 | 1 | 0 | 0 | 4 | 1 | 4 |
| 2025 Growth PV | 0 | 222 | 36 | 138 | 268 | 5 | 0 | 0 | 0 | 27 | 3 | 143 |
| 2025 Growth HV | 0 | 24 | 2 | 1 | 14 | 1 | 1 | 0 | 0 | 4 | 1 | 4 |
| 2030 Growth PV | 0 | 227 | 37 | 141 | 274 | 5 | 0 | 0 | 0 | 28 | 3 | 146 |
| 2030 Growth HV | 0 | 25 | 2 | 1 | 14 | 1 | 1 | 0 | 0 | 4 | 1 | 4 |
| Site PV | 0 | 0 | 6 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Site HV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site Total | 0 | 0 | 6 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 2025 Future PV | 0 | 222 | 42 | 146 | 268 | 5 | 0 | 0 | 0 | 28 | 3 | 144 |
| 2025 Future HV | 0 | 24 | 2 | 1 | 14 | 1 | 1 | 0 | 0 | 4 | 1 | 4 |
| 2025 Total Volume | 0 | 246 | 44 | 147 | 282 | 6 | 1 | 0 | 0 | 32 | 4 | 148 |
| 2025 HV% | 0% | 10% | 5% | 1% | 5% | 17% | 100% | 0% | 0% | 13% | 25% | 3% |
| 2030 Future PV | 0 | 227 | 43 | 149 | 274 | 5 | 0 | 0 | 0 | 29 | 3 | 147 |
| 2030 Future HV | 0 | 25 | 2 | 1 | 14 | 1 | 1 | 0 | 0 | 4 | 1 | 4 |
| 2030 Total Volume | 0 | 252 | 45 | 150 | 288 | 6 | 1 | 0 | 0 | 33 | 4 | 151 |
| 2030 HV% | 0% | 10% | 4% | 1% | 5% | 17% | 100% | 0% | 0% | 12% | 25% | 3% |

| PM | Park Ave | | | Tatamy Rd | | | Mall Entrance | | | Hackett Ave (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR |
| Base Volume | 0 | 256 | 32 | 163 | 270 | 26 | 32 | 10 | 3 | 76 | 24 | 236 |
| HV% | 0% | 6% | 0% | 1% | 3% | 0% | 3% | 0% | 0% | 1% | 13% | 2% |
| PV | 0 | 241 | 32 | 161 | 262 | 26 | 31 | 10 | 3 | 75 | 21 | 231 |
| HV | 0 | 15 | 0 | 2 | 8 | 0 | 1 | 0 | 0 | 1 | 3 | 5 |
| 2025 Growth PV | 0 | 243 | 32 | 162 | 264 | 26 | 31 | 10 | 3 | 76 | 21 | 233 |
| 2025 Growth HV | 0 | 15 | 0 | 2 | 8 | 0 | 1 | 0 | 0 | 1 | 3 | 5 |
| 2030 Growth PV | 0 | 248 | 33 | 166 | 270 | 27 | 32 | 10 | 3 | 77 | 22 | 238 |
| 2030 Growth HV | 0 | 15 | 0 | 2 | 8 | 0 | 1 | 0 | 0 | 1 | 3 | 5 |
| Site PV | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 7 |
| Site HV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site Total | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 7 |
| 2025 Future PV | 0 | 243 | 35 | 166 | 264 | 26 | 31 | 10 | 3 | 81 | 21 | 240 |
| 2025 Future HV | 0 | 15 | 0 | 2 | 8 | 0 | 1 | 0 | 0 | 1 | 3 | 5 |
| 2025 Total Volume | 0 | 258 | 35 | 168 | 272 | 26 | 32 | 10 | 3 | 82 | 24 | 245 |
| 2025 HV% | 0% | 6% | 0% | 1% | 3% | 0% | 3% | 0% | 0% | 1% | 13% | 2% |
| 2030 Future PV | 0 | 248 | 36 | 170 | 270 | 27 | 32 | 10 | 3 | 82 | 22 | 245 |
| 2030 Future HV | 0 | 15 | 0 | 2 | 8 | 0 | 1 | 0 | 0 | 1 | 3 | 5 |
| 2030 Total Volume | 0 | 263 | 36 | 172 | 278 | 27 | 33 | 10 | 3 | 83 | 25 | 250 |
| 2030 HV% | 0% | 6% | 0% | 1% | 3% | 0% | 3% | 0% | 0% | 1% | 12% | 2% |

INTERSECTION 11

| AM | Wood Ave (SR 2017) | | | |
|---|---|---|---|---|
| | EBL | EBT | WBT | WBR |
| Base Volume | 113 | 656 | 872 | 191 |
| HV% | 0% | 3% | 1% | 2% |
| PV | 113 | 636 | 863 | 187 |
| HV | 0 | 20 | 9 | 4 |
| 2025 Growth PV | 114 | 641 | 870 | 189 |
| 2025 Growth HV | 0 | 20 | 9 | 4 |
| 2030 Growth PV | 116 | 655 | 889 | 193 |
| 2030 Growth HV | 0 | 21 | 9 | 4 |
| Site PV | 2 | 4 | 22 | 0 |
| Site HV | 5 | 0 | 0 | 0 |
| Site Total | 7 | 4 | 22 | 0 |
| 2025 Future PV | 116 | 645 | 892 | 189 |
| 2025 Future HV | 5 | 20 | 9 | 4 |
| 2025 Total Volume | 121 | 665 | 901 | 193 |
| 2025 HV% | 4% | 3% | 1% | 2% |
| 2030 Future PV | 118 | 659 | 911 | 193 |
| 2030 Future HV | 5 | 21 | 9 | 4 |
| 2030 Total Volume | 123 | 680 | 920 | 197 |
| 2030 HV% | 4% | 3% | 1% | 2% |

| PM | Wood Ave (SR 2017) | | | |
|---|---|---|---|---|
| | EBL | EBT | WBT | WBR |
| Base Volume | 77 | 803 | 782 | 96 |
| HV% | 3% | 2% | 2% | 0% |
| PV | 75 | 787 | 766 | 96 |
| HV | 2 | 16 | 16 | 0 |
| 2025 Growth PV | 76 | 794 | 773 | 97 |
| 2025 Growth HV | 2 | 16 | 16 | 0 |
| 2030 Growth PV | 77 | 811 | 789 | 99 |
| 2030 Growth HV | 2 | 16 | 16 | 0 |
| Site PV | 9 | 19 | 11 | 0 |
| Site HV | 2 | 0 | 0 | 0 |
| Site Total | 11 | 19 | 11 | 0 |
| 2025 Future PV | 85 | 813 | 784 | 97 |
| 2025 Future HV | 4 | 16 | 16 | 0 |
| 2025 Total Volume | 89 | 829 | 800 | 97 |
| 2025 HV% | 4% | 2% | 2% | 0% |
| 2030 Future PV | 86 | 830 | 800 | 99 |
| 2030 Future HV | 4 | 16 | 16 | 0 |
| 2030 Total Volume | 90 | 846 | 816 | 99 |
| 2030 HV% | 4% | 2% | 2% | 0% |

INTERSECTION 12

| AM | US 22 East Off-Ramp | | Wood Ave (SR 2017) | | | |
|---|---|---|---|---|---|---|
| | | NBT | EBT | | | WBT |
| Base Volume | | 446 | 323 | | | 872 |
| HV% | | 2% | 1% | | | 1% |
| PV | | 437 | 320 | | | 863 |
| HV | | 9 | 3 | | | 9 |
| 2025 Growth PV | | 441 | 323 | | | 870 |
| 2025 Growth HV | | 9 | 3 | | | 9 |
| 2030 Growth PV | | 450 | 330 | | | 889 |
| 2030 Growth HV | | 9 | 3 | | | 9 |
| Site PV | | 0 | 6 | | | 22 |
| Site HV | | 0 | 5 | | | 0 |
| Site Total | | 0 | 11 | | | 22 |
| 2025 Future PV | | 441 | 329 | | | 892 |
| 2025 Future HV | | 9 | 8 | | | 9 |
| 2025 Total Volume | | 450 | 337 | | | 901 |
| 2025 HV% | | 2% | 2% | | | 1% |
| 2030 Future PV | | 450 | 336 | | | 911 |
| 2030 Future HV | | 9 | 8 | | | 9 |
| 2030 Total Volume | | 459 | 344 | | | 920 |
| 2030 HV% | | 2% | 2% | | | 1% |

| PM | US 22 East Off-Ramp | | Wood Ave (SR 2017) | | | |
|---|---|---|---|---|---|---|
| | | NBT | EBT | | | WBT |
| Base Volume | | 462 | 418 | | | 782 |
| HV% | | 1% | 1% | | | 2% |
| PV | | 457 | 414 | | | 766 |
| HV | | 5 | 4 | | | 16 |
| 2025 Growth PV | | 461 | 418 | | | 773 |
| 2025 Growth HV | | 5 | 4 | | | 16 |
| 2030 Growth PV | | 471 | 427 | | | 789 |
| 2030 Growth HV | | 5 | 4 | | | 16 |
| Site PV | | 0 | 28 | | | 11 |
| Site HV | | 0 | 2 | | | 0 |
| Site Total | | 0 | 30 | | | 11 |
| 2025 Future PV | | 461 | 446 | | | 784 |
| 2025 Future HV | | 5 | 6 | | | 16 |
| 2025 Total Volume | | 466 | 452 | | | 800 |
| 2025 HV% | | 1% | 1% | | | 2% |
| 2030 Future PV | | 471 | 455 | | | 800 |
| 2030 Future HV | | 5 | 6 | | | 16 |
| 2030 Total Volume | | 476 | 461 | | | 816 |
| 2030 HV% | | 1% | 1% | | | 2% |

# APPENDIX C

## *Traffic Count Data*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue

www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Northampton County, PA
Hackett Ave & Wood Ave
Wednesday, February 22, 2023
Location: 40.694879, -75.234387

Count Name: Hackett Ave & Wood Ave
Site Code:
Start Date: 02/22/2023


# Turning Movement Data

| Start Time | Wood Ave Eastbound | | | | | Wood Ave Westbound | | | | | Hackett Ave Southbound | | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | U-Turn | Peds | App. Total | Thru | Right | U-Turn | Peds | App. Total | Left | Right | U-Turn | Peds | App. Total | |
| 6:00 AM | 3 | 10 | 0 | 0 | 13 | 15 | 12 | 0 | 0 | 27 | 21 | 3 | 0 | 0 | 24 | 64 |
| 6:15 AM | 8 | 18 | 0 | 0 | 26 | 29 | 18 | 0 | 0 | 47 | 25 | 2 | 0 | 0 | 27 | 100 |
| 6:30 AM | 17 | 22 | 0 | 0 | 39 | 37 | 31 | 0 | 0 | 68 | 32 | 5 | 0 | 0 | 37 | 144 |
| 6:45 AM | 10 | 28 | 0 | 0 | 38 | 82 | 32 | 0 | 0 | 114 | 28 | 7 | 0 | 0 | 35 | 187 |
| Hourly Total | 38 | 78 | 0 | 0 | 116 | 163 | 93 | 0 | 0 | 256 | 106 | 17 | 0 | 0 | 123 | 495 |
| 7:00 AM | 13 | 32 | 0 | 0 | 45 | 76 | 20 | 0 | 0 | 96 | 29 | 9 | 0 | 0 | 38 | 179 |
| 7:15 AM | 18 | 61 | 0 | 0 | 79 | 40 | 26 | 0 | 0 | 66 | 39 | 19 | 0 | 0 | 58 | 203 |
| 7:30 AM | 20 | 32 | 0 | 0 | 52 | 37 | 37 | 0 | 0 | 74 | 32 | 7 | 0 | 0 | 39 | 165 |
| 7:45 AM | 12 | 29 | 0 | 0 | 41 | 32 | 28 | 0 | 0 | 60 | 48 | 7 | 0 | 0 | 55 | 156 |
| Hourly Total | 63 | 154 | 0 | 0 | 217 | 185 | 111 | 0 | 0 | 296 | 148 | 42 | 0 | 0 | 190 | 703 |
| 8:00 AM | 11 | 29 | 0 | 0 | 40 | 36 | 32 | 0 | 0 | 68 | 29 | 10 | 0 | 0 | 39 | 147 |
| 8:15 AM | 6 | 35 | 0 | 0 | 41 | 36 | 23 | 0 | 0 | 59 | 29 | 5 | 0 | 0 | 34 | 134 |
| 8:30 AM | 5 | 40 | 0 | 0 | 45 | 43 | 24 | 0 | 0 | 67 | 35 | 9 | 0 | 0 | 44 | 156 |
| 8:45 AM | 11 | 37 | 1 | 0 | 49 | 48 | 29 | 0 | 0 | 77 | 22 | 11 | 0 | 0 | 33 | 159 |
| Hourly Total | 33 | 141 | 1 | 0 | 175 | 163 | 108 | 0 | 0 | 271 | 115 | 35 | 0 | 0 | 150 | 596 |
| 9:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3:00 PM | 13 | 46 | 0 | 0 | 59 | 49 | 49 | 0 | 0 | 98 | 34 | 20 | 0 | 0 | 54 | 211 |
| 3:15 PM | 23 | 53 | 0 | 0 | 76 | 58 | 47 | 0 | 0 | 105 | 36 | 17 | 0 | 0 | 53 | 234 |
| 3:30 PM | 25 | 64 | 0 | 0 | 89 | 67 | 57 | 0 | 0 | 124 | 44 | 16 | 0 | 0 | 60 | 273 |
| 3:45 PM | 27 | 39 | 0 | 0 | 66 | 73 | 63 | 0 | 0 | 136 | 39 | 17 | 0 | 0 | 56 | 258 |
| Hourly Total | 88 | 202 | 0 | 0 | 290 | 247 | 216 | 0 | 0 | 463 | 153 | 70 | 0 | 0 | 223 | 976 |
| 4:00 PM | 23 | 48 | 0 | 0 | 71 | 48 | 66 | 0 | 0 | 114 | 32 | 12 | 0 | 0 | 44 | 229 |
| 4:15 PM | 30 | 44 | 0 | 0 | 74 | 38 | 56 | 0 | 0 | 94 | 44 | 17 | 0 | 0 | 61 | 229 |
| 4:30 PM | 19 | 58 | 0 | 0 | 77 | 46 | 81 | 0 | 0 | 127 | 37 | 19 | 0 | 0 | 56 | 260 |
| 4:45 PM | 17 | 63 | 0 | 0 | 80 | 55 | 67 | 0 | 0 | 122 | 40 | 21 | 0 | 0 | 61 | 263 |
| Hourly Total | 89 | 213 | 0 | 0 | 302 | 187 | 270 | 0 | 0 | 457 | 153 | 69 | 0 | 0 | 222 | 981 |
| 5:00 PM | 23 | 53 | 0 | 0 | 76 | 45 | 56 | 0 | 0 | 101 | 27 | 24 | 0 | 0 | 51 | 228 |
| 5:15 PM | 11 | 48 | 0 | 0 | 59 | 44 | 46 | 0 | 0 | 90 | 32 | 8 | 0 | 0 | 40 | 189 |
| 5:30 PM | 8 | 49 | 0 | 0 | 57 | 46 | 58 | 0 | 0 | 104 | 34 | 11 | 0 | 0 | 45 | 206 |
| 5:45 PM | 16 | 60 | 0 | 0 | 76 | 42 | 32 | 0 | 0 | 74 | 21 | 7 | 0 | 0 | 28 | 178 |
| Hourly Total | 58 | 210 | 0 | 0 | 268 | 177 | 192 | 0 | 0 | 369 | 114 | 50 | 0 | 0 | 164 | 801 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 369 | 998 | 1 | 0 | 1368 | 1122 | 990 | 0 | 0 | 2112 | 789 | 283 | 0 | 0 | 1072 | 4552 |
| Approach % | 27.0 | 73.0 | 0.1 | - | - | 53.1 | 46.9 | 0.0 | - | - | 73.6 | 26.4 | 0.0 | - | - | - |
| Total % | 8.1 | 21.9 | 0.0 | - | 30.1 | 24.6 | 21.7 | 0.0 | - | 46.4 | 17.3 | 6.2 | 0.0 | - | 23.6 | - |
| Lights | 363 | 975 | 1 | - | 1339 | 1084 | 972 | 0 | - | 2056 | 772 | 279 | 0 | - | 1051 | 4446 |
| % Lights | 98.4 | 97.7 | 100.0 | - | 97.9 | 96.6 | 98.2 | - | - | 97.3 | 97.8 | 98.6 | - | - | 98.0 | 97.7 |
| Buses | 3 | 11 | 0 | - | 14 | 25 | 8 | 0 | - | 33 | 13 | 1 | 0 | - | 14 | 61 |
| % Buses | 0.8 | 1.1 | 0.0 | - | 1.0 | 2.2 | 0.8 | - | - | 1.6 | 1.6 | 0.4 | - | - | 1.3 | 1.3 |
| Trucks | 3 | 12 | 0 | - | 15 | 13 | 10 | 0 | - | 23 | 4 | 3 | 0 | - | 7 | 45 |
| % Trucks | 0.8 | 1.2 | 0.0 | - | 1.1 | 1.2 | 1.0 | - | - | 1.1 | 0.5 | 1.1 | - | - | 0.7 | 1.0 |
| Bicycles on Crosswalk | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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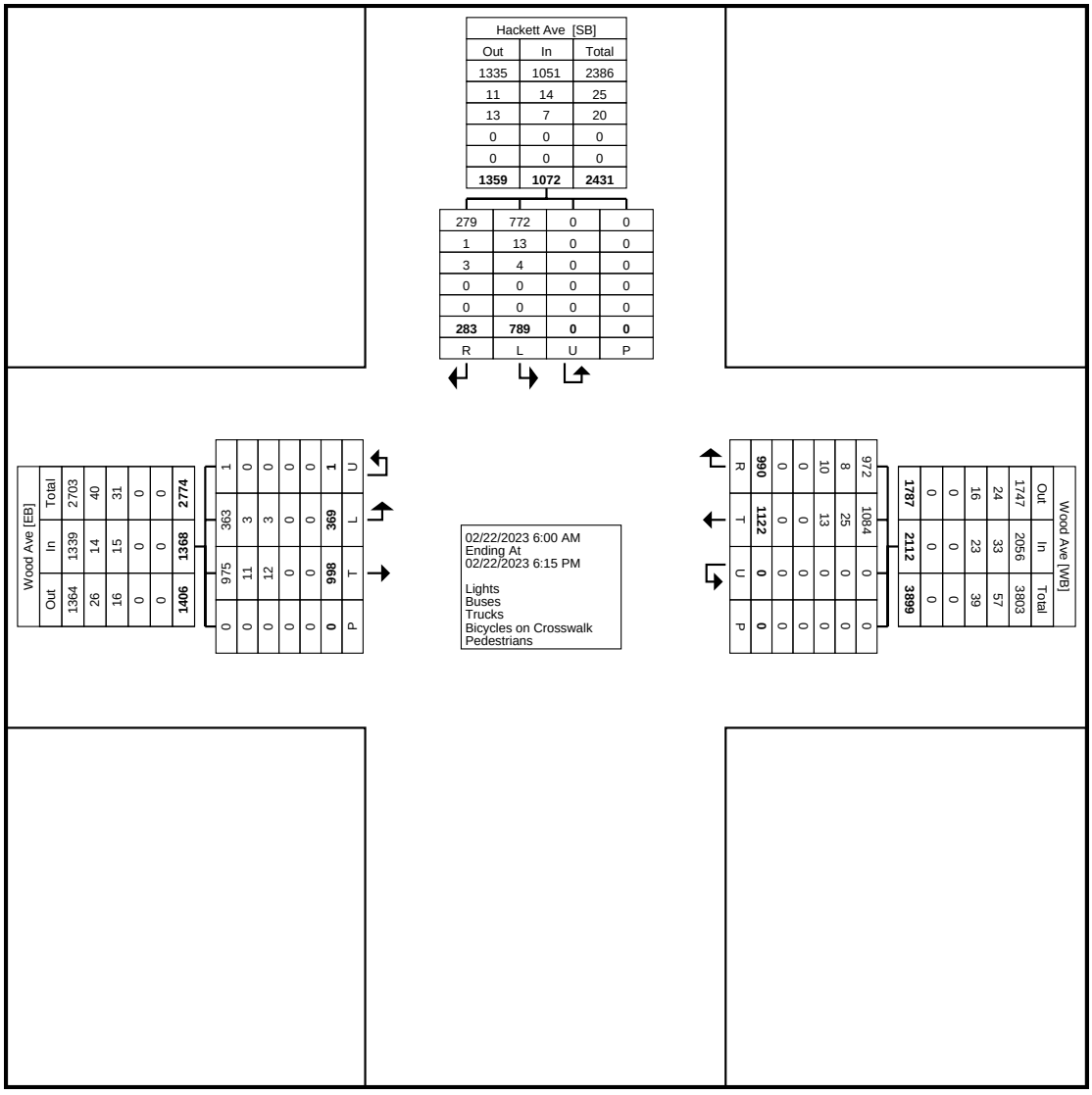
Northampton County, PA
Hackett Ave & Wood Ave
Wednesday, February 22, 2023
Location: 40.694879, -75.234387

Count Name: Hackett Ave & Wood Ave
Site Code:
Start Date: 02/22/2023


Turning Movement Data Plot

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Northampton County, PA
Hackett Ave & Wood Ave
Wednesday, February 22, 2023
Location: 40.694879, -75.234387

Count Name: Hackett Ave & Wood Ave
Site Code:
Start Date: 02/22/2023


# Turning Movement Peak Hour Data (6:45 AM)

| Start Time | Wood Ave Eastbound | | | | | Wood Ave Westbound | | | | | Hackett Ave Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | U-Turn | Peds | App. Total | Thru | Right | U-Turn | Peds | App. Total | Left | Right | U-Turn | Peds | App. Total | Int. Total |
| 6:45 AM | 10 | 28 | 0 | 0 | 38 | 82 | 32 | 0 | 0 | 114 | 28 | 7 | 0 | 0 | 35 | 187 |
| 7:00 AM | 13 | 32 | 0 | 0 | 45 | 76 | 20 | 0 | 0 | 96 | 29 | 9 | 0 | 0 | 38 | 179 |
| 7:15 AM | 18 | 61 | 0 | 0 | 79 | 40 | 26 | 0 | 0 | 66 | 39 | 19 | 0 | 0 | 58 | 203 |
| 7:30 AM | 20 | 32 | 0 | 0 | 52 | 37 | 37 | 0 | 0 | 74 | 32 | 7 | 0 | 0 | 39 | 165 |
| Total | 61 | 153 | 0 | 0 | 214 | 235 | 115 | 0 | 0 | 350 | 128 | 42 | 0 | 0 | 170 | 734 |
| Approach % | 28.5 | 71.5 | 0.0 | - | - | 67.1 | 32.9 | 0.0 | - | - | 75.3 | 24.7 | 0.0 | - | - | - |
| Total % | 8.3 | 20.8 | 0.0 | - | 29.2 | 32.0 | 15.7 | 0.0 | - | 47.7 | 17.4 | 5.7 | 0.0 | - | 23.2 | - |
| PHF | 0.763 | 0.627 | 0.000 | - | 0.677 | 0.716 | 0.777 | 0.000 | - | 0.768 | 0.821 | 0.553 | 0.000 | - | 0.733 | 0.904 |
| Lights | 58 | 145 | 0 | - | 203 | 222 | 113 | 0 | - | 335 | 128 | 41 | 0 | - | 169 | 707 |
| % Lights | 95.1 | 94.8 | - | - | 94.9 | 94.5 | 98.3 | - | - | 95.7 | 100.0 | 97.6 | - | - | 99.4 | 96.3 |
| Buses | 2 | 7 | 0 | - | 9 | 12 | 0 | 0 | - | 12 | 0 | 1 | 0 | - | 1 | 22 |
| % Buses | 3.3 | 4.6 | - | - | 4.2 | 5.1 | 0.0 | - | - | 3.4 | 0.0 | 2.4 | - | - | 0.6 | 3.0 |
| Trucks | 1 | 1 | 0 | - | 2 | 1 | 2 | 0 | - | 3 | 0 | 0 | 0 | - | 0 | 5 |
| % Trucks | 1.6 | 0.7 | - | - | 0.9 | 0.4 | 1.7 | - | - | 0.9 | 0.0 | 0.0 | - | - | 0.0 | 0.7 |
| Bicycles on Crosswalk | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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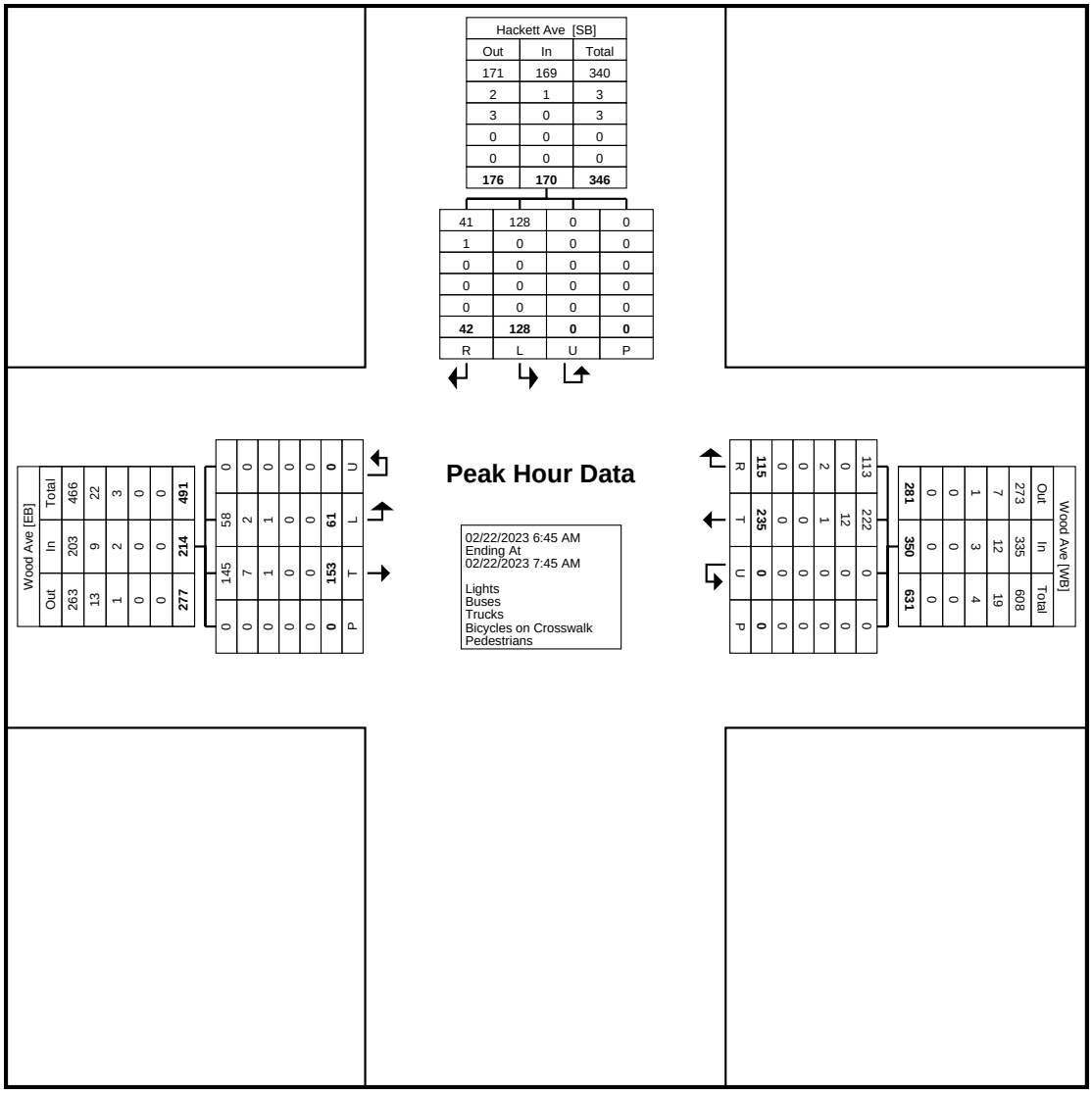
Site Code:
Start Date: 02/22/2023


Turning Movement Peak Hour Data Plot (6:45 AM)

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Northampton County, PA
Hackett Ave & Wood Ave
Wednesday, February 22, 2023
Location: 40.694879, -75.234387

Count Name: Hackett Ave & Wood Ave
Site Code:
Start Date: 02/22/2023


# Turning Movement Peak Hour Data (3:15 PM)

| Start Time | Wood Ave Eastbound | | | | | Wood Ave Westbound | | | | | Hackett Ave Southbound | | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | U-Turn | Peds | App. Total | Thru | Right | U-Turn | Peds | App. Total | Left | Right | U-Turn | Peds | App. Total | |
| 3:15 PM | 23 | 53 | 0 | 0 | 76 | 58 | 47 | 0 | 0 | 105 | 36 | 17 | 0 | 0 | 53 | 234 |
| 3:30 PM | 25 | 64 | 0 | 0 | 89 | 67 | 57 | 0 | 0 | 124 | 44 | 16 | 0 | 0 | 60 | 273 |
| 3:45 PM | 27 | 39 | 0 | 0 | 66 | 73 | 63 | 0 | 0 | 136 | 39 | 17 | 0 | 0 | 56 | 258 |
| 4:00 PM | 23 | 48 | 0 | 0 | 71 | 48 | 66 | 0 | 0 | 114 | 32 | 12 | 0 | 0 | 44 | 229 |
| Total | 98 | 204 | 0 | 0 | 302 | 246 | 233 | 0 | 0 | 479 | 151 | 62 | 0 | 0 | 213 | 994 |
| Approach % | 32.5 | 67.5 | 0.0 | - | - | 51.4 | 48.6 | 0.0 | - | - | 70.9 | 29.1 | 0.0 | - | - | - |
| Total % | 9.9 | 20.5 | 0.0 | - | 30.4 | 24.7 | 23.4 | 0.0 | - | 48.2 | 15.2 | 6.2 | 0.0 | - | 21.4 | - |
| PHF | 0.907 | 0.797 | 0.000 | - | 0.848 | 0.842 | 0.883 | 0.000 | - | 0.881 | 0.858 | 0.912 | 0.000 | - | 0.888 | 0.910 |
| Lights | 96 | 200 | 0 | - | 296 | 238 | 229 | 0 | - | 467 | 147 | 61 | 0 | - | 208 | 971 |
| % Lights | 98.0 | 98.0 | - | - | 98.0 | 96.7 | 98.3 | - | - | 97.5 | 97.4 | 98.4 | - | - | 97.7 | 97.7 |
| Buses | 1 | 2 | 0 | - | 3 | 6 | 2 | 0 | - | 8 | 2 | 0 | 0 | - | 2 | 13 |
| % Buses | 1.0 | 1.0 | - | - | 1.0 | 2.4 | 0.9 | - | - | 1.7 | 1.3 | 0.0 | - | - | 0.9 | 1.3 |
| Trucks | 1 | 2 | 0 | - | 3 | 2 | 2 | 0 | - | 4 | 2 | 1 | 0 | - | 3 | 10 |
| % Trucks | 1.0 | 1.0 | - | - | 1.0 | 0.8 | 0.9 | - | - | 0.8 | 1.3 | 1.6 | - | - | 1.4 | 1.0 |
| Bicycles on Crosswalk | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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Count Name: Hackett Ave & Wood Ave
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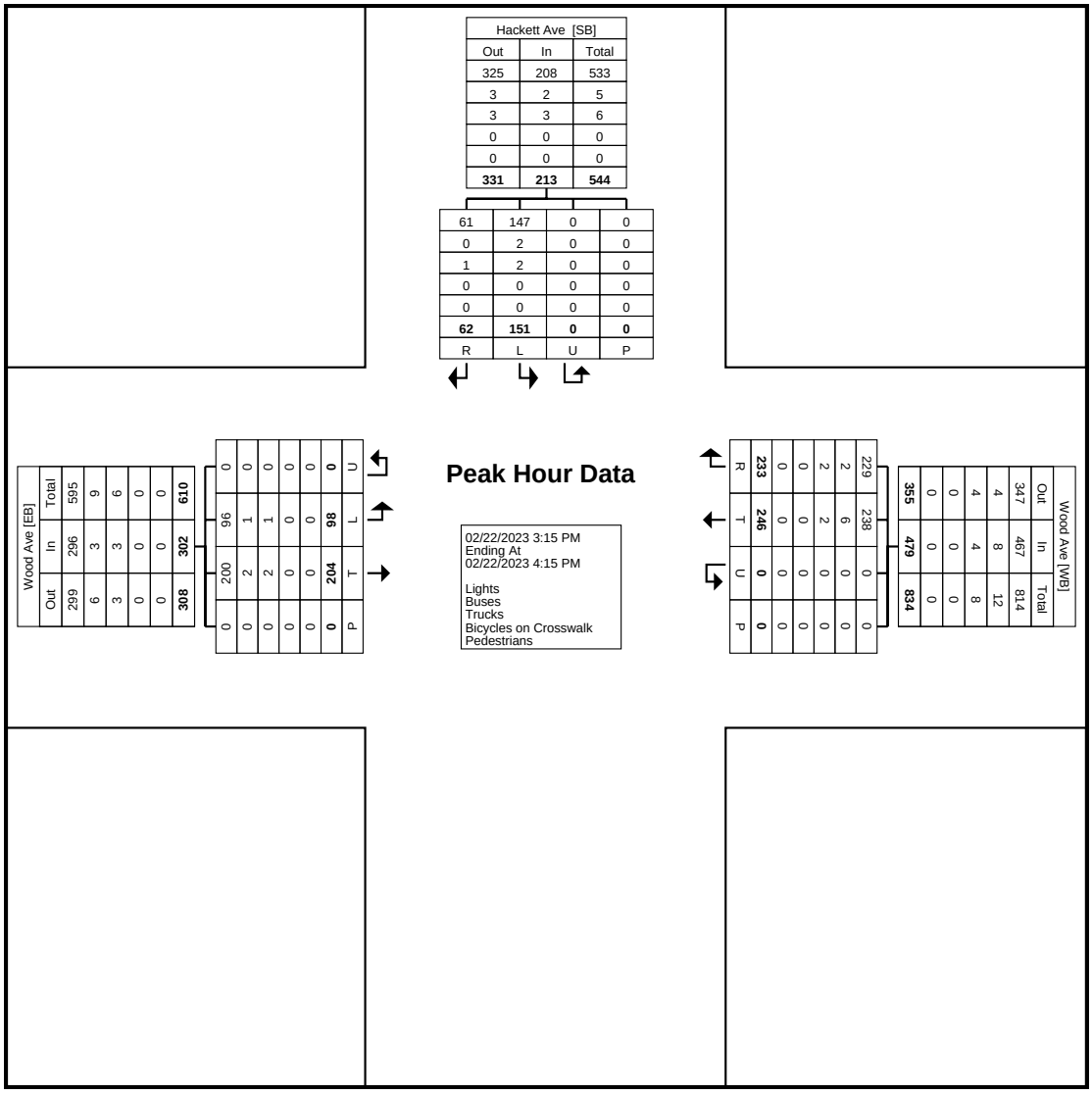
Start Date: 02/22/2023


Turning Movement Peak Hour Data Plot (3:15 PM)

## Wood Ave & US 22 WB Ramps - TMC

Wed Feb 22, 2023
Full Length (6 AM-9 AM, 3 PM-6 PM)
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1041670, Location: 40.695353, -75.230865

Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

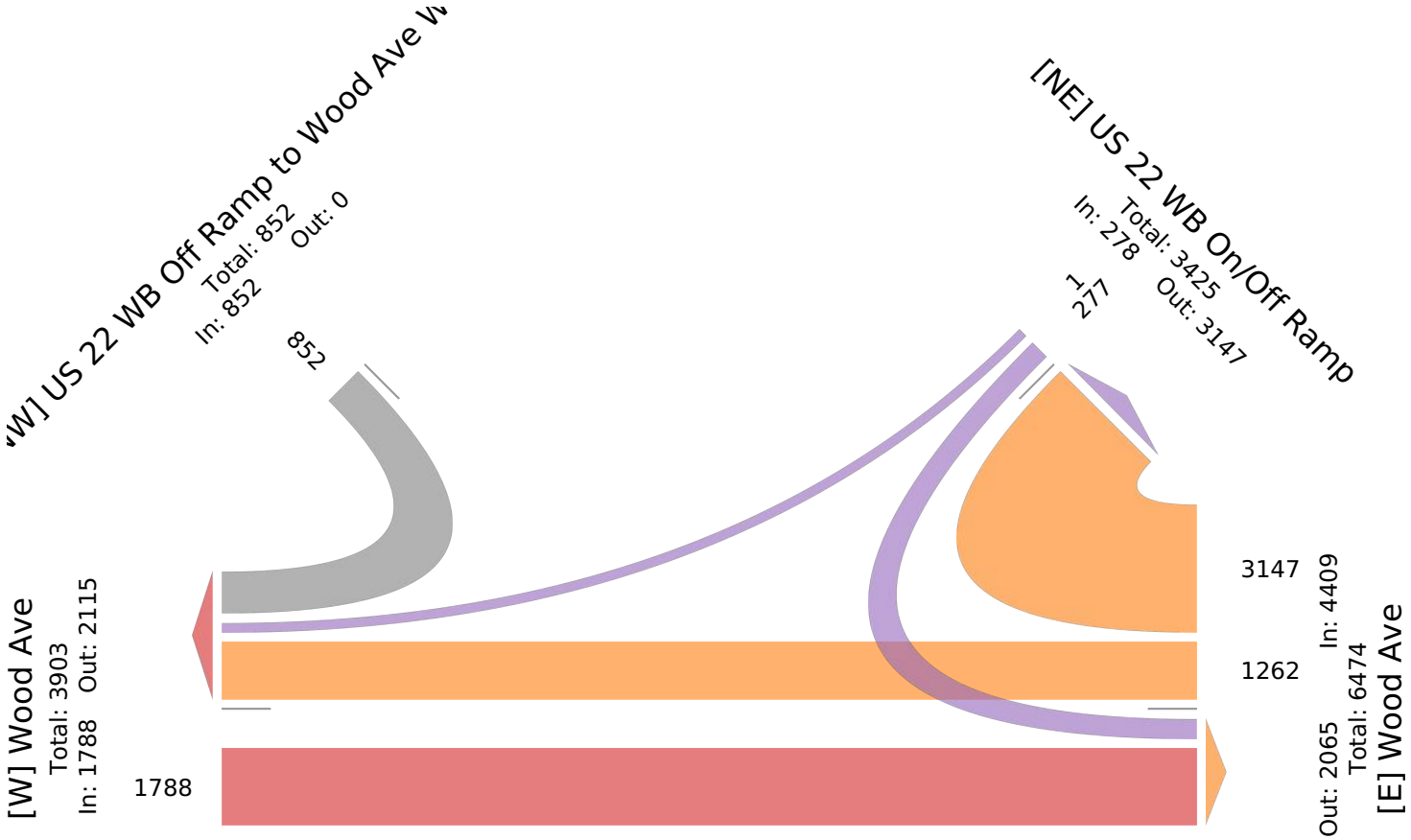
| Leg | US 22 WB On/Off Ramp | | | | | Wood Ave | | | | | Wood Ave | | | | | US 22 WB Off Ramp to Wood Ave WB | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Southwestbound | | | | | Westbound | | | | | Eastbound | | | | | Southeastbound | | | | | |
| Time | BR | HL | U | **App** | Ped* | HR | T | U | **App** | Ped* | T | BL | U | **App** | Ped* | HR | BL | L | **App** | Ped* | **Int** |
| 2023-02-22 6:00AM | 0 | 4 | 0 | **4** | 0 | 65 | 20 | 0 | **85** | 0 | 31 | 0 | 0 | **31** | 0 | 7 | 0 | 0 | **7** | 0 | **127** |
| 6:15AM | 0 | 3 | 0 | **3** | 0 | 90 | 32 | 0 | **122** | 0 | 43 | 0 | 0 | **43** | 0 | 14 | 0 | 0 | **14** | 0 | **182** |
| 6:30AM | 0 | 2 | 0 | **2** | 0 | 148 | 53 | 0 | **201** | 0 | 54 | 0 | 0 | **54** | 0 | 20 | 0 | 0 | **20** | 0 | **277** |
| 6:45AM | 0 | 3 | 0 | **3** | 0 | 123 | 95 | 0 | **218** | 0 | 58 | 0 | 0 | **58** | 0 | 17 | 0 | 0 | **17** | 0 | **296** |
| Hourly Total | 0 | 12 | 0 | **12** | 0 | 426 | 200 | 0 | **626** | 0 | 186 | 0 | 0 | **186** | 0 | 58 | 0 | 0 | **58** | 0 | **882** |
| 7:00AM | 0 | 6 | 0 | **6** | 0 | 143 | 82 | 0 | **225** | 0 | 61 | 0 | 0 | **61** | 0 | 15 | 0 | 0 | **15** | 0 | **307** |
| 7:15AM | 0 | 4 | 0 | **4** | 0 | 158 | 42 | 0 | **200** | 0 | 98 | 0 | 0 | **98** | 0 | 26 | 0 | 0 | **26** | 0 | **328** |
| 7:30AM | 0 | 4 | 0 | **4** | 0 | 189 | 50 | 0 | **239** | 0 | 64 | 0 | 0 | **64** | 0 | 20 | 0 | 0 | **20** | 0 | **327** |
| 7:45AM | 0 | 9 | 0 | **9** | 0 | 169 | 35 | 0 | **204** | 0 | 77 | 0 | 0 | **77** | 0 | 28 | 0 | 0 | **28** | 0 | **318** |
| Hourly Total | 0 | 23 | 0 | **23** | 0 | 659 | 209 | 0 | **868** | 0 | 300 | 0 | 0 | **300** | 0 | 89 | 0 | 0 | **89** | 0 | **1280** |
| 8:00AM | 0 | 3 | 0 | **3** | 0 | 131 | 41 | 0 | **172** | 0 | 58 | 0 | 0 | **58** | 0 | 23 | 0 | 0 | **23** | 0 | **256** |
| 8:15AM | 0 | 4 | 0 | **4** | 0 | 144 | 35 | 0 | **179** | 0 | 64 | 0 | 0 | **64** | 0 | 22 | 0 | 0 | **22** | 0 | **269** |
| 8:30AM | 0 | 6 | 0 | **6** | 0 | 132 | 47 | 0 | **179** | 0 | 75 | 0 | 0 | **75** | 0 | 24 | 0 | 0 | **24** | 0 | **284** |
| 8:45AM | 0 | 11 | 0 | **11** | 0 | 170 | 51 | 0 | **221** | 0 | 59 | 0 | 0 | **59** | 0 | 28 | 0 | 0 | **28** | 0 | **319** |
| Hourly Total | 0 | 24 | 0 | **24** | 0 | 577 | 174 | 0 | **751** | 0 | 256 | 0 | 0 | **256** | 0 | 97 | 0 | 0 | **97** | 0 | **1128** |
| 3:00PM | 0 | 16 | 0 | **16** | 0 | 145 | 54 | 0 | **199** | 0 | 80 | 0 | 0 | **80** | 0 | 45 | 0 | 0 | **45** | 0 | **340** |
| 3:15PM | 1 | 8 | 0 | **9** | 0 | 122 | 59 | 0 | **181** | 0 | 88 | 0 | 0 | **88** | 0 | 49 | 0 | 0 | **49** | 0 | **327** |
| 3:30PM | 0 | 12 | 0 | **12** | 0 | 127 | 72 | 0 | **199** | 0 | 108 | 0 | 0 | **108** | 0 | 51 | 0 | 0 | **51** | 0 | **370** |
| 3:45PM | 0 | 26 | 0 | **26** | 0 | 141 | 61 | 0 | **202** | 0 | 80 | 0 | 0 | **80** | 0 | 72 | 0 | 0 | **72** | 0 | **380** |
| Hourly Total | 1 | 62 | 0 | **63** | 0 | 535 | 246 | 0 | **781** | 0 | 356 | 0 | 0 | **356** | 0 | 217 | 0 | 0 | **217** | 0 | **1417** |
| 4:00PM | 0 | 15 | 0 | **15** | 0 | 144 | 56 | 0 | **200** | 0 | 81 | 0 | 0 | **81** | 0 | 62 | 0 | 0 | **62** | 0 | **358** |
| 4:15PM | 0 | 14 | 0 | **14** | 0 | 129 | 39 | 0 | **168** | 0 | 88 | 0 | 0 | **88** | 0 | 49 | 0 | 0 | **49** | 0 | **319** |
| 4:30PM | 0 | 17 | 0 | **17** | 0 | 136 | 75 | 0 | **211** | 0 | 93 | 0 | 0 | **93** | 0 | 57 | 0 | 0 | **57** | 0 | **378** |
| 4:45PM | 0 | 23 | 0 | **23** | 0 | 124 | 61 | 0 | **185** | 0 | 102 | 0 | 0 | **102** | 0 | 51 | 0 | 0 | **51** | 0 | **361** |
| Hourly Total | 0 | 69 | 0 | **69** | 0 | 533 | 231 | 0 | **764** | 0 | 364 | 0 | 0 | **364** | 0 | 219 | 0 | 0 | **219** | 0 | **1416** |
| 5:00PM | 0 | 24 | 0 | **24** | 0 | 109 | 57 | 0 | **166** | 0 | 81 | 0 | 0 | **81** | 0 | 49 | 0 | 0 | **49** | 0 | **320** |
| 5:15PM | 0 | 22 | 0 | **22** | 0 | 107 | 50 | 0 | **157** | 0 | 82 | 0 | 0 | **82** | 0 | 42 | 0 | 0 | **42** | 0 | **303** |
| 5:30PM | 0 | 19 | 0 | **19** | 0 | 115 | 56 | 0 | **171** | 0 | 81 | 0 | 0 | **81** | 0 | 48 | 0 | 0 | **48** | 0 | **319** |
| 5:45PM | 0 | 22 | 0 | **22** | 0 | 86 | 39 | 0 | **125** | 0 | 82 | 0 | 0 | **82** | 0 | 33 | 0 | 0 | **33** | 0 | **262** |
| Hourly Total | 0 | 87 | 0 | **87** | 0 | 417 | 202 | 0 | **619** | 0 | 326 | 0 | 0 | **326** | 0 | 172 | 0 | 0 | **172** | 0 | **1204** |
| 6:00PM | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | **0** |
| Hourly Total | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | **0** |
| **Total** | 1 | 277 | 0 | **278** | 0 | 3147 | 1262 | 0 | **4409** | 0 | 1788 | 0 | 0 | **1788** | 0 | 852 | 0 | 0 | **852** | 0 | **7327** |
| **% Approach** | 0.4% | 99.6% | 0% | **-** | - | 71.4% | 28.6% | 0% | **-** | - | 100% | 0% | 0% | **-** | - | 100% | 0% | 0% | **-** | - | - |
| **% Total** | 0% | 3.8% | 0% | **3.8%** | - | 43.0% | 17.2% | 0% | **60.2%** | - | 24.4% | 0% | 0% | **24.4%** | - | 11.6% | 0% | 0% | **11.6%** | - | - |
| **Lights** | 0 | 275 | 0 | **275** | - | 3105 | 1217 | 0 | **4322** | - | 1742 | 0 | 0 | **1742** | - | 833 | 0 | 0 | **833** | - | 7172 |
| **% Lights** | 0% | 99.3% | 0% | **98.9%** | - | 98.7% | 96.4% | 0% | **98.0%** | - | 97.4% | 0% | 0% | **97.4%** | - | 97.8% | 0% | 0% | **97.8%** | - | 97.9% |
| **Articulated Trucks and Single-Unit Trucks** | 1 | 1 | 0 | **2** | - | 34 | 14 | 0 | **48** | - | 20 | 0 | 0 | **20** | - | 16 | 0 | 0 | **16** | - | 86 |
| **% Articulated Trucks and Single-Unit Trucks** | 100% | 0.4% | 0% | **0.7%** | - | 1.1% | 1.1% | 0% | **1.1%** | - | 1.1% | 0% | 0% | **1.1%** | - | 1.9% | 0% | 0% | **1.9%** | - | 1.2% |
| **Buses** | 0 | 1 | 0 | **1** | - | 8 | 31 | 0 | **39** | - | 26 | 0 | 0 | **26** | - | 3 | 0 | 0 | **3** | - | 69 |
| **% Buses** | 0% | 0.4% | 0% | **0.4%** | - | 0.3% | 2.5% | 0% | **0.9%** | - | 1.5% | 0% | 0% | **1.5%** | - | 0.4% | 0% | 0% | **0.4%** | - | 0.9% |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, T: Thru, U: U-Turn

## Wood Ave & US 22 WB Ramps - TMC

Wed Feb 22, 2023
Full Length (6 AM-9 AM, 3 PM-6 PM)
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1041670, Location: 40.695353, -75.230865

Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US



## Wood Ave & US 22 WB Ramps - TMC

Wed Feb 22, 2023
AM Peak (7 AM - 8 AM)
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1041670, Location: 40.695353, -75.230865

Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

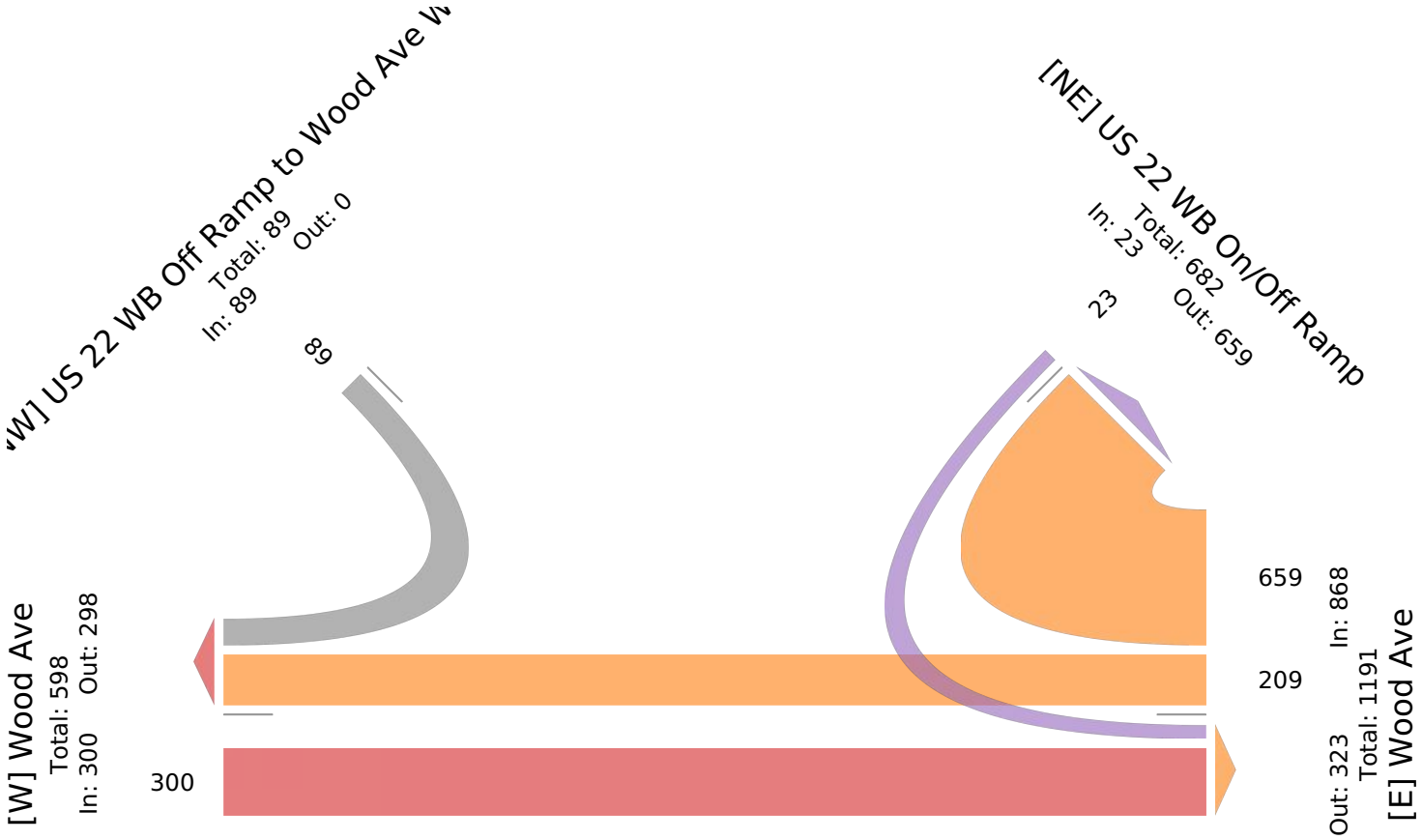
| Leg | US 22 WB On/Off Ramp | | | | | Wood Ave | | | | | Wood Ave | | | | | US 22 WB Off Ramp to Wood Ave WB | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Southwestbound | | | | | Westbound | | | | | Eastbound | | | | | Southeastbound | | | | | |
| Time | BR | HL | U | **App** | Ped* | HR | T | U | **App** | Ped* | T | BL | U | **App** | Ped* | HR | BL | L | **App** | Ped* | **Int** |
| 2023-02-22 7:00AM | 0 | 6 | 0 | **6** | 0 | 143 | 82 | 0 | **225** | 0 | 61 | 0 | 0 | **61** | 0 | 15 | 0 | 0 | **15** | 0 | **307** |
| 7:15AM | 0 | 4 | 0 | **4** | 0 | 158 | 42 | 0 | **200** | 0 | 98 | 0 | 0 | **98** | 0 | 26 | 0 | 0 | **26** | 0 | **328** |
| 7:30AM | 0 | 4 | 0 | **4** | 0 | 189 | 50 | 0 | **239** | 0 | 64 | 0 | 0 | **64** | 0 | 20 | 0 | 0 | **20** | 0 | **327** |
| 7:45AM | 0 | 9 | 0 | **9** | 0 | 169 | 35 | 0 | **204** | 0 | 77 | 0 | 0 | **77** | 0 | 28 | 0 | 0 | **28** | 0 | **318** |
| **Total** | 0 | 23 | 0 | **23** | 0 | 659 | 209 | 0 | **868** | 0 | 300 | 0 | 0 | **300** | 0 | 89 | 0 | 0 | **89** | 0 | **1280** |
| **% Approach** | 0% | 100% | 0% | **-** | - | 75.9% | 24.1% | 0% | **-** | - | 100% | 0% | 0% | **-** | - | 100% | 0% | 0% | **-** | - | **-** |
| **% Total** | 0% | 1.8% | 0% | **1.8%** | - | 51.5% | 16.3% | 0% | **67.8%** | - | 23.4% | 0% | 0% | **23.4%** | - | 7.0% | 0% | 0% | **7.0%** | - | **-** |
| **PHF** | - | 0.639 | | **- 0.639** | - | 0.872 | 0.637 | - | **0.908** | - | 0.765 | - | - | **0.765** | - | 0.795 | - | - | **0.795** | - | 0.976 |
| **Lights** | 0 | 23 | 0 | **23** | - | 654 | 203 | 0 | **857** | - | 289 | 0 | 0 | **289** | - | 86 | 0 | 0 | **86** | - | 1255 |
| **% Lights** | 0% | 100% | 0% | **100%** | - | 99.2% | 97.1% | 0% | **98.7%** | - | 96.3% | 0% | 0% | **96.3%** | - | 96.6% | 0% | 0% | **96.6%** | - | 98.0% |
| **Articulated Trucks and Single-Unit Trucks** | 0 | 0 | 0 | **0** | - | 4 | 1 | 0 | **5** | - | 5 | 0 | 0 | **5** | - | 3 | 0 | 0 | **3** | - | 13 |
| **% Articulated Trucks and Single-Unit Trucks** | 0% | 0% | 0% | **0%** | - | 0.6% | 0.5% | 0% | **0.6%** | - | 1.7% | 0% | 0% | **1.7%** | - | 3.4% | 0% | 0% | **3.4%** | - | 1.0% |
| **Buses** | 0 | 0 | 0 | **0** | - | 1 | 5 | 0 | **6** | - | 6 | 0 | 0 | **6** | - | 0 | 0 | 0 | **0** | - | 12 |
| **% Buses** | 0% | 0% | 0% | **0%** | - | 0.2% | 2.4% | 0% | **0.7%** | - | 2.0% | 0% | 0% | **2.0%** | - | 0% | 0% | 0% | **0%** | - | 0.9% |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, T: Thru, U: U-Turn

## Wood Ave & US 22 WB Ramps - TMC

Wed Feb 22, 2023
AM Peak (7 AM - 8 AM)
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1041670, Location: 40.695353, -75.230865

Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US



## Wood Ave & US 22 WB Ramps - TMC

Wed Feb 22, 2023
PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1041670, Location: 40.695353, -75.230865

Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

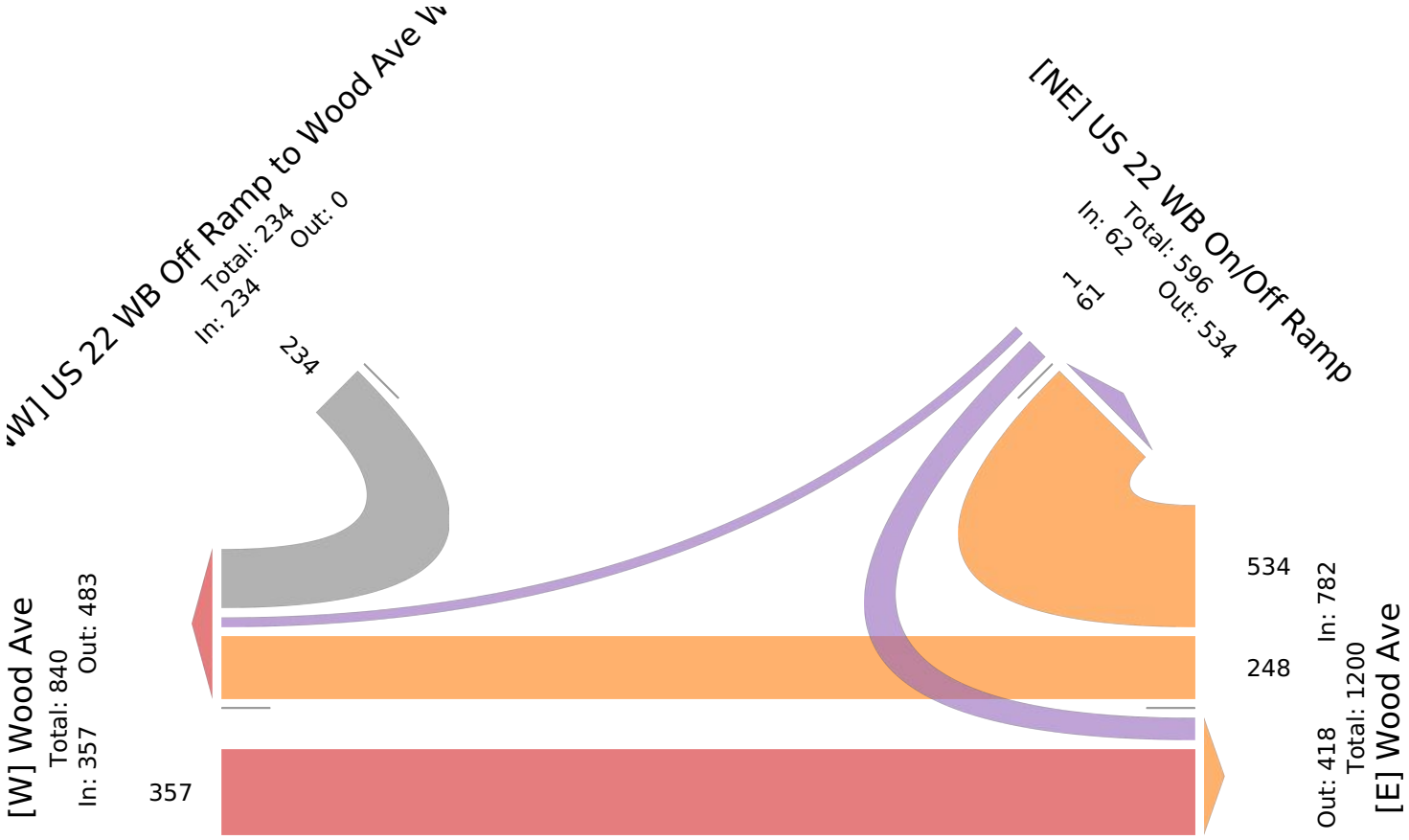
| Leg | US 22 WB On/Off Ramp | | | | | Wood Ave | | | | | Wood Ave | | | | | US 22 WB Off Ramp to Wood Ave WB | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Southwestbound | | | | | Westbound | | | | | Eastbound | | | | | Southeastbound | | | | | |
| Time | BR | HL | U | **App** | Ped* | HR | T | U | **App** | Ped* | T | BL | U | **App** | Ped* | HR | BL | L | **App** | Ped* | **Int** |
| 2023-02-22 3:15PM | 1 | 8 | 0 | **9** | 0 | 122 | 59 | 0 | **181** | 0 | 88 | 0 | 0 | **88** | 0 | 49 | 0 | 0 | **49** | 0 | **327** |
| 3:30PM | 0 | 12 | 0 | **12** | 0 | 127 | 72 | 0 | **199** | 0 | 108 | 0 | 0 | **108** | 0 | 51 | 0 | 0 | **51** | 0 | **370** |
| 3:45PM | 0 | 26 | 0 | **26** | 0 | 141 | 61 | 0 | **202** | 0 | 80 | 0 | 0 | **80** | 0 | 72 | 0 | 0 | **72** | 0 | **380** |
| 4:00PM | 0 | 15 | 0 | **15** | 0 | 144 | 56 | 0 | **200** | 0 | 81 | 0 | 0 | **81** | 0 | 62 | 0 | 0 | **62** | 0 | **358** |
| **Total** | 1 | 61 | 0 | **62** | 0 | 534 | 248 | 0 | **782** | 0 | 357 | 0 | 0 | **357** | 0 | 234 | 0 | 0 | **234** | 0 | **1435** |
| **% Approach** | 1.6% | 98.4% | 0% | **-** | - | 68.3% | 31.7% | 0% | **-** | - | 100% | 0% | 0% | **-** | - | 100% | 0% | 0% | **-** | - | - |
| **% Total** | 0.1% | 4.3% | 0% | **4.3%** | - | 37.2% | 17.3% | 0% | **54.5%** | - | 24.9% | 0% | 0% | **24.9%** | - | 16.3% | 0% | 0% | **16.3%** | - | - |
| **PHF** | 0.250 | 0.587 | - | **0.596** | - | 0.927 | 0.861 | - | **0.968** | - | 0.826 | - | - | **0.826** | - | 0.813 | - | - | **0.813** | - | 0.944 |
| **Lights** | 0 | 61 | 0 | **61** | - | 523 | 238 | 0 | **761** | - | 349 | 0 | 0 | **349** | - | 227 | 0 | 0 | **227** | - | 1398 |
| **% Lights** | 0% | 100% | 0% | **98.4%** | - | 97.9% | 96.0% | 0% | **97.3%** | - | 97.8% | 0% | 0% | **97.8%** | - | 97.0% | 0% | 0% | **97.0%** | - | 97.4% |
| **Articulated Trucks and Single-Unit Trucks** | 1 | 0 | 0 | **1** | - | 9 | 2 | 0 | **11** | - | 4 | 0 | 0 | **4** | - | 6 | 0 | 0 | **6** | - | 22 |
| **% Articulated Trucks and Single-Unit Trucks** | 100% | 0% | 0% | **1.6%** | - | 1.7% | 0.8% | 0% | **1.4%** | - | 1.1% | 0% | 0% | **1.1%** | - | 2.6% | 0% | 0% | **2.6%** | - | 1.5% |
| **Buses** | 0 | 0 | 0 | **0** | - | 2 | 8 | 0 | **10** | - | 4 | 0 | 0 | **4** | - | 1 | 0 | 0 | **1** | - | 15 |
| **% Buses** | 0% | 0% | 0% | **0%** | - | 0.4% | 3.2% | 0% | **1.3%** | - | 1.1% | 0% | 0% | **1.1%** | - | 0.4% | 0% | 0% | **0.4%** | - | 1.0% |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, T: Thru, U: U-Turn

## Wood Ave & US 22 WB Ramps - TMC

Wed Feb 22, 2023
PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1041670, Location: 40.695353, -75.230865

Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US



## Wood Ave & 13th St - TMC

Wed Feb 22, 2023
Full Length (6 AM-9 AM, 3 PM-6 PM)
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1041668, Location: 40.694235, -75.228415

Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

| Leg | 13th St | | | | | | | Jackson St | | | Wood Ave | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Southbound | | | | | | | Southwestbound | | | Westbound | | | | | | |
| Time | R | T | L | U | RR | App | Ped* | HR | App | Ped* | R | T | L | U | RR | App | Ped* |
| 2023-02-22 6:00AM | 52 | 12 | 3 | 0 | 17 | **84** | 0 | 10 | **10** | 0 | 0 | 28 | 0 | 0 | 0 | **28** | 0 |
| 6:15AM | 63 | 15 | 4 | 0 | 28 | **110** | 0 | 9 | **9** | 0 | 0 | 43 | 4 | 0 | 0 | **47** | 0 |
| 6:30AM | 108 | 13 | 2 | 0 | 35 | **158** | 0 | 13 | **13** | 0 | 0 | 64 | 0 | 0 | 0 | **64** | 0 |
| 6:45AM | 103 | 20 | 6 | 0 | 61 | **190** | 0 | 12 | **12** | 0 | 0 | 59 | 0 | 0 | 0 | **59** | 0 |
| Hourly Total | 326 | 60 | 15 | 0 | 141 | **542** | 0 | 44 | **44** | 0 | 0 | 194 | 4 | 0 | 0 | **198** | 0 |
| 7:00AM | 74 | 29 | 6 | 0 | 116 | **225** | 0 | 13 | **13** | 0 | 0 | 52 | 0 | 0 | 0 | **52** | 0 |
| 7:15AM | 66 | 28 | 6 | 0 | 86 | **186** | 0 | 16 | **16** | 1 | 0 | 53 | 1 | 0 | 0 | **54** | 1 |
| 7:30AM | 87 | 35 | 8 | 0 | 88 | **218** | 0 | 25 | **25** | 0 | 0 | 66 | 1 | 0 | 0 | **67** | 0 |
| 7:45AM | 77 | 42 | 19 | 0 | 87 | **225** | 0 | 11 | **11** | 0 | 0 | 55 | 1 | 0 | 0 | **56** | 0 |
| Hourly Total | 304 | 134 | 39 | 0 | 377 | **854** | 0 | 65 | **65** | 1 | 0 | 226 | 3 | 0 | 0 | **229** | 1 |
| 8:00AM | 61 | 32 | 24 | 0 | 63 | **180** | 0 | 13 | **13** | 0 | 0 | 52 | 3 | 0 | 0 | **55** | 0 |
| 8:15AM | 72 | 34 | 13 | 0 | 69 | **188** | 0 | 8 | **8** | 0 | 0 | 42 | 1 | 0 | 0 | **43** | 0 |
| 8:30AM | 46 | 36 | 7 | 0 | 68 | **157** | 0 | 18 | **18** | 0 | 0 | 56 | 1 | 0 | 0 | **57** | 0 |
| 8:45AM | 66 | 44 | 18 | 0 | 73 | **201** | 0 | 25 | **25** | 0 | 0 | 76 | 1 | 0 | 0 | **77** | 0 |
| Hourly Total | 245 | 146 | 62 | 0 | 273 | **726** | 0 | 64 | **64** | 0 | 0 | 226 | 6 | 0 | 0 | **232** | 0 |
| 3:00PM | 59 | 46 | 23 | 0 | 61 | **189** | 0 | 12 | **12** | 1 | 0 | 70 | 0 | 0 | 0 | **70** | 1 |
| 3:15PM | 80 | 50 | 20 | 0 | 46 | **196** | 0 | 12 | **12** | 1 | 0 | 48 | 0 | 0 | 0 | **48** | 1 |
| 3:30PM | 78 | 40 | 13 | 0 | 40 | **171** | 0 | 19 | **19** | 2 | 0 | 64 | 0 | 0 | 0 | **64** | 2 |
| 3:45PM | 71 | 37 | 20 | 0 | 48 | **176** | 0 | 15 | **15** | 0 | 0 | 63 | 4 | 0 | 0 | **67** | 0 |
| Hourly Total | 288 | 173 | 76 | 0 | 195 | **732** | 0 | 58 | **58** | 4 | 0 | 245 | 4 | 0 | 0 | **249** | 4 |
| 4:00PM | 43 | 44 | 21 | 0 | 73 | **181** | 0 | 11 | **11** | 0 | 0 | 56 | 2 | 0 | 0 | **58** | 0 |
| 4:15PM | 22 | 28 | 13 | 0 | 60 | **123** | 0 | 17 | **17** | 1 | 0 | 59 | 0 | 0 | 0 | **59** | 1 |
| 4:30PM | 34 | 30 | 9 | 0 | 52 | **125** | 0 | 28 | **28** | 0 | 0 | 117 | 0 | 0 | 0 | **117** | 0 |
| 4:45PM | 26 | 30 | 14 | 0 | 59 | **129** | 0 | 22 | **22** | 0 | 0 | 62 | 1 | 0 | 0 | **63** | 0 |
| Hourly Total | 125 | 132 | 57 | 0 | 244 | **558** | 0 | 78 | **78** | 1 | 0 | 294 | 3 | 0 | 0 | **297** | 1 |
| 5:00PM | 52 | 36 | 17 | 0 | 56 | **161** | 0 | 17 | **17** | 1 | 0 | 57 | 0 | 0 | 0 | **57** | 0 |
| 5:15PM | 40 | 24 | 15 | 0 | 67 | **146** | 0 | 14 | **14** | 0 | 0 | 48 | 2 | 0 | 0 | **50** | 1 |
| 5:30PM | 27 | 21 | 14 | 0 | 69 | **131** | 0 | 24 | **24** | 1 | 0 | 64 | 1 | 0 | 0 | **65** | 2 |
| 5:45PM | 48 | 38 | 18 | 0 | 32 | **136** | 0 | 18 | **18** | 0 | 0 | 32 | 0 | 0 | 0 | **32** | 0 |
| Hourly Total | 167 | 119 | 64 | 0 | 224 | **574** | 0 | 73 | **73** | 2 | 0 | 201 | 3 | 0 | 0 | **204** | 3 |
| 6:00PM | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 |
| **Total** | 1455 | 764 | 313 | 0 | 1454 | **3986** | 0 | 382 | **382** | 8 | 0 | 1386 | 23 | 0 | 0 | **1409** | 9 |
| **% Approach** | 36.5% | 19.2% | 7.9% | 0% | 36.5% | **-** | - | 100% | **-** | - | 0% | 98.4% | 1.6% | 0% | 0% | **-** | - |
| **% Total** | 12.7% | 6.7% | 2.7% | 0% | 12.7% | **34.9%** | - | 3.3% | **3.3%** | - | 0% | 12.1% | 0.2% | 0% | 0% | **12.3%** | - |
| **Lights** | 1421 | 736 | 296 | 0 | 1430 | **3883** | - | 356 | **356** | - | 0 | 1365 | 20 | 0 | 0 | **1385** | - |
| **% Lights** | 97.7% | 96.3% | 94.6% | 0% | 98.3% | **97.4%** | - | 93.2% | **93.2%** | - | 0% | 98.5% | 87.0% | 0% | 0% | **98.3%** | - |
| **Articulated Trucks and Single-Unit Trucks** | 12 | 9 | 1 | 0 | 14 | **36** | - | 2 | **2** | - | 0 | 11 | 0 | 0 | 0 | **11** | - |
| **% Articulated Trucks and Single-Unit Trucks** | 0.8% | 1.2% | 0.3% | 0% | 1.0% | **0.9%** | - | 0.5% | **0.5%** | - | 0% | 0.8% | 0% | 0% | 0% | **0.8%** | - |
| **Buses** | 22 | 19 | 16 | 0 | 10 | **67** | - | 24 | **24** | - | 0 | 10 | 3 | 0 | 0 | **13** | - |
| **% Buses** | 1.5% | 2.5% | 5.1% | 0% | 0.7% | **1.7%** | - | 6.3% | **6.3%** | - | 0% | 0.7% | 13.0% | 0% | 0% | **0.9%** | - |
| Pedestrians | - | - | - | - | - | - | 0 | - | - | 8 | - | - | - | - | - | - | 9 |
| % Pedestrians | - | - | - | - | - | - | - | - | - | 100% | - | - | - | - | - | - | 100% |
| Bicycles on Crosswalk | - | - | - | - | - | - | 0 | - | - | 0 | - | - | - | - | - | - | 0 |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | 0% | - | - | - | - | - | - | 0% |

*Pedestrians and Bicycles on Crosswalk. HR: Hard right, L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

## Wood Ave & 13th St - TMC

Wed Feb 22, 2023
Full Length (6 AM-9 AM, 3 PM-6 PM)
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1041668, Location: 40.694235, -75.228415

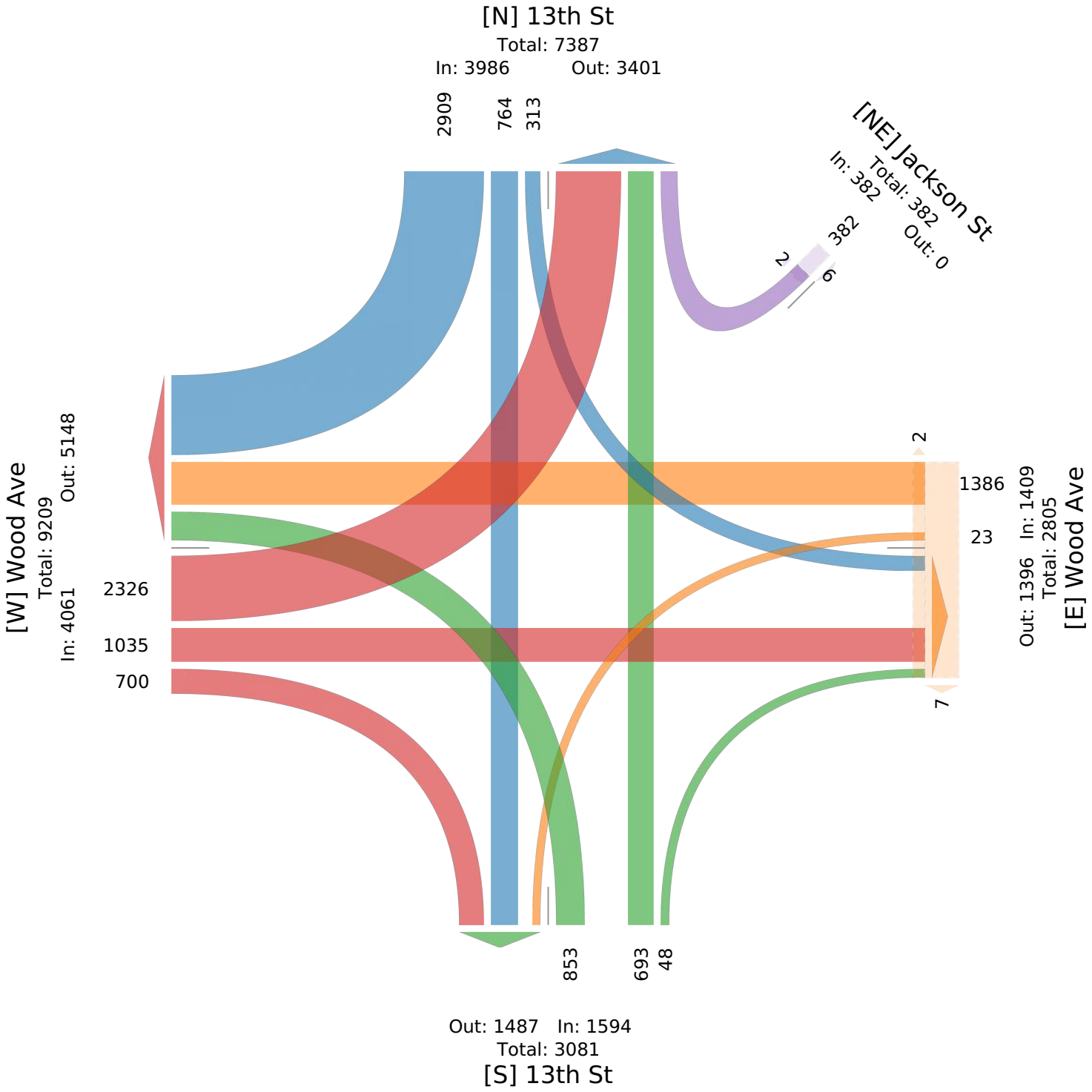
Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

| Leg | 13th St | | | | | | | Wood Ave | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Northbound | | | | | | | Eastbound | | | | | | | |
| Time | R | T | L | U | RR | **App** | Ped* | R | T | L | U | RR | **App** | Ped* | **Int** |
| 2023-02-22 6:00AM | 1 | 8 | 20 | 0 | 0 | **29** | 0 | 2 | 13 | 22 | 0 | 7 | **44** | 0 | **195** |
| 6:15AM | 0 | 10 | 32 | 0 | 0 | **42** | 0 | 5 | 16 | 22 | 0 | 6 | **49** | 0 | **257** |
| 6:30AM | 0 | 21 | 55 | 0 | 0 | **76** | 0 | 3 | 25 | 39 | 0 | 4 | **71** | 0 | **382** |
| 6:45AM | 0 | 22 | 35 | 0 | 0 | **57** | 0 | 6 | 30 | 66 | 0 | 4 | **106** | 0 | **424** |
| Hourly Total | 1 | 61 | 142 | 0 | 0 | **204** | 0 | 16 | 84 | 149 | 0 | 21 | **270** | 0 | **1258** |
| 7:00AM | 1 | 27 | 31 | 0 | 0 | **59** | 0 | 9 | 33 | 59 | 0 | 13 | **114** | 0 | **463** |
| 7:15AM | 1 | 29 | 42 | 0 | 1 | **73** | 0 | 7 | 37 | 112 | 0 | 10 | **166** | 0 | **495** |
| 7:30AM | 1 | 41 | 47 | 0 | 0 | **89** | 0 | 11 | 21 | 86 | 0 | 14 | **132** | 0 | **531** |
| 7:45AM | 1 | 28 | 32 | 0 | 0 | **61** | 0 | 25 | 50 | 94 | 0 | 22 | **191** | 0 | **544** |
| Hourly Total | 4 | 125 | 152 | 0 | 1 | **282** | 0 | 52 | 141 | 351 | 0 | 59 | **603** | 0 | **2033** |
| 8:00AM | 1 | 27 | 31 | 0 | 0 | **59** | 0 | 11 | 55 | 71 | 0 | 23 | **160** | 0 | **467** |
| 8:15AM | 4 | 15 | 37 | 0 | 0 | **56** | 0 | 9 | 59 | 92 | 0 | 16 | **176** | 0 | **471** |
| 8:30AM | 2 | 33 | 33 | 0 | 1 | **69** | 0 | 9 | 49 | 89 | 0 | 13 | **160** | 0 | **461** |
| 8:45AM | 1 | 33 | 35 | 0 | 2 | **71** | 0 | 11 | 33 | 96 | 0 | 4 | **144** | 0 | **518** |
| Hourly Total | 8 | 108 | 136 | 0 | 3 | **255** | 0 | 40 | 196 | 348 | 0 | 56 | **640** | 0 | **1917** |
| 3:00PM | 2 | 30 | 33 | 0 | 1 | **66** | 0 | 20 | 53 | 104 | 0 | 14 | **191** | 0 | **528** |
| 3:15PM | 4 | 31 | 26 | 0 | 0 | **61** | 0 | 16 | 50 | 117 | 0 | 10 | **193** | 0 | **510** |
| 3:30PM | 6 | 32 | 46 | 0 | 0 | **84** | 0 | 20 | 53 | 119 | 0 | 15 | **207** | 0 | **545** |
| 3:45PM | 5 | 49 | 43 | 0 | 0 | **97** | 0 | 16 | 43 | 114 | 0 | 27 | **200** | 0 | **555** |
| Hourly Total | 17 | 142 | 148 | 0 | 1 | **308** | 0 | 72 | 199 | 454 | 0 | 66 | **791** | 0 | **2138** |
| 4:00PM | 1 | 42 | 38 | 0 | 1 | **82** | 0 | 25 | 49 | 109 | 0 | 19 | **202** | 0 | **534** |
| 4:15PM | 3 | 36 | 35 | 0 | 0 | **74** | 0 | 17 | 52 | 109 | 0 | 23 | **201** | 0 | **474** |
| 4:30PM | 1 | 28 | 34 | 0 | 0 | **63** | 0 | 26 | 50 | 115 | 0 | 18 | **209** | 0 | **542** |
| 4:45PM | 2 | 37 | 46 | 0 | 1 | **86** | 0 | 20 | 59 | 132 | 0 | 19 | **230** | 0 | **530** |
| Hourly Total | 7 | 143 | 153 | 0 | 2 | **305** | 0 | 88 | 210 | 465 | 0 | 79 | **842** | 0 | **2080** |
| 5:00PM | 1 | 28 | 24 | 0 | 0 | **53** | 0 | 14 | 50 | 135 | 0 | 15 | **214** | 0 | **502** |
| 5:15PM | 0 | 40 | 27 | 0 | 0 | **67** | 0 | 27 | 59 | 145 | 0 | 20 | **251** | 0 | **528** |
| 5:30PM | 0 | 23 | 43 | 0 | 0 | **66** | 0 | 27 | 48 | 145 | 0 | 18 | **238** | 0 | **524** |
| 5:45PM | 2 | 23 | 28 | 0 | 1 | **54** | 0 | 15 | 48 | 134 | 0 | 15 | **212** | 0 | **452** |
| Hourly Total | 3 | 114 | 122 | 0 | 1 | **240** | 0 | 83 | 205 | 559 | 0 | 68 | **915** | 0 | **2006** |
| 6:00PM | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | **0** |
| **Total** | 40 | 693 | 853 | 0 | 8 | **1594** | 0 | 351 | 1035 | 2326 | 0 | 349 | **4061** | 0 | **11432** |
| **% Approach** | 2.5% | 43.5% | 53.5% | 0% | 0.5% | **-** | - | 8.6% | 25.5% | 57.3% | 0% | 8.6% | **-** | - | **-** |
| **% Total** | 0.3% | 6.1% | 7.5% | 0% | 0.1% | **13.9%** | - | 3.1% | 9.1% | 20.3% | 0% | 3.1% | **35.5%** | - | **-** |
| **Lights** | 35 | 669 | 837 | 0 | 8 | **1549** | - | 346 | 1021 | 2285 | 0 | 343 | **3995** | - | 11168 |
| **% Lights** | 87.5% | 96.5% | 98.1% | 0% | 100% | **97.2%** | - | 98.6% | 98.6% | 98.2% | 0% | 98.3% | **98.4%** | - | 97.7% |
| **Articulated Trucks and Single-Unit Trucks** | 0 | 2 | 10 | 0 | 0 | **12** | - | 2 | 5 | 28 | 0 | 4 | **39** | - | 100 |
| **% Articulated Trucks and Single-Unit Trucks** | 0% | 0.3% | 1.2% | 0% | 0% | **0.8%** | - | 0.6% | 0.5% | 1.2% | 0% | 1.1% | **1.0%** | - | 0.9% |
| **Buses** | 5 | 22 | 6 | 0 | 0 | **33** | - | 3 | 9 | 13 | 0 | 2 | **27** | - | 164 |
| **% Buses** | 12.5% | 3.2% | 0.7% | 0% | 0% | **2.1%** | - | 0.9% | 0.9% | 0.6% | 0% | 0.6% | **0.7%** | - | 1.4% |
| Pedestrians | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Bicycles on Crosswalk | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*Pedestrians and Bicycles on Crosswalk. HR: Hard right, L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

**Wood Ave & 13th St - TMC**
Wed Feb 22, 2023
Full Length (6 AM-9 AM, 3 PM-6 PM)
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1041668, Location: 40.694235, -75.228415

Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US



## Wood Ave & 13th St - TMC

Wed Feb 22, 2023
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1041668, Location: 40.694235, -75.228415

Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

| Leg | 13th St | | | | | | | Jackson St | | | Wood Ave | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Southbound | | | | | | | Southwestbound | | | Westbound | | | | | | |
| Time | R | T | L | U | RR | **App** | Ped* | HR | **App** | Ped* | R | T | L | U | RR | **App** | Ped* |
| 2023-02-22 7:15AM | 66 | 28 | 6 | 0 | 86 | **186** | 0 | 16 | **16** | 1 | 0 | 53 | 1 | 0 | 0 | **54** | 1 |
| 7:30AM | 87 | 35 | 8 | 0 | 88 | **218** | 0 | 25 | **25** | 0 | 0 | 66 | 1 | 0 | 0 | **67** | 0 |
| 7:45AM | 77 | 42 | 19 | 0 | 87 | **225** | 0 | 11 | **11** | 0 | 0 | 55 | 1 | 0 | 0 | **56** | 0 |
| 8:00AM | 61 | 32 | 24 | 0 | 63 | **180** | 0 | 13 | **13** | 0 | 0 | 52 | 3 | 0 | 0 | **55** | 0 |
| **Total** | 291 | 137 | 57 | 0 | 324 | **809** | 0 | 65 | **65** | 1 | 0 | 226 | 6 | 0 | 0 | **232** | 1 |
| **% Approach** | 36.0% | 16.9% | 7.0% | 0% | 40.0% | **-** | - | 100% | **-** | - | 0% | 97.4% | 2.6% | 0% | 0% | **-** | - |
| **% Total** | 14.3% | 6.7% | 2.8% | 0% | 15.9% | **39.7%** | - | 3.2% | **3.2%** | - | 0% | 11.1% | 0.3% | 0% | 0% | **11.4%** | - |
| **PHF** | 0.836 | 0.815 | 0.594 | - | 0.920 | **0.899** | - | 0.650 | **0.650** | - | - | 0.856 | 0.500 | - | - | **0.866** | - |
| **Lights** | 289 | 128 | 55 | 0 | 318 | **790** | - | 59 | **59** | - | 0 | 223 | 6 | 0 | 0 | **229** | - |
| **% Lights** | 99.3% | 93.4% | 96.5% | 0% | 98.1% | **97.7%** | - | 90.8% | **90.8%** | - | 0% | 98.7% | 100% | 0% | 0% | **98.7%** | - |
| **Articulated Trucks and Single-Unit Trucks** | 0 | 2 | 1 | 0 | 2 | **5** | - | 0 | **0** | - | 0 | 3 | 0 | 0 | 0 | **3** | - |
| **% Articulated Trucks and Single-Unit Trucks** | 0% | 1.5% | 1.8% | 0% | 0.6% | **0.6%** | - | 0% | **0%** | - | 0% | 1.3% | 0% | 0% | 0% | **1.3%** | - |
| **Buses** | 2 | 7 | 1 | 0 | 4 | **14** | - | 6 | **6** | - | 0 | 0 | 0 | 0 | 0 | **0** | - |
| **% Buses** | 0.7% | 5.1% | 1.8% | 0% | 1.2% | **1.7%** | - | 9.2% | **9.2%** | - | 0% | 0% | 0% | 0% | 0% | **0%** | - |
| Pedestrians | - | - | - | - | - | - | 0 | - | - | 1 | - | - | - | - | - | - | 1 |
| % Pedestrians | - | - | - | - | - | - | - | - | - | 100% | - | - | - | - | - | - | 100% |
| Bicycles on Crosswalk | - | - | - | - | - | - | 0 | - | - | 0 | - | - | - | - | - | - | 0 |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | 0% | - | - | - | - | - | - | 0% |

*Pedestrians and Bicycles on Crosswalk. HR: Hard right, L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

## Wood Ave & 13th St - TMC

Wed Feb 22, 2023
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1041668, Location: 40.694235, -75.228415

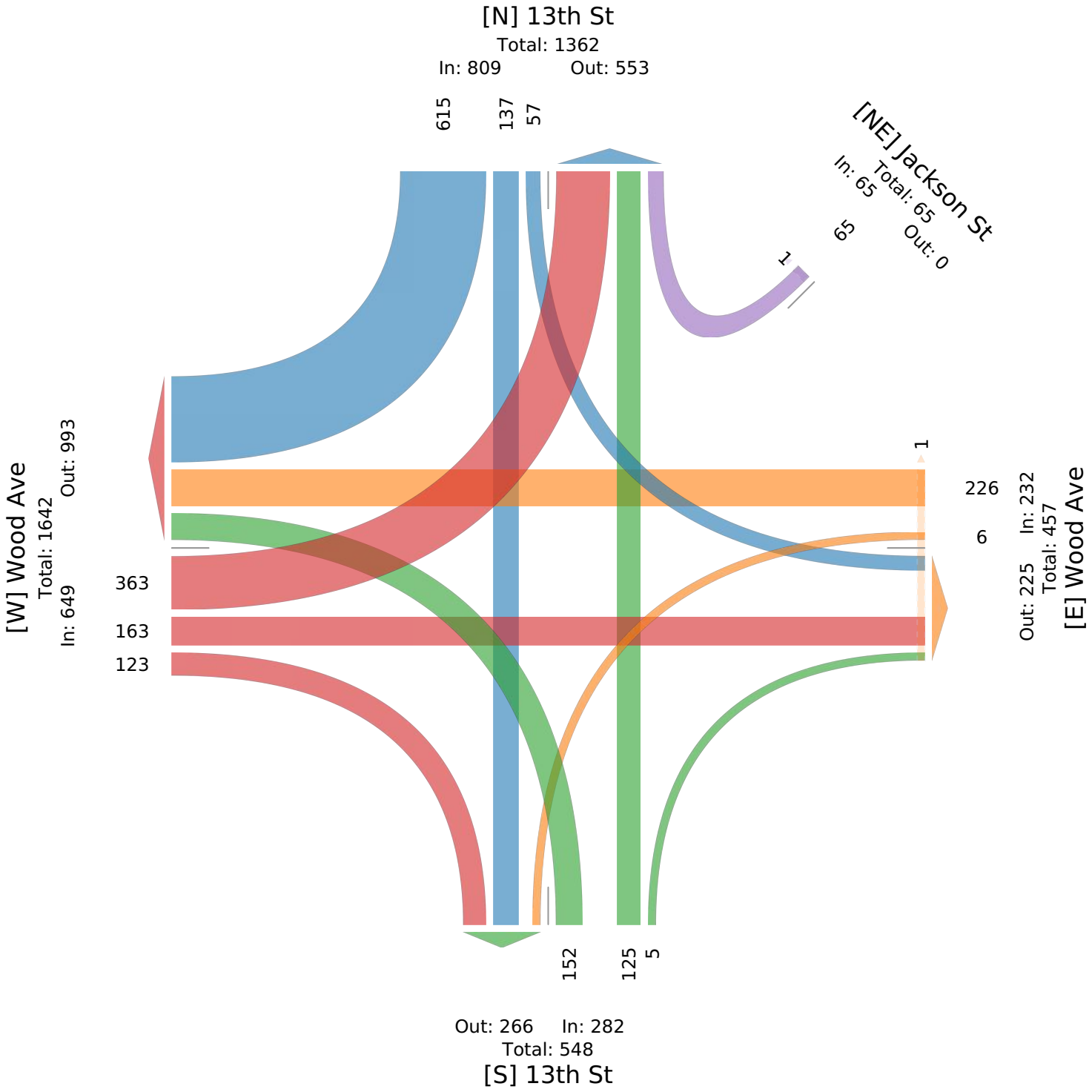
Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

| Leg | 13th St | | | | | | | Wood Ave | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Northbound | | | | | | | Eastbound | | | | | | | |
| Time | R | T | L | U | RR | **App** | Ped* | R | T | L | U | RR | **App** | Ped* | **Int** |
| 2023-02-22 7:15AM | 1 | 29 | 42 | 0 | 1 | **73** | 0 | 7 | 37 | 112 | 0 | 10 | **166** | 0 | **495** |
| 7:30AM | 1 | 41 | 47 | 0 | 0 | **89** | 0 | 11 | 21 | 86 | 0 | 14 | **132** | 0 | **531** |
| 7:45AM | 1 | 28 | 32 | 0 | 0 | **61** | 0 | 25 | 50 | 94 | 0 | 22 | **191** | 0 | **544** |
| 8:00AM | 1 | 27 | 31 | 0 | 0 | **59** | 0 | 11 | 55 | 71 | 0 | 23 | **160** | 0 | **467** |
| **Total** | 4 | 125 | 152 | 0 | 1 | **282** | 0 | 54 | 163 | 363 | 0 | 69 | **649** | 0 | **2037** |
| **% Approach** | 1.4% | 44.3% | 53.9% | 0% | 0.4% | **-** | - | 8.3% | 25.1% | 55.9% | 0% | 10.6% | **-** | - | - |
| **% Total** | 0.2% | 6.1% | 7.5% | 0% | 0% | **13.8%** | - | 2.7% | 8.0% | 17.8% | 0% | 3.4% | **31.9%** | - | - |
| **PHF** | 1.000 | 0.762 | 0.809 | - | 0.250 | **0.792** | - | 0.540 | 0.741 | 0.810 | - | 0.750 | **0.849** | - | 0.936 |
| **Lights** | 4 | 121 | 149 | 0 | 1 | **275** | - | 54 | 160 | 350 | 0 | 68 | **632** | - | 1985 |
| **% Lights** | 100% | 96.8% | 98.0% | 0% | 100% | **97.5%** | - | 100% | 98.2% | 96.4% | 0% | 98.6% | **97.4%** | - | 97.4% |
| **Articulated Trucks and Single-Unit Trucks** | 0 | 1 | 3 | 0 | 0 | **4** | - | 0 | 2 | 10 | 0 | 0 | **12** | - | 24 |
| **% Articulated Trucks and Single-Unit Trucks** | 0% | 0.8% | 2.0% | 0% | 0% | **1.4%** | - | 0% | 1.2% | 2.8% | 0% | 0% | **1.8%** | - | 1.2% |
| **Buses** | 0 | 3 | 0 | 0 | 0 | **3** | - | 0 | 1 | 3 | 0 | 1 | **5** | - | 28 |
| **% Buses** | 0% | 2.4% | 0% | 0% | 0% | **1.1%** | - | 0% | 0.6% | 0.8% | 0% | 1.4% | **0.8%** | - | 1.4% |
| Pedestrians | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Bicycles on Crosswalk | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*Pedestrians and Bicycles on Crosswalk. HR: Hard right, L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

**Wood Ave & 13th St - TMC**
Wed Feb 22, 2023
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1041668, Location: 40.694235, -75.228415

Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US



## Wood Ave & 13th St - TMC

Wed Feb 22, 2023
PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1041668, Location: 40.694235, -75.228415

Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

| Leg | 13th St | | | | | | | Jackson St | | | Wood Ave | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Southbound | | | | | | | Southwestbound | | | Westbound | | | | | | |
| Time | R | T | L | U | RR | **App** | Ped* | HR | **App** | Ped* | R | T | L | U | RR | **App** | Ped* |
| 2023-02-22 3:15PM | 80 | 50 | 20 | 0 | 46 | **196** | 0 | 12 | **12** | 1 | 0 | 48 | 0 | 0 | 0 | **48** | 1 |
| 3:30PM | 78 | 40 | 13 | 0 | 40 | **171** | 0 | 19 | **19** | 2 | 0 | 64 | 0 | 0 | 0 | **64** | 2 |
| 3:45PM | 71 | 37 | 20 | 0 | 48 | **176** | 0 | 15 | **15** | 0 | 0 | 63 | 4 | 0 | 0 | **67** | 0 |
| 4:00PM | 43 | 44 | 21 | 0 | 73 | **181** | 0 | 11 | **11** | 0 | 0 | 56 | 2 | 0 | 0 | **58** | 0 |
| **Total** | 272 | 171 | 74 | 0 | 207 | **724** | 0 | 57 | **57** | 3 | 0 | 231 | 6 | 0 | 0 | **237** | 3 |
| **% Approach** | 37.6% | 23.6% | 10.2% | 0% | 28.6% | **-** | - | 100% | **-** | - | 0% | 97.5% | 2.5% | 0% | 0% | **-** | - |
| **% Total** | 12.7% | 8.0% | 3.5% | 0% | 9.7% | **33.8%** | - | 2.7% | **2.7%** | - | 0% | 10.8% | 0.3% | 0% | 0% | **11.1%** | - |
| **PHF** | 0.850 | 0.855 | 0.881 | - | 0.709 | **0.923** | - | 0.750 | **0.750** | - | - | 0.902 | 0.375 | - | - | **0.884** | - |
| **Lights** | 264 | 168 | 69 | 0 | 203 | **704** | - | 49 | **49** | - | 0 | 228 | 6 | 0 | 0 | **234** | - |
| **% Lights** | 97.1% | 98.2% | 93.2% | 0% | 98.1% | **97.2%** | - | 86.0% | **86.0%** | - | 0% | 98.7% | 100% | 0% | 0% | **98.7%** | - |
| **Articulated Trucks and Single-Unit Trucks** | 2 | 3 | 0 | 0 | 3 | **8** | - | 0 | **0** | - | 0 | 3 | 0 | 0 | 0 | **3** | - |
| **% Articulated Trucks and Single-Unit Trucks** | 0.7% | 1.8% | 0% | 0% | 1.4% | **1.1%** | - | 0% | **0%** | - | 0% | 1.3% | 0% | 0% | 0% | **1.3%** | - |
| **Buses** | 6 | 0 | 5 | 0 | 1 | **12** | - | 8 | **8** | - | 0 | 0 | 0 | 0 | 0 | **0** | - |
| **% Buses** | 2.2% | 0% | 6.8% | 0% | 0.5% | **1.7%** | - | 14.0% | **14.0%** | - | 0% | 0% | 0% | 0% | 0% | **0%** | - |
| Pedestrians | - | - | - | - | - | - | 0 | - | - | 3 | - | - | - | - | - | - | 3 |
| % Pedestrians | - | - | - | - | - | - | - | - | - | 100% | - | - | - | - | - | - | 100% |
| Bicycles on Crosswalk | - | - | - | - | - | - | 0 | - | - | 0 | - | - | - | - | - | - | 0 |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | 0% | - | - | - | - | - | - | 0% |

*Pedestrians and Bicycles on Crosswalk. HR: Hard right, L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

## Wood Ave & 13th St - TMC

Wed Feb 22, 2023
PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1041668, Location: 40.694235, -75.228415

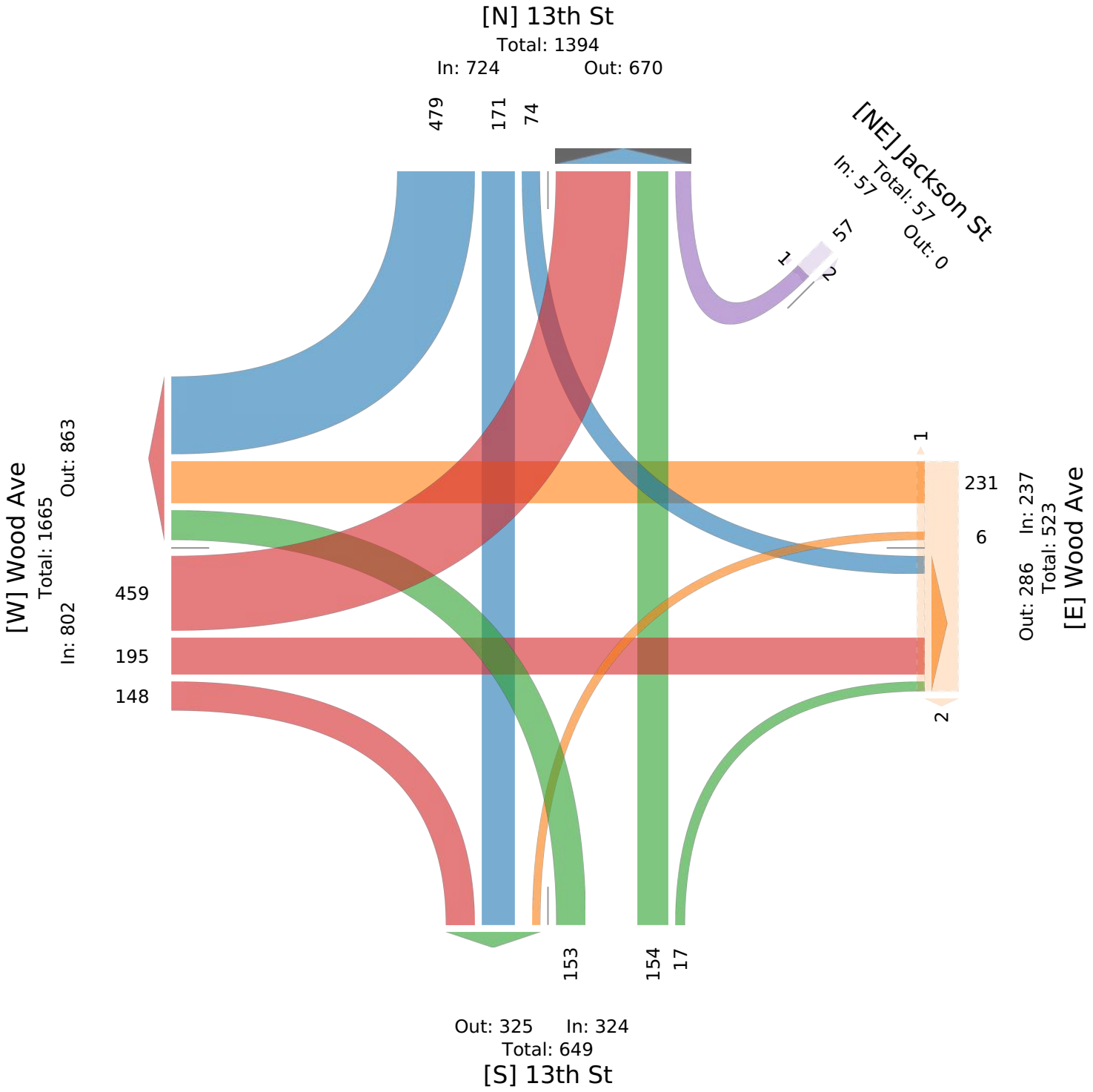
Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

| Leg | 13th St | | | | | | | Wood Ave | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Northbound | | | | | | | Eastbound | | | | | | | |
| Time | R | T | L | U | RR | **App** | Ped* | R | T | L | U | RR | **App** | Ped* | **Int** |
| 2023-02-22 3:15PM | 4 | 31 | 26 | 0 | 0 | **61** | 0 | 16 | 50 | 117 | 0 | 10 | **193** | 0 | **510** |
| 3:30PM | 6 | 32 | 46 | 0 | 0 | **84** | 0 | 20 | 53 | 119 | 0 | 15 | **207** | 0 | **545** |
| 3:45PM | 5 | 49 | 43 | 0 | 0 | **97** | 0 | 16 | 43 | 114 | 0 | 27 | **200** | 0 | **555** |
| 4:00PM | 1 | 42 | 38 | 0 | 1 | **82** | 0 | 25 | 49 | 109 | 0 | 19 | **202** | 0 | **534** |
| **Total** | 16 | 154 | 153 | 0 | 1 | **324** | 0 | 77 | 195 | 459 | 0 | 71 | **802** | 0 | **2144** |
| **% Approach** | 4.9% | 47.5% | 47.2% | 0% | 0.3% | **-** | - | 9.6% | 24.3% | 57.2% | 0% | 8.9% | **-** | - | **-** |
| **% Total** | 0.7% | 7.2% | 7.1% | 0% | 0% | **15.1%** | - | 3.6% | 9.1% | 21.4% | 0% | 3.3% | **37.4%** | - | **-** |
| **PHF** | 0.667 | 0.786 | 0.832 | - | 0.250 | **0.835** | - | 0.770 | 0.920 | 0.964 | - | 0.657 | **0.969** | - | 0.966 |
| **Lights** | 14 | 147 | 147 | 0 | 1 | **309** | - | 75 | 192 | 450 | 0 | 71 | **788** | - | 2084 |
| **% Lights** | 87.5% | 95.5% | 96.1% | 0% | 100% | **95.4%** | - | 97.4% | 98.5% | 98.0% | 0% | 100% | **98.3%** | - | 97.2% |
| **Articulated Trucks and Single-Unit Trucks** | 0 | 0 | 3 | 0 | 0 | **3** | - | 1 | 0 | 8 | 0 | 0 | **9** | - | 23 |
| **% Articulated Trucks and Single-Unit Trucks** | 0% | 0% | 2.0% | 0% | 0% | **0.9%** | - | 1.3% | 0% | 1.7% | 0% | 0% | **1.1%** | - | 1.1% |
| **Buses** | 2 | 7 | 3 | 0 | 0 | **12** | - | 1 | 3 | 1 | 0 | 0 | **5** | - | 37 |
| **% Buses** | 12.5% | 4.5% | 2.0% | 0% | 0% | **3.7%** | - | 1.3% | 1.5% | 0.2% | 0% | 0% | **0.6%** | - | 1.7% |
| Pedestrians | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Bicycles on Crosswalk | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*Pedestrians and Bicycles on Crosswalk. HR: Hard right, L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

**Wood Ave & 13th St - TMC**
Wed Feb 22, 2023
PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1041668, Location: 40.694235, -75.228415

Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US



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184 Baker Rd

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Northampton County, PA
Wood Ave & US 22 EB Ramps
Wednesday, February 22, 2023
Location: 40.694193, -75.228941

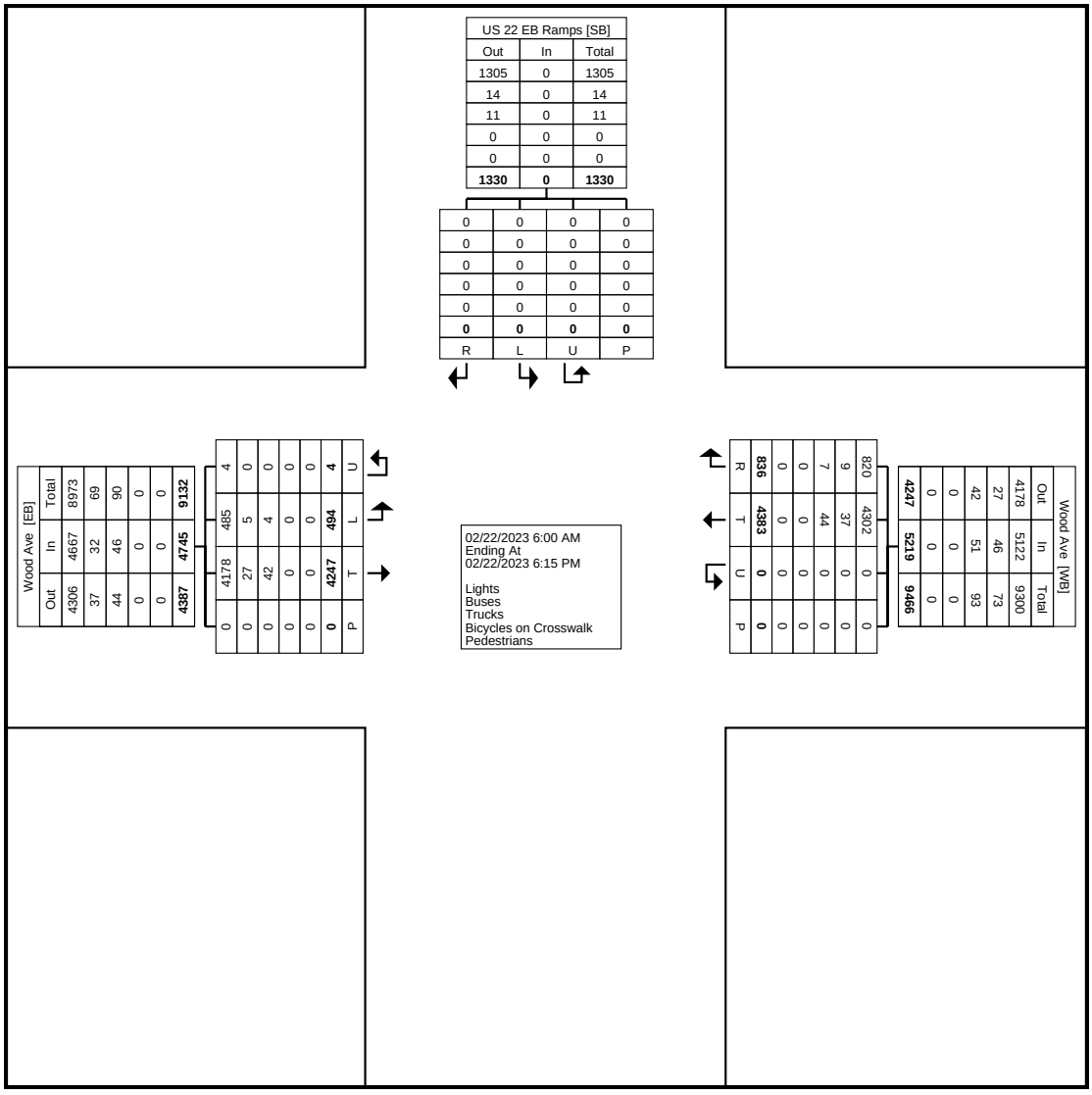
Count Name: Wood Ave & US 22 EB Ramps
Site Code:
Start Date: 02/22/2023


# Turning Movement Data

| Start Time | Wood Ave Eastbound | | | | | Wood Ave Westbound | | | | | US 22 EB Ramps Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | U-Turn | Peds | App. Total | Thru | Right | U-Turn | Peds | App. Total | Left | Right | U-Turn | Peds | App. Total | Int. Total |
| 6:00 AM | 21 | 43 | 0 | 0 | 64 | 78 | 36 | 0 | 0 | 114 | 0 | 0 | 0 | 0 | 0 | 178 |
| 6:15 AM | 27 | 44 | 0 | 0 | 71 | 119 | 45 | 0 | 0 | 164 | 0 | 0 | 0 | 0 | 0 | 235 |
| 6:30 AM | 33 | 76 | 0 | 0 | 109 | 203 | 54 | 0 | 0 | 257 | 0 | 0 | 0 | 0 | 0 | 366 |
| 6:45 AM | 19 | 108 | 0 | 0 | 127 | 213 | 44 | 0 | 0 | 257 | 0 | 0 | 0 | 0 | 0 | 384 |
| Hourly Total | 100 | 271 | 0 | 0 | 371 | 613 | 179 | 0 | 0 | 792 | 0 | 0 | 0 | 0 | 0 | 1163 |
| 7:00 AM | 33 | 119 | 0 | 0 | 152 | 230 | 45 | 0 | 0 | 275 | 0 | 0 | 0 | 0 | 0 | 427 |
| 7:15 AM | 27 | 175 | 0 | 0 | 202 | 196 | 48 | 0 | 0 | 244 | 0 | 0 | 0 | 0 | 0 | 446 |
| 7:30 AM | 21 | 146 | 2 | 0 | 169 | 240 | 51 | 0 | 0 | 291 | 0 | 0 | 0 | 0 | 0 | 460 |
| 7:45 AM | 30 | 216 | 0 | 0 | 246 | 206 | 47 | 0 | 0 | 253 | 0 | 0 | 0 | 0 | 0 | 499 |
| Hourly Total | 111 | 656 | 2 | 0 | 769 | 872 | 191 | 0 | 0 | 1063 | 0 | 0 | 0 | 0 | 0 | 1832 |
| 8:00 AM | 18 | 157 | 1 | 0 | 176 | 177 | 36 | 0 | 0 | 213 | 0 | 0 | 0 | 0 | 0 | 389 |
| 8:15 AM | 22 | 174 | 0 | 0 | 196 | 182 | 42 | 0 | 0 | 224 | 0 | 0 | 0 | 0 | 0 | 420 |
| 8:30 AM | 18 | 157 | 0 | 0 | 175 | 174 | 37 | 0 | 0 | 211 | 0 | 0 | 0 | 0 | 0 | 386 |
| 8:45 AM | 16 | 143 | 1 | 0 | 160 | 223 | 42 | 0 | 0 | 265 | 0 | 0 | 0 | 0 | 0 | 425 |
| Hourly Total | 74 | 631 | 2 | 0 | 707 | 756 | 157 | 0 | 0 | 913 | 0 | 0 | 0 | 0 | 0 | 1620 |
| 9:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3:00 PM | 13 | 161 | 0 | 0 | 174 | 196 | 28 | 0 | 0 | 224 | 0 | 0 | 0 | 0 | 0 | 398 |
| 3:15 PM | 27 | 188 | 0 | 0 | 215 | 180 | 22 | 0 | 0 | 202 | 0 | 0 | 0 | 0 | 0 | 417 |
| 3:30 PM | 20 | 219 | 0 | 0 | 239 | 202 | 25 | 0 | 0 | 227 | 0 | 0 | 0 | 0 | 0 | 466 |
| 3:45 PM | 20 | 200 | 0 | 0 | 220 | 196 | 23 | 0 | 0 | 219 | 0 | 0 | 0 | 0 | 0 | 439 |
| Hourly Total | 80 | 768 | 0 | 0 | 848 | 774 | 98 | 0 | 0 | 872 | 0 | 0 | 0 | 0 | 0 | 1720 |
| 4:00 PM | 10 | 196 | 0 | 0 | 206 | 204 | 26 | 0 | 0 | 230 | 0 | 0 | 0 | 0 | 0 | 436 |
| 4:15 PM | 18 | 211 | 0 | 0 | 229 | 166 | 28 | 0 | 0 | 194 | 0 | 0 | 0 | 0 | 0 | 423 |
| 4:30 PM | 17 | 209 | 0 | 0 | 226 | 211 | 30 | 0 | 0 | 241 | 0 | 0 | 0 | 0 | 0 | 467 |
| 4:45 PM | 22 | 236 | 0 | 0 | 258 | 183 | 27 | 0 | 0 | 210 | 0 | 0 | 0 | 0 | 0 | 468 |
| Hourly Total | 67 | 852 | 0 | 0 | 919 | 764 | 111 | 0 | 0 | 875 | 0 | 0 | 0 | 0 | 0 | 1794 |
| 5:00 PM | 18 | 266 | 0 | 0 | 284 | 164 | 27 | 0 | 0 | 191 | 0 | 0 | 0 | 0 | 0 | 475 |
| 5:15 PM | 18 | 291 | 0 | 0 | 309 | 151 | 23 | 0 | 0 | 174 | 0 | 0 | 0 | 0 | 0 | 483 |
| 5:30 PM | 15 | 279 | 0 | 0 | 294 | 167 | 33 | 0 | 0 | 200 | 0 | 0 | 0 | 0 | 0 | 494 |
| 5:45 PM | 11 | 233 | 0 | 0 | 244 | 122 | 17 | 0 | 0 | 139 | 0 | 0 | 0 | 0 | 0 | 383 |
| Hourly Total | 62 | 1069 | 0 | 0 | 1131 | 604 | 100 | 0 | 0 | 704 | 0 | 0 | 0 | 0 | 0 | 1835 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 494 | 4247 | 4 | 0 | 4745 | 4383 | 836 | 0 | 0 | 5219 | 0 | 0 | 0 | 0 | 0 | 9964 |
| Approach % | 10.4 | 89.5 | 0.1 | - | - | 84.0 | 16.0 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | - | - | - |
| Total % | 5.0 | 42.6 | 0.0 | - | 47.6 | 44.0 | 8.4 | 0.0 | - | 52.4 | 0.0 | 0.0 | 0.0 | - | 0.0 | - |
| Lights | 485 | 4178 | 4 | - | 4667 | 4302 | 820 | 0 | - | 5122 | 0 | 0 | 0 | - | 0 | 9789 |
| % Lights | 98.2 | 98.4 | 100.0 | - | 98.4 | 98.2 | 98.1 | - | - | 98.1 | - | - | - | - | - | 98.2 |
| Buses | 5 | 27 | 0 | - | 32 | 37 | 9 | 0 | - | 46 | 0 | 0 | 0 | - | 0 | 78 |
| % Buses | 1.0 | 0.6 | 0.0 | - | 0.7 | 0.8 | 1.1 | - | - | 0.9 | - | - | - | - | - | 0.8 |
| Trucks | 4 | 42 | 0 | - | 46 | 44 | 7 | 0 | - | 51 | 0 | 0 | 0 | - | 0 | 97 |
| % Trucks | 0.8 | 1.0 | 0.0 | - | 1.0 | 1.0 | 0.8 | - | - | 1.0 | - | - | - | - | - | 1.0 |
| Bicycles on Crosswalk | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Northampton County, PA
Wood Ave & US 22 EB Ramps
Wednesday, February 22, 2023
Location: 40.694193, -75.228941

Count Name: Wood Ave & US 22 EB Ramps
Site Code:
Start Date: 02/22/2023


Turning Movement Data Plot

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Northampton County, PA
Wood Ave & US 22 EB Ramps
Wednesday, February 22, 2023
Location: 40.694193, -75.228941

Count Name: Wood Ave & US 22 EB Ramps
Site Code:
Start Date: 02/22/2023


# Turning Movement Peak Hour Data (7:00 AM)

| Start Time | Wood Ave Eastbound | | | | | Wood Ave Westbound | | | | | US 22 EB Ramps Southbound | | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | U-Turn | Peds | App. Total | Thru | Right | U-Turn | Peds | App. Total | Left | Right | U-Turn | Peds | App. Total | |
| 7:00 AM | 33 | 119 | 0 | 0 | 152 | 230 | 45 | 0 | 0 | 275 | 0 | 0 | 0 | 0 | 0 | 427 |
| 7:15 AM | 27 | 175 | 0 | 0 | 202 | 196 | 48 | 0 | 0 | 244 | 0 | 0 | 0 | 0 | 0 | 446 |
| 7:30 AM | 21 | 146 | 2 | 0 | 169 | 240 | 51 | 0 | 0 | 291 | 0 | 0 | 0 | 0 | 0 | 460 |
| 7:45 AM | 30 | 216 | 0 | 0 | 246 | 206 | 47 | 0 | 0 | 253 | 0 | 0 | 0 | 0 | 0 | 499 |
| Total | 111 | 656 | 2 | 0 | 769 | 872 | 191 | 0 | 0 | 1063 | 0 | 0 | 0 | 0 | 0 | 1832 |
| Approach % | 14.4 | 85.3 | 0.3 | - | - | 82.0 | 18.0 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | - | - | - |
| Total % | 6.1 | 35.8 | 0.1 | - | 42.0 | 47.6 | 10.4 | 0.0 | - | 58.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | - |
| PHF | 0.841 | 0.759 | 0.250 | - | 0.782 | 0.908 | 0.936 | 0.000 | - | 0.913 | 0.000 | 0.000 | 0.000 | - | 0.000 | 0.918 |
| Lights | 111 | 635 | 2 | - | 748 | 863 | 188 | 0 | - | 1051 | 0 | 0 | 0 | - | 0 | 1799 |
| % Lights | 100.0 | 96.8 | 100.0 | - | 97.3 | 99.0 | 98.4 | - | - | 98.9 | - | - | - | - | - | 98.2 |
| Buses | 0 | 7 | 0 | - | 7 | 6 | 2 | 0 | - | 8 | 0 | 0 | 0 | - | 0 | 15 |
| % Buses | 0.0 | 1.1 | 0.0 | - | 0.9 | 0.7 | 1.0 | - | - | 0.8 | - | - | - | - | - | 0.8 |
| Trucks | 0 | 14 | 0 | - | 14 | 3 | 1 | 0 | - | 4 | 0 | 0 | 0 | - | 0 | 18 |
| % Trucks | 0.0 | 2.1 | 0.0 | - | 1.8 | 0.3 | 0.5 | - | - | 0.4 | - | - | - | - | - | 1.0 |
| Bicycles on Crosswalk | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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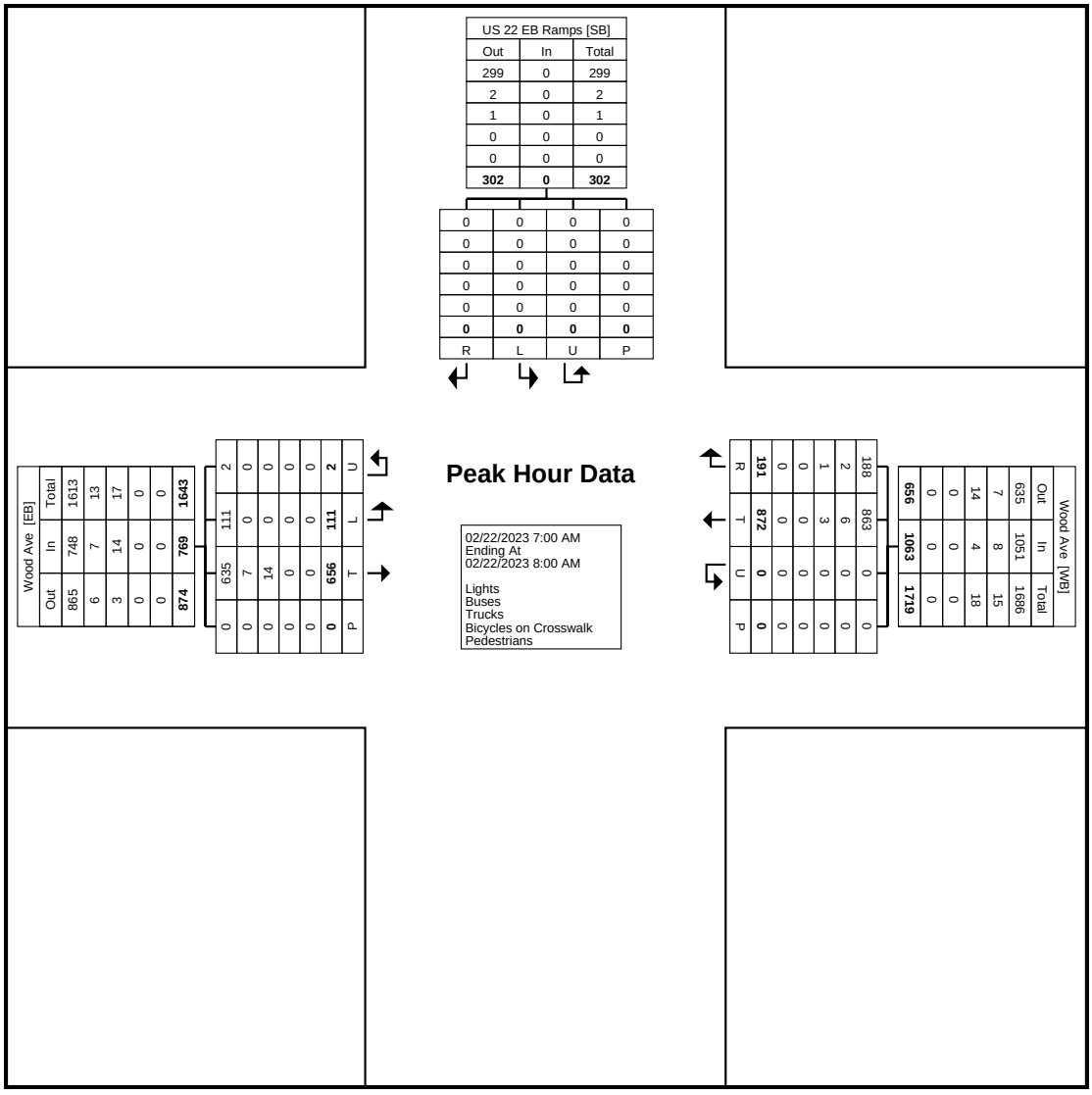
Northampton County, PA
Wood Ave & US 22 EB Ramps
Wednesday, February 22, 2023
Location: 40.694193, -75.228941

Count Name: Wood Ave & US 22 EB Ramps
Site Code:
Start Date: 02/22/2023


Turning Movement Peak Hour Data Plot (7:00 AM)

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Northampton County, PA
Wood Ave & US 22 EB Ramps
Wednesday, February 22, 2023
Location: 40.694193, -75.228941

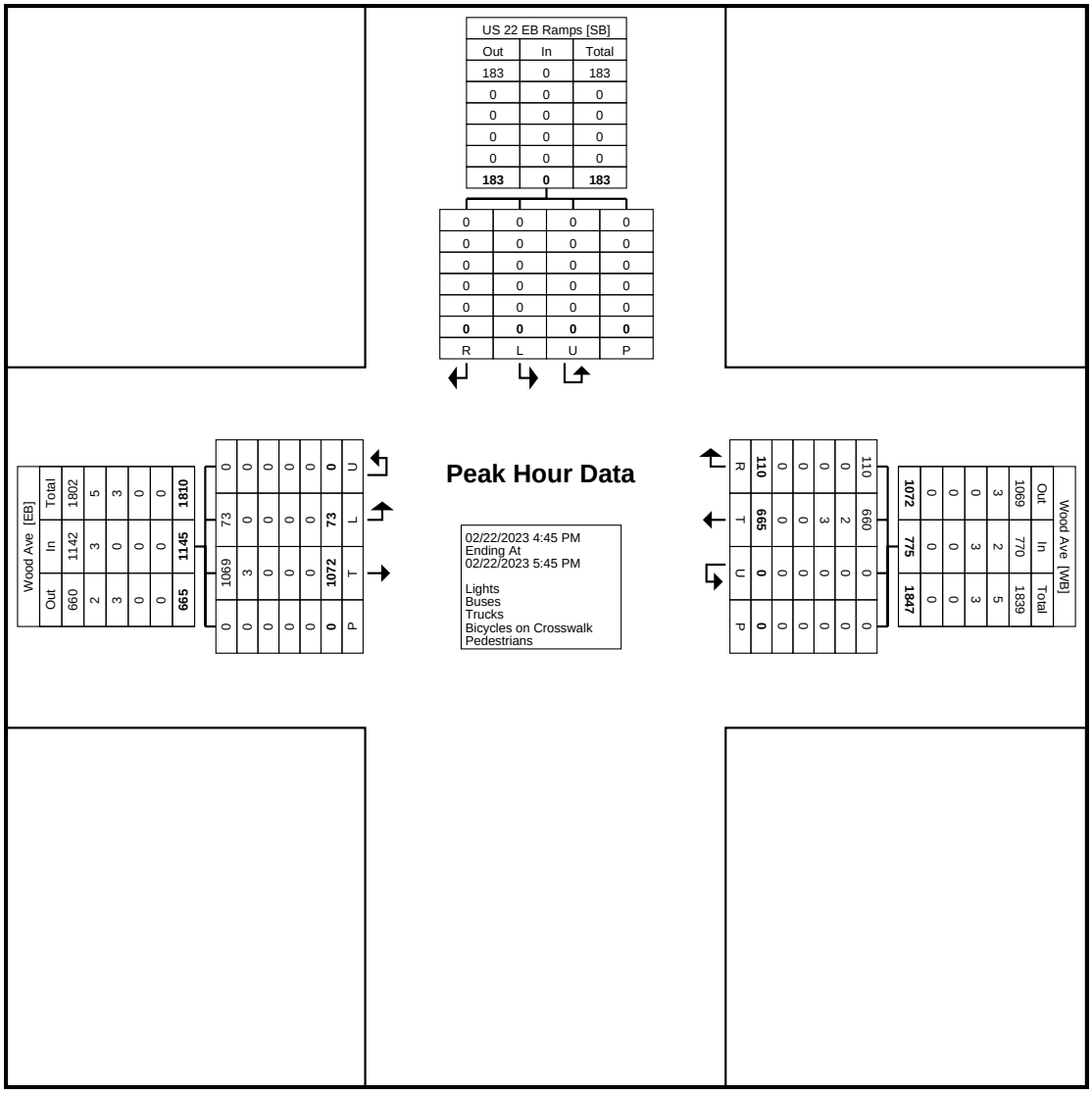
Count Name: Wood Ave & US 22 EB Ramps
Site Code:
Start Date: 02/22/2023


# Turning Movement Peak Hour Data (4:45 PM)

| Start Time | Wood Ave Eastbound | | | | | Wood Ave Westbound | | | | | US 22 EB Ramps Southbound | | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | U-Turn | Peds | App. Total | Thru | Right | U-Turn | Peds | App. Total | Left | Right | U-Turn | Peds | App. Total | |
| 4:45 PM | 22 | 236 | 0 | 0 | 258 | 183 | 27 | 0 | 0 | 210 | 0 | 0 | 0 | 0 | 0 | 468 |
| 5:00 PM | 18 | 266 | 0 | 0 | 284 | 164 | 27 | 0 | 0 | 191 | 0 | 0 | 0 | 0 | 0 | 475 |
| 5:15 PM | 18 | 291 | 0 | 0 | 309 | 151 | 23 | 0 | 0 | 174 | 0 | 0 | 0 | 0 | 0 | 483 |
| 5:30 PM | 15 | 279 | 0 | 0 | 294 | 167 | 33 | 0 | 0 | 200 | 0 | 0 | 0 | 0 | 0 | 494 |
| Total | 73 | 1072 | 0 | 0 | 1145 | 665 | 110 | 0 | 0 | 775 | 0 | 0 | 0 | 0 | 0 | 1920 |
| Approach % | 6.4 | 93.6 | 0.0 | - | - | 85.8 | 14.2 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | - | - | - |
| Total % | 3.8 | 55.8 | 0.0 | - | 59.6 | 34.6 | 5.7 | 0.0 | - | 40.4 | 0.0 | 0.0 | 0.0 | - | 0.0 | - |
| PHF | 0.830 | 0.921 | 0.000 | - | 0.926 | 0.908 | 0.833 | 0.000 | - | 0.923 | 0.000 | 0.000 | 0.000 | - | 0.000 | 0.972 |
| Lights | 73 | 1069 | 0 | - | 1142 | 660 | 110 | 0 | - | 770 | 0 | 0 | 0 | - | 0 | 1912 |
| % Lights | 100.0 | 99.7 | - | - | 99.7 | 99.2 | 100.0 | - | - | 99.4 | - | - | - | - | - | 99.6 |
| Buses | 0 | 3 | 0 | - | 3 | 2 | 0 | 0 | - | 2 | 0 | 0 | 0 | - | 0 | 5 |
| % Buses | 0.0 | 0.3 | - | - | 0.3 | 0.3 | 0.0 | - | - | 0.3 | - | - | - | - | - | 0.3 |
| Trucks | 0 | 0 | 0 | - | 0 | 3 | 0 | 0 | - | 3 | 0 | 0 | 0 | - | 0 | 3 |
| % Trucks | 0.0 | 0.0 | - | - | 0.0 | 0.5 | 0.0 | - | - | 0.4 | - | - | - | - | - | 0.2 |
| Bicycles on Crosswalk | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Northampton County, PA
Wood Ave & US 22 EB Ramps
Wednesday, February 22, 2023
Location: 40.694193, -75.228941

Count Name: Wood Ave & US 22 EB Ramps
Site Code:
Start Date: 02/22/2023


Turning Movement Peak Hour Data Plot (4:45 PM)

TRI-STATE TRAFFIC DATA

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Northampton County, PA
25th St & Wood Ave/Rt 22 EB Ramps
Wednesday, February 22, 2023
Location: 40.685366, -75.250951

Count Name: 25th St & Wood Ave/Rt. 22 EB Ramps
Site Code:
Start Date: 02/22/2023


# Turning Movement Data

| Start Time | Rt. 22 EB Ramps Eastbound | | | | | | | Wood Ave Westbound | | | | | | | 25th St Northbound | | | | | | | 25th St Southbound | | | | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | |
| 6:00 AM | 6 | 16 | 13 | 21 | 0 | 0 | 56 | 11 | 0 | 0 | 2 | 0 | 0 | 13 | 17 | 63 | 3 | 3 | 0 | 0 | 86 | 3 | 31 | 21 | 16 | 0 | 0 | 71 | 226 |
| 6:15 AM | 11 | 25 | 9 | 22 | 0 | 0 | 67 | 26 | 4 | 0 | 1 | 0 | 0 | 31 | 7 | 90 | 4 | 2 | 0 | 0 | 103 | 2 | 49 | 15 | 18 | 0 | 0 | 84 | 285 |
| 6:30 AM | 19 | 25 | 14 | 51 | 0 | 1 | 109 | 20 | 2 | 1 | 2 | 0 | 0 | 25 | 16 | 131 | 4 | 14 | 0 | 0 | 165 | 2 | 88 | 34 | 29 | 0 | 0 | 153 | 452 |
| 6:45 AM | 17 | 31 | 24 | 65 | 0 | 0 | 137 | 52 | 3 | 2 | 2 | 0 | 0 | 59 | 22 | 122 | 11 | 13 | 0 | 0 | 168 | 1 | 119 | 23 | 21 | 0 | 0 | 164 | 528 |
| Hourly Total | 53 | 97 | 60 | 159 | 0 | 1 | 369 | 109 | 9 | 3 | 7 | 0 | 0 | 128 | 62 | 406 | 22 | 32 | 0 | 0 | 522 | 8 | 287 | 93 | 84 | 0 | 0 | 472 | 1491 |
| 7:00 AM | 15 | 27 | 14 | 49 | 0 | 3 | 105 | 85 | 2 | 1 | 0 | 0 | 0 | 88 | 27 | 105 | 19 | 10 | 0 | 0 | 161 | 4 | 158 | 18 | 25 | 0 | 0 | 205 | 559 |
| 7:15 AM | 24 | 29 | 23 | 61 | 0 | 0 | 137 | 26 | 4 | 3 | 6 | 0 | 0 | 39 | 28 | 130 | 35 | 26 | 0 | 0 | 219 | 2 | 70 | 26 | 18 | 0 | 0 | 116 | 511 |
| 7:30 AM | 22 | 30 | 22 | 43 | 0 | 0 | 117 | 16 | 6 | 5 | 3 | 0 | 0 | 30 | 19 | 146 | 19 | 11 | 0 | 0 | 195 | 0 | 62 | 24 | 28 | 0 | 0 | 114 | 456 |
| 7:45 AM | 38 | 39 | 24 | 42 | 0 | 0 | 143 | 30 | 6 | 3 | 3 | 0 | 1 | 42 | 15 | 142 | 20 | 11 | 0 | 0 | 188 | 3 | 71 | 23 | 39 | 0 | 0 | 136 | 509 |
| Hourly Total | 99 | 125 | 83 | 195 | 0 | 3 | 502 | 157 | 18 | 12 | 12 | 0 | 1 | 199 | 89 | 523 | 93 | 58 | 0 | 0 | 763 | 9 | 361 | 91 | 110 | 0 | 0 | 571 | 2035 |
| 8:00 AM | 34 | 27 | 19 | 39 | 0 | 0 | 119 | 18 | 5 | 2 | 1 | 0 | 0 | 26 | 20 | 110 | 12 | 11 | 0 | 0 | 153 | 4 | 65 | 32 | 14 | 0 | 0 | 115 | 413 |
| 8:15 AM | 29 | 32 | 19 | 46 | 0 | 0 | 126 | 24 | 2 | 1 | 4 | 0 | 0 | 31 | 22 | 109 | 13 | 16 | 0 | 0 | 160 | 3 | 64 | 23 | 20 | 0 | 0 | 110 | 427 |
| 8:30 AM | 34 | 30 | 17 | 52 | 0 | 0 | 133 | 26 | 2 | 0 | 0 | 0 | 0 | 28 | 17 | 122 | 10 | 11 | 0 | 0 | 160 | 1 | 76 | 30 | 19 | 0 | 0 | 126 | 447 |
| 8:45 AM | 33 | 41 | 21 | 45 | 0 | 0 | 140 | 35 | 5 | 3 | 2 | 0 | 0 | 45 | 20 | 130 | 11 | 19 | 0 | 0 | 180 | 3 | 95 | 26 | 16 | 0 | 0 | 140 | 505 |
| Hourly Total | 130 | 130 | 76 | 182 | 0 | 0 | 518 | 103 | 14 | 6 | 7 | 0 | 0 | 130 | 79 | 471 | 46 | 57 | 0 | 0 | 653 | 11 | 300 | 111 | 69 | 0 | 0 | 491 | 1792 |
| 9:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3:00 PM | 33 | 43 | 17 | 49 | 0 | 0 | 142 | 27 | 6 | 1 | 2 | 0 | 0 | 36 | 26 | 150 | 15 | 24 | 0 | 0 | 215 | 3 | 104 | 34 | 17 | 0 | 0 | 158 | 551 |
| 3:15 PM | 37 | 23 | 27 | 43 | 0 | 1 | 130 | 26 | 4 | 1 | 6 | 0 | 0 | 37 | 13 | 135 | 24 | 22 | 0 | 0 | 194 | 5 | 66 | 31 | 15 | 0 | 0 | 117 | 478 |
| 3:30 PM | 31 | 44 | 20 | 57 | 0 | 0 | 152 | 37 | 9 | 2 | 5 | 0 | 0 | 53 | 26 | 154 | 28 | 32 | 0 | 0 | 240 | 3 | 107 | 19 | 25 | 0 | 0 | 154 | 599 |
| 3:45 PM | 29 | 43 | 34 | 52 | 0 | 0 | 158 | 37 | 7 | 0 | 9 | 0 | 0 | 53 | 18 | 131 | 31 | 24 | 0 | 0 | 204 | 4 | 104 | 47 | 24 | 0 | 0 | 179 | 594 |
| Hourly Total | 130 | 153 | 98 | 201 | 0 | 1 | 582 | 127 | 26 | 4 | 22 | 0 | 0 | 179 | 83 | 570 | 98 | 102 | 0 | 0 | 853 | 15 | 381 | 131 | 81 | 0 | 0 | 608 | 2222 |
| 4:00 PM | 38 | 47 | 24 | 58 | 0 | 0 | 167 | 34 | 7 | 5 | 3 | 0 | 0 | 49 | 17 | 147 | 11 | 41 | 0 | 0 | 216 | 8 | 109 | 21 | 22 | 0 | 0 | 160 | 592 |
| 4:15 PM | 40 | 46 | 22 | 51 | 0 | 0 | 159 | 17 | 7 | 4 | 6 | 0 | 0 | 34 | 16 | 124 | 20 | 28 | 0 | 0 | 188 | 6 | 109 | 37 | 12 | 0 | 0 | 164 | 545 |
| 4:30 PM | 36 | 43 | 18 | 67 | 0 | 0 | 164 | 22 | 5 | 5 | 4 | 0 | 0 | 36 | 22 | 140 | 12 | 40 | 0 | 0 | 214 | 8 | 109 | 20 | 22 | 1 | 0 | 160 | 574 |
| 4:45 PM | 40 | 39 | 18 | 57 | 0 | 0 | 154 | 38 | 5 | 8 | 4 | 0 | 0 | 55 | 20 | 129 | 10 | 47 | 0 | 0 | 206 | 9 | 96 | 21 | 19 | 0 | 0 | 145 | 560 |
| Hourly Total | 154 | 175 | 82 | 233 | 0 | 0 | 644 | 111 | 24 | 22 | 17 | 0 | 0 | 174 | 75 | 540 | 53 | 156 | 0 | 0 | 824 | 31 | 423 | 99 | 75 | 1 | 0 | 629 | 2271 |
| 5:00 PM | 38 | 49 | 24 | 47 | 0 | 0 | 158 | 31 | 6 | 2 | 3 | 0 | 0 | 42 | 20 | 122 | 21 | 35 | 0 | 0 | 198 | 6 | 114 | 34 | 19 | 0 | 0 | 173 | 571 |
| 5:15 PM | 41 | 48 | 28 | 57 | 0 | 0 | 174 | 25 | 6 | 1 | 0 | 0 | 0 | 32 | 21 | 130 | 19 | 26 | 0 | 0 | 196 | 13 | 97 | 27 | 25 | 0 | 0 | 162 | 564 |
| 5:30 PM | 46 | 50 | 30 | 62 | 0 | 0 | 188 | 28 | 12 | 3 | 5 | 0 | 0 | 48 | 15 | 120 | 5 | 31 | 0 | 0 | 171 | 6 | 95 | 28 | 30 | 0 | 0 | 159 | 566 |
| 5:45 PM | 47 | 37 | 24 | 49 | 0 | 0 | 157 | 28 | 2 | 2 | 8 | 0 | 0 | 40 | 14 | 133 | 19 | 35 | 0 | 0 | 201 | 10 | 95 | 23 | 15 | 0 | 0 | 143 | 541 |
| Hourly Total | 172 | 184 | 106 | 215 | 0 | 0 | 677 | 112 | 26 | 8 | 16 | 0 | 0 | 162 | 70 | 505 | 64 | 127 | 0 | 0 | 766 | 35 | 401 | 112 | 89 | 0 | 0 | 637 | 2242 |
| 6:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Grand Total | 738 | 864 | 506 | 1185 | 0 | 5 | 3293 | 719 | 117 | 55 | 81 | 0 | 1 | 972 | 458 | 3015 | 376 | 532 | 0 | 0 | 4381 | 109 | 2153 | 637 | 508 | 1 | 0 | 3408 | 12054 |
| Approach % | 22.4 | 26.2 | 15.4 | 36.0 | 0.0 | - | - | 74.0 | 12.0 | 5.7 | 8.3 | 0.0 | - | - | 10.5 | 68.8 | 8.6 | 12.1 | 0.0 | - | - | 3.2 | 63.2 | 18.7 | 14.9 | 0.0 | - | - | - |
| Total % | 6.1 | 7.2 | 4.2 | 9.8 | 0.0 | - | 27.3 | 6.0 | 1.0 | 0.5 | 0.7 | 0.0 | - | 8.1 | 3.8 | 25.0 | 3.1 | 4.4 | 0.0 | - | 36.3 | 0.9 | 17.9 | 5.3 | 4.2 | 0.0 | - | 28.3 | - |
| Lights | 724 | 845 | 486 | 1138 | 0 | - | 3193 | 695 | 117 | 51 | 77 | 0 | - | 940 | 441 | 2913 | 359 | 521 | 0 | - | 4234 | 108 | 2093 | 632 | 502 | 1 | - | 3336 | 11703 |
| % Lights | 98.1 | 97.8 | 96.0 | 96.0 | - | - | 97.0 | 96.7 | 100.0 | 92.7 | 95.1 | - | - | 96.7 | 96.3 | 96.6 | 95.5 | 97.9 | - | - | 96.6 | 99.1 | 97.2 | 99.2 | 98.8 | 100.0 | - | 97.9 | 97.1 |
| Buses | 6 | 0 | 3 | 10 | 0 | - | 19 | 17 | 0 | 0 | 0 | 0 | - | 17 | 0 | 39 | 10 | 9 | 0 | - | 58 | 0 | 39 | 1 | 0 | 0 | - | 40 | 134 |
| % Buses | 0.8 | 0.0 | 0.6 | 0.8 | - | - | 0.6 | 2.4 | 0.0 | 0.0 | 0.0 | - | - | 1.7 | 0.0 | 1.3 | 2.7 | 1.7 | - | - | 1.3 | 0.0 | 1.8 | 0.2 | 0.0 | 0.0 | - | 1.2 | 1.1 |
| Trucks | 8 | 19 | 17 | 37 | 0 | - | 81 | 7 | 0 | 4 | 4 | 0 | - | 15 | 17 | 63 | 7 | 2 | 0 | - | 89 | 1 | 21 | 4 | 6 | 0 | - | 32 | 217 |
| % Trucks | 1.1 | 2.2 | 3.4 | 3.1 | - | - | 2.5 | 1.0 | 0.0 | 7.3 | 4.9 | - | - | 1.5 | 3.7 | 2.1 | 1.9 | 0.4 | - | - | 2.0 | 0.9 | 1.0 | 0.6 | 1.2 | 0.0 | - | 0.9 | 1.8 |
| Bicycles on Crosswalk | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | 0.0 | - | - | - | - | - | - | 0.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | - | - | 5 | - | - | - | - | - | - | 1 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | 100.0 | - | - | - | - | - | - | 100.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Northampton County, PA
25th St & Wood Ave/Rt 22 EB Ramps
Wednesday, February 22, 2023
Location: 40.685366, -75.250951

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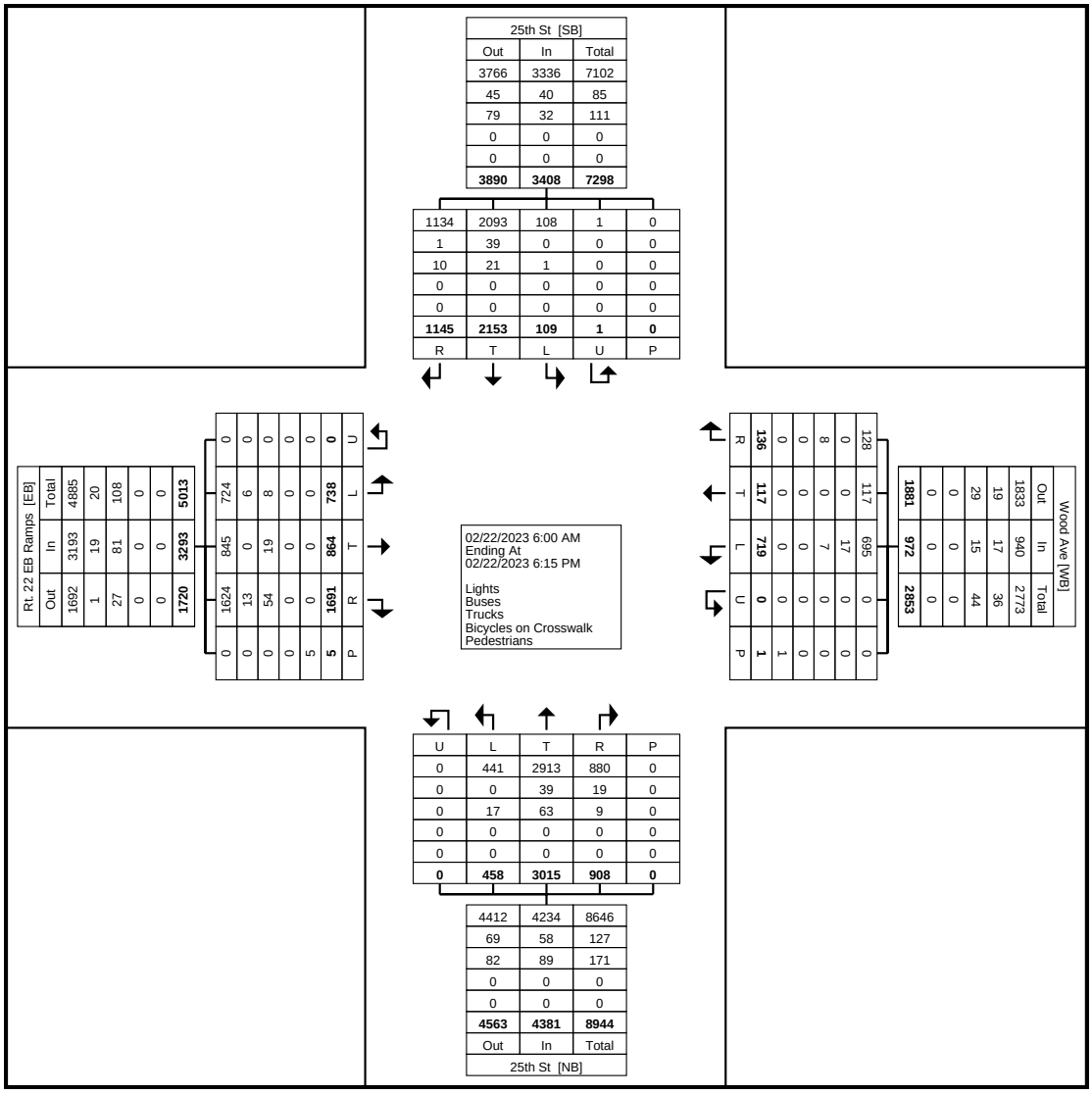


Turning Movement Data Plot

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Northampton County, PA
25th St & Wood Ave/Rt 22 EB Ramps
Wednesday, February 22, 2023
Location: 40.685366, -75.250951

Count Name: 25th St & Wood Ave/Rt. 22 EB Ramps
Site Code:
Start Date: 02/22/2023


# Turning Movement Peak Hour Data (6:45 AM)

| Start Time | Rt. 22 EB Ramps Eastbound | | | | | | | Wood Ave Westbound | | | | | | | 25th St Northbound | | | | | | | 25th St Southbound | | | | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | |
| 6:45 AM | 17 | 31 | 24 | 65 | 0 | 0 | 137 | 52 | 3 | 2 | 2 | 0 | 0 | 59 | 22 | 122 | 11 | 13 | 0 | 0 | 168 | 1 | 119 | 23 | 21 | 0 | 0 | 164 | 528 |
| 7:00 AM | 15 | 27 | 14 | 49 | 0 | 3 | 105 | 85 | 2 | 1 | 0 | 0 | 0 | 88 | 27 | 105 | 19 | 10 | 0 | 0 | 161 | 4 | 158 | 18 | 25 | 0 | 0 | 205 | 559 |
| 7:15 AM | 24 | 29 | 23 | 61 | 0 | 0 | 137 | 26 | 4 | 3 | 6 | 0 | 0 | 39 | 28 | 130 | 35 | 26 | 0 | 0 | 219 | 2 | 70 | 26 | 18 | 0 | 0 | 116 | 511 |
| 7:30 AM | 22 | 30 | 22 | 43 | 0 | 0 | 117 | 16 | 6 | 5 | 3 | 0 | 0 | 30 | 19 | 146 | 19 | 11 | 0 | 0 | 195 | 0 | 62 | 24 | 28 | 0 | 0 | 114 | 456 |
| Total | 78 | 117 | 83 | 218 | 0 | 3 | 496 | 179 | 15 | 11 | 11 | 0 | 0 | 216 | 96 | 503 | 84 | 60 | 0 | 0 | 743 | 7 | 409 | 91 | 92 | 0 | 0 | 599 | 2054 |
| Approach % | 15.7 | 23.6 | 16.7 | 44.0 | 0.0 | - | - | 82.9 | 6.9 | 5.1 | 5.1 | 0.0 | - | - | 12.9 | 67.7 | 11.3 | 8.1 | 0.0 | - | - | 1.2 | 68.3 | 15.2 | 15.4 | 0.0 | - | - | - |
| Total % | 3.8 | 5.7 | 4.0 | 10.6 | 0.0 | - | 24.1 | 8.7 | 0.7 | 0.5 | 0.5 | 0.0 | - | 10.5 | 4.7 | 24.5 | 4.1 | 2.9 | 0.0 | - | 36.2 | 0.3 | 19.9 | 4.4 | 4.5 | 0.0 | - | 29.2 | - |
| PHF | 0.813 | 0.944 | 0.865 | 0.838 | 0.000 | - | 0.905 | 0.526 | 0.625 | 0.550 | 0.458 | 0.000 | - | 0.614 | 0.857 | 0.861 | 0.600 | 0.577 | 0.000 | - | 0.848 | 0.438 | 0.647 | 0.875 | 0.821 | 0.000 | - | 0.730 | 0.919 |
| Lights | 76 | 112 | 78 | 199 | 0 | - | 465 | 165 | 15 | 11 | 10 | 0 | - | 201 | 94 | 467 | 77 | 56 | 0 | - | 694 | 7 | 386 | 91 | 91 | 0 | - | 575 | 1935 |
| % Lights | 97.4 | 95.7 | 94.0 | 91.3 | - | - | 93.8 | 92.2 | 100.0 | 100.0 | 90.9 | - | - | 93.1 | 97.9 | 92.8 | 91.7 | 93.3 | - | - | 93.4 | 100.0 | 94.4 | 100.0 | 98.9 | - | - | 96.0 | 94.2 |
| Buses | 0 | 0 | 0 | 3 | 0 | - | 3 | 14 | 0 | 0 | 0 | 0 | - | 14 | 0 | 16 | 4 | 4 | 0 | - | 24 | 0 | 21 | 0 | 0 | 0 | - | 21 | 62 |
| % Buses | 0.0 | 0.0 | 0.0 | 1.4 | - | - | 0.6 | 7.8 | 0.0 | 0.0 | 0.0 | - | - | 6.5 | 0.0 | 3.2 | 4.8 | 6.7 | - | - | 3.2 | 0.0 | 5.1 | 0.0 | 0.0 | - | - | 3.5 | 3.0 |
| Trucks | 2 | 5 | 5 | 16 | 0 | - | 28 | 0 | 0 | 0 | 1 | 0 | - | 1 | 2 | 20 | 3 | 0 | 0 | - | 25 | 0 | 2 | 0 | 1 | 0 | - | 3 | 57 |
| % Trucks | 2.6 | 4.3 | 6.0 | 7.3 | - | - | 5.6 | 0.0 | 0.0 | 0.0 | 9.1 | - | - | 0.5 | 2.1 | 4.0 | 3.6 | 0.0 | - | - | 3.4 | 0.0 | 0.5 | 0.0 | 1.1 | - | - | 0.5 | 2.8 |
| Bicycles on Crosswalk | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | 0.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | - | - | 3 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | 100.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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Northampton County, PA
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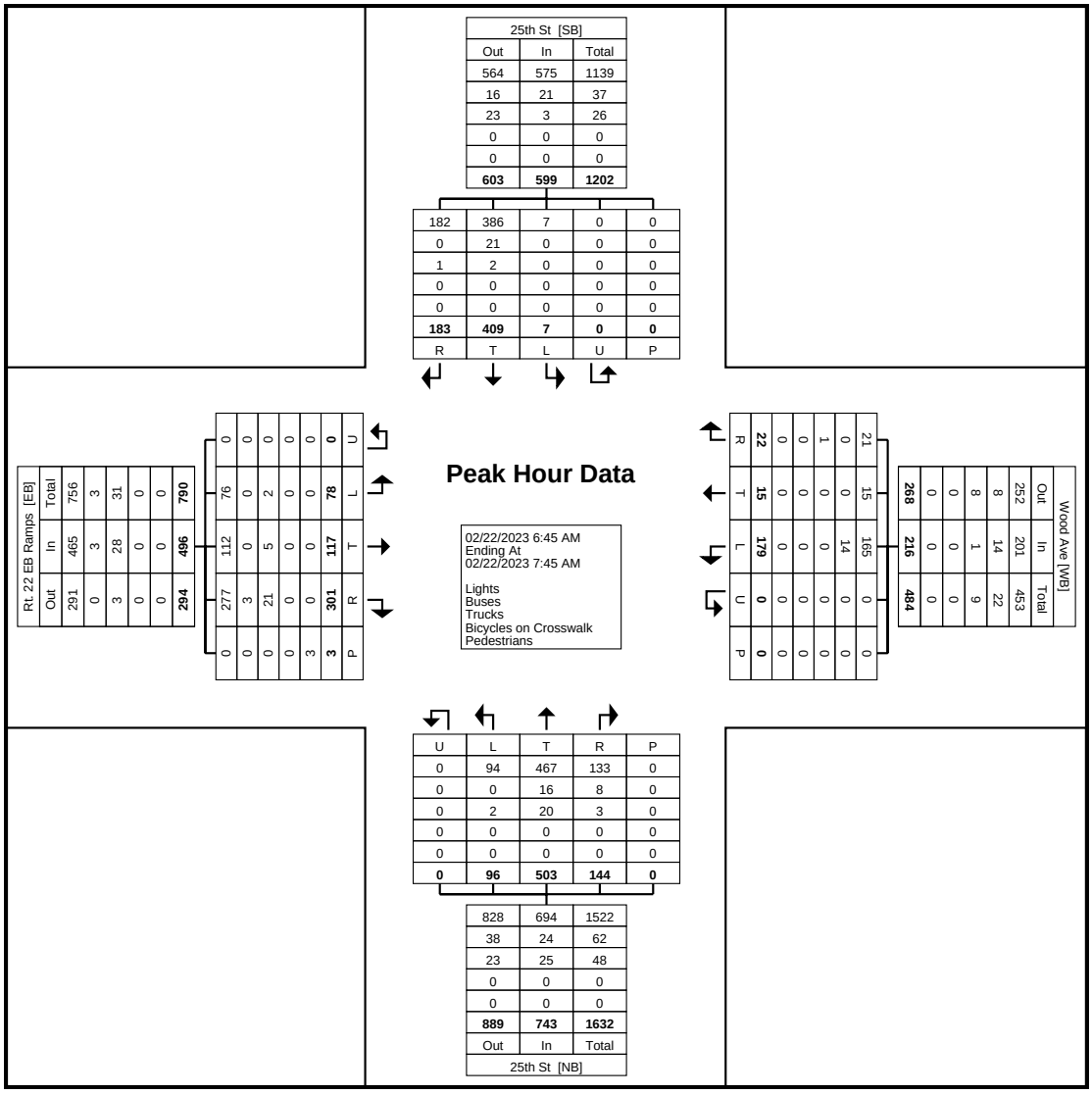
Wednesday, February 22, 2023
Location: 40.685366, -75.250951

Count Name: 25th St & Wood Ave/Rt. 22 EB Ramps
Site Code:
Start Date: 02/22/2023


Turning Movement Peak Hour Data Plot (6:45 AM)

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Northampton County, PA
25th St & Wood Ave/Rt 22 EB Ramps
Wednesday, February 22, 2023
Location: 40.685366, -75.250951

Count Name: 25th St & Wood Ave/Rt. 22 EB Ramps
Site Code:
Start Date: 02/22/2023


# Turning Movement Peak Hour Data (3:30 PM)

| Start Time | Rt. 22 EB Ramps Eastbound | | | | | | | Wood Ave Westbound | | | | | | | 25th St Northbound | | | | | | | 25th St Southbound | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Int. Total |
| 3:30 PM | 31 | 44 | 20 | 57 | 0 | 0 | 152 | 37 | 9 | 2 | 5 | 0 | 0 | 53 | 26 | 154 | 28 | 32 | 0 | 0 | 240 | 3 | 107 | 19 | 25 | 0 | 0 | 154 | 599 |
| 3:45 PM | 29 | 43 | 34 | 52 | 0 | 0 | 158 | 37 | 7 | 0 | 9 | 0 | 0 | 53 | 18 | 131 | 31 | 24 | 0 | 0 | 204 | 4 | 104 | 47 | 24 | 0 | 0 | 179 | 594 |
| 4:00 PM | 38 | 47 | 24 | 58 | 0 | 0 | 167 | 34 | 7 | 5 | 3 | 0 | 0 | 49 | 17 | 147 | 11 | 41 | 0 | 0 | 216 | 8 | 109 | 21 | 22 | 0 | 0 | 160 | 592 |
| 4:15 PM | 40 | 46 | 22 | 51 | 0 | 0 | 159 | 17 | 7 | 4 | 6 | 0 | 0 | 34 | 16 | 124 | 20 | 28 | 0 | 0 | 188 | 6 | 109 | 37 | 12 | 0 | 0 | 164 | 545 |
| Total | 138 | 180 | 100 | 218 | 0 | 0 | 636 | 125 | 30 | 11 | 23 | 0 | 0 | 189 | 77 | 556 | 90 | 125 | 0 | 0 | 848 | 21 | 429 | 124 | 83 | 0 | 0 | 657 | 2330 |
| Approach % | 21.7 | 28.3 | 15.7 | 34.3 | 0.0 | - | - | 66.1 | 15.9 | 5.8 | 12.2 | 0.0 | - | - | 9.1 | 65.6 | 10.6 | 14.7 | 0.0 | - | - | 3.2 | 65.3 | 18.9 | 12.6 | 0.0 | - | - | - |
| Total % | 5.9 | 7.7 | 4.3 | 9.4 | 0.0 | - | 27.3 | 5.4 | 1.3 | 0.5 | 1.0 | 0.0 | - | 8.1 | 3.3 | 23.9 | 3.9 | 5.4 | 0.0 | - | 36.4 | 0.9 | 18.4 | 5.3 | 3.6 | 0.0 | - | 28.2 | - |
| PHF | 0.863 | 0.957 | 0.735 | 0.940 | 0.000 | - | 0.952 | 0.845 | 0.833 | 0.550 | 0.639 | 0.000 | - | 0.892 | 0.740 | 0.903 | 0.726 | 0.762 | 0.000 | - | 0.883 | 0.656 | 0.984 | 0.660 | 0.830 | 0.000 | - | 0.918 | 0.972 |
| Lights | 138 | 176 | 98 | 216 | 0 | - | 628 | 123 | 30 | 10 | 23 | 0 | - | 186 | 75 | 542 | 86 | 124 | 0 | - | 827 | 21 | 423 | 123 | 83 | 0 | - | 650 | 2291 |
| % Lights | 100.0 | 97.8 | 98.0 | 99.1 | - | - | 98.7 | 98.4 | 100.0 | 90.9 | 100.0 | - | - | 98.4 | 97.4 | 97.5 | 95.6 | 99.2 | - | - | 97.5 | 100.0 | 98.6 | 99.2 | 100.0 | - | - | 98.9 | 98.3 |
| Buses | 0 | 0 | 0 | 1 | 0 | - | 1 | 1 | 0 | 0 | 0 | 0 | - | 1 | 0 | 7 | 3 | 1 | 0 | - | 11 | 0 | 3 | 0 | 0 | 0 | - | 3 | 16 |
| % Buses | 0.0 | 0.0 | 0.0 | 0.5 | - | - | 0.2 | 0.8 | 0.0 | 0.0 | 0.0 | - | - | 0.5 | 0.0 | 1.3 | 3.3 | 0.8 | - | - | 1.3 | 0.0 | 0.7 | 0.0 | 0.0 | - | - | 0.5 | 0.7 |
| Trucks | 0 | 4 | 2 | 1 | 0 | - | 7 | 1 | 0 | 1 | 0 | 0 | - | 2 | 2 | 7 | 1 | 0 | 0 | - | 10 | 0 | 3 | 1 | 0 | 0 | - | 4 | 23 |
| % Trucks | 0.0 | 2.2 | 2.0 | 0.5 | - | - | 1.1 | 0.8 | 0.0 | 9.1 | 0.0 | - | - | 1.1 | 2.6 | 1.3 | 1.1 | 0.0 | - | - | 1.2 | 0.0 | 0.7 | 0.8 | 0.0 | - | - | 0.6 | 1.0 |
| Bicycles on Crosswalk | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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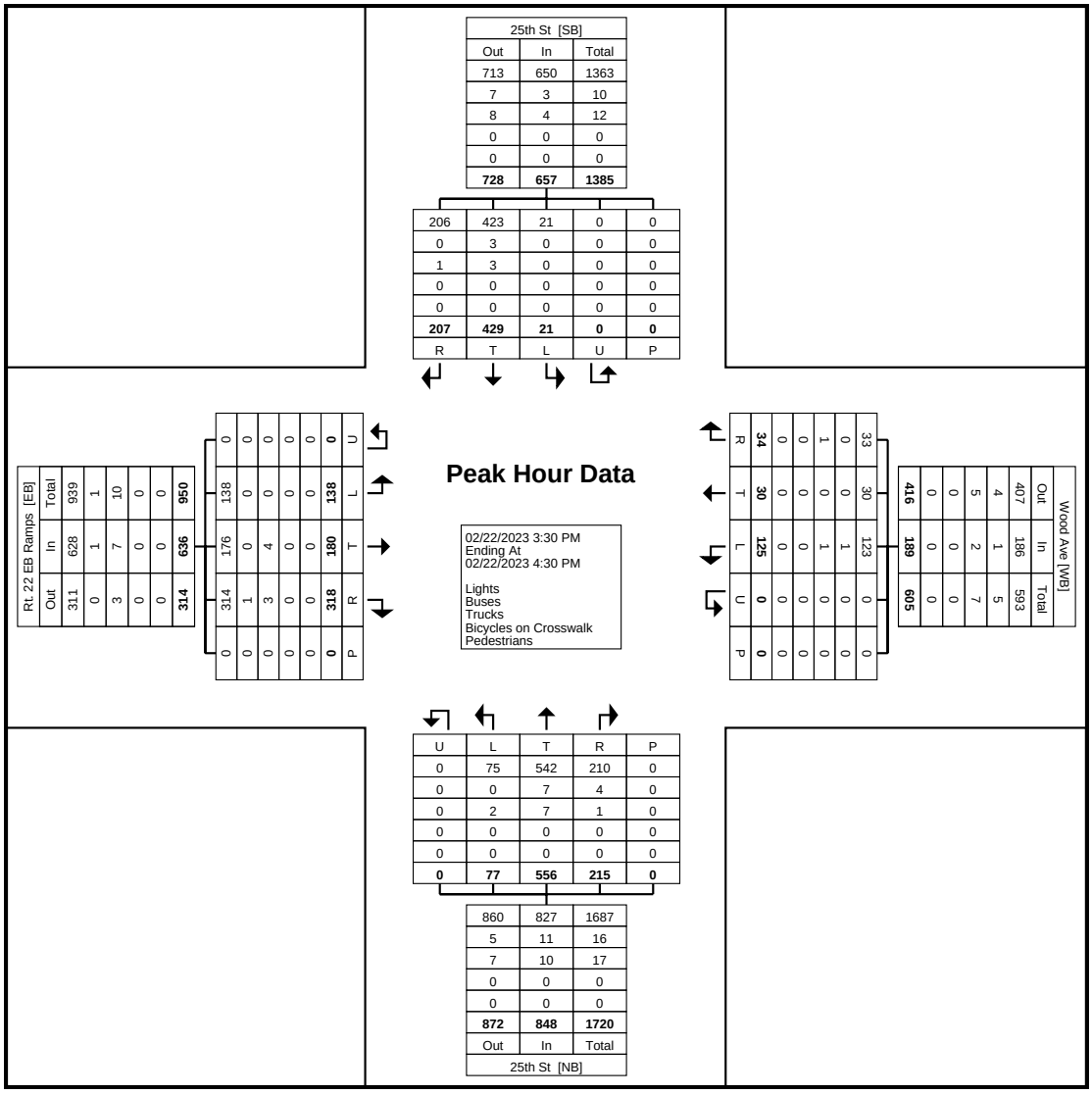
25th St & Wood Ave/Rt 22 EB Ramps
Wednesday, February 22, 2023
Location: 40.685366, -75.250951

Count Name: 25th St & Wood Ave/Rt. 22 EB Ramps
Site Code:
Start Date: 02/22/2023


Turning Movement Peak Hour Data Plot (3:30 PM)

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Northampton County, PA
Northampton St & Wood Ave
Wednesday, February 22, 2023
Location: 40.687309, -75.250197

Count Name: Northampton St & Wood Ave
Site Code:
Start Date: 02/22/2023


# Turning Movement Data

| Start Time | Northampton St Eastbound | | | | | | | Northampton St Westbound | | | | | | | Wood Ave Northbound | | | | | | | Wood Ave Southbound | | | | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | |
| 6:00 AM | 3 | 11 | 6 | 0 | 0 | 0 | 20 | 0 | 40 | 0 | 0 | 0 | 0 | 40 | 2 | 5 | 2 | 8 | 0 | 1 | 17 | 1 | 10 | 4 | 0 | 0 | 0 | 15 | 92 |
| 6:15 AM | 7 | 15 | 4 | 0 | 1 | 0 | 27 | 5 | 38 | 0 | 0 | 0 | 0 | 43 | 4 | 4 | 4 | 15 | 0 | 0 | 27 | 1 | 19 | 5 | 1 | 0 | 0 | 26 | 123 |
| 6:30 AM | 6 | 29 | 3 | 0 | 0 | 0 | 38 | 3 | 53 | 1 | 0 | 0 | 0 | 57 | 0 | 17 | 12 | 26 | 0 | 0 | 55 | 0 | 21 | 4 | 3 | 0 | 0 | 28 | 178 |
| 6:45 AM | 16 | 32 | 3 | 0 | 1 | 0 | 52 | 12 | 64 | 0 | 0 | 0 | 0 | 76 | 2 | 14 | 13 | 18 | 0 | 0 | 47 | 1 | 53 | 8 | 1 | 0 | 0 | 63 | 238 |
| Hourly Total | 32 | 87 | 16 | 0 | 2 | 0 | 137 | 20 | 195 | 1 | 0 | 0 | 0 | 216 | 8 | 40 | 31 | 67 | 0 | 1 | 146 | 3 | 103 | 21 | 5 | 0 | 0 | 132 | 631 |
| 7:00 AM | 11 | 39 | 4 | 0 | 0 | 0 | 54 | 18 | 53 | 3 | 0 | 0 | 0 | 74 | 5 | 17 | 20 | 21 | 0 | 0 | 63 | 2 | 75 | 11 | 1 | 0 | 0 | 89 | 280 |
| 7:15 AM | 17 | 63 | 4 | 1 | 0 | 0 | 85 | 9 | 75 | 4 | 0 | 0 | 0 | 88 | 5 | 40 | 20 | 32 | 0 | 0 | 97 | 2 | 21 | 13 | 3 | 0 | 2 | 39 | 309 |
| 7:30 AM | 15 | 42 | 5 | 0 | 0 | 0 | 62 | 11 | 97 | 3 | 0 | 0 | 0 | 111 | 7 | 16 | 4 | 33 | 0 | 0 | 60 | 3 | 15 | 7 | 2 | 0 | 0 | 27 | 260 |
| 7:45 AM | 8 | 60 | 3 | 0 | 0 | 0 | 71 | 11 | 63 | 1 | 0 | 0 | 0 | 75 | 5 | 17 | 14 | 42 | 0 | 0 | 78 | 6 | 13 | 11 | 2 | 0 | 0 | 32 | 256 |
| Hourly Total | 51 | 204 | 16 | 1 | 0 | 0 | 272 | 49 | 288 | 11 | 0 | 0 | 0 | 348 | 22 | 90 | 58 | 128 | 0 | 0 | 298 | 13 | 124 | 42 | 8 | 0 | 2 | 187 | 1105 |
| 8:00 AM | 9 | 62 | 5 | 1 | 0 | 0 | 77 | 10 | 59 | 0 | 0 | 0 | 0 | 69 | 5 | 14 | 9 | 36 | 0 | 0 | 64 | 3 | 16 | 4 | 7 | 0 | 0 | 30 | 240 |
| 8:15 AM | 10 | 33 | 6 | 3 | 0 | 0 | 52 | 9 | 50 | 1 | 0 | 0 | 0 | 60 | 4 | 19 | 8 | 30 | 0 | 0 | 61 | 3 | 21 | 9 | 2 | 0 | 0 | 35 | 208 |
| 8:30 AM | 19 | 42 | 6 | 0 | 0 | 0 | 67 | 8 | 59 | 1 | 2 | 0 | 0 | 70 | 4 | 11 | 4 | 34 | 0 | 0 | 53 | 4 | 28 | 4 | 1 | 0 | 0 | 37 | 227 |
| 8:45 AM | 16 | 38 | 1 | 2 | 0 | 0 | 57 | 17 | 78 | 1 | 0 | 0 | 0 | 96 | 5 | 23 | 15 | 31 | 0 | 0 | 74 | 3 | 24 | 10 | 7 | 0 | 0 | 44 | 271 |
| Hourly Total | 54 | 175 | 18 | 6 | 0 | 0 | 253 | 44 | 246 | 3 | 2 | 0 | 0 | 295 | 18 | 67 | 36 | 131 | 0 | 0 | 252 | 13 | 89 | 27 | 17 | 0 | 0 | 146 | 946 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3:00 PM | 18 | 67 | 4 | 0 | 0 | 0 | 89 | 18 | 93 | 4 | 0 | 0 | 1 | 115 | 7 | 22 | 24 | 35 | 0 | 2 | 88 | 4 | 19 | 12 | 5 | 0 | 1 | 40 | 332 |
| 3:15 PM | 15 | 58 | 7 | 0 | 1 | 0 | 81 | 12 | 99 | 5 | 0 | 0 | 0 | 116 | 9 | 27 | 13 | 25 | 0 | 0 | 74 | 7 | 22 | 7 | 2 | 0 | 0 | 38 | 309 |
| 3:30 PM | 21 | 59 | 6 | 3 | 0 | 0 | 89 | 23 | 95 | 3 | 1 | 0 | 0 | 122 | 15 | 41 | 16 | 42 | 0 | 0 | 114 | 1 | 23 | 13 | 14 | 0 | 0 | 51 | 376 |
| 3:45 PM | 8 | 85 | 9 | 2 | 1 | 0 | 105 | 18 | 97 | 2 | 0 | 0 | 0 | 117 | 3 | 32 | 23 | 32 | 0 | 0 | 90 | 6 | 23 | 17 | 2 | 0 | 0 | 48 | 360 |
| Hourly Total | 62 | 269 | 26 | 5 | 2 | 0 | 364 | 71 | 384 | 14 | 1 | 0 | 1 | 470 | 34 | 122 | 76 | 134 | 0 | 2 | 366 | 18 | 87 | 49 | 23 | 0 | 1 | 177 | 1377 |
| 4:00 PM | 18 | 77 | 4 | 0 | 0 | 0 | 99 | 25 | 103 | 2 | 0 | 0 | 0 | 130 | 9 | 31 | 39 | 30 | 0 | 0 | 109 | 6 | 13 | 12 | 6 | 0 | 0 | 37 | 375 |
| 4:15 PM | 10 | 78 | 7 | 0 | 0 | 0 | 95 | 14 | 100 | 6 | 1 | 0 | 0 | 121 | 10 | 29 | 15 | 34 | 0 | 0 | 88 | 3 | 14 | 10 | 4 | 0 | 0 | 31 | 335 |
| 4:30 PM | 19 | 60 | 5 | 2 | 1 | 0 | 87 | 8 | 95 | 2 | 0 | 0 | 0 | 105 | 5 | 37 | 15 | 34 | 0 | 0 | 91 | 4 | 18 | 14 | 6 | 0 | 1 | 42 | 325 |
| 4:45 PM | 11 | 60 | 6 | 4 | 0 | 0 | 81 | 20 | 82 | 0 | 0 | 0 | 0 | 102 | 15 | 45 | 15 | 26 | 0 | 0 | 101 | 4 | 22 | 11 | 5 | 0 | 1 | 42 | 326 |
| Hourly Total | 58 | 275 | 22 | 6 | 1 | 0 | 362 | 67 | 380 | 10 | 1 | 0 | 0 | 458 | 39 | 142 | 84 | 124 | 0 | 0 | 389 | 17 | 67 | 47 | 21 | 0 | 2 | 152 | 1361 |
| 5:00 PM | 19 | 58 | 7 | 1 | 0 | 0 | 85 | 19 | 83 | 5 | 0 | 0 | 0 | 107 | 7 | 31 | 17 | 39 | 0 | 1 | 94 | 1 | 17 | 8 | 4 | 0 | 0 | 30 | 316 |
| 5:15 PM | 18 | 57 | 10 | 2 | 0 | 0 | 87 | 11 | 74 | 4 | 0 | 0 | 0 | 89 | 12 | 28 | 13 | 42 | 0 | 0 | 95 | 1 | 27 | 13 | 2 | 0 | 0 | 43 | 314 |
| 5:30 PM | 16 | 53 | 11 | 2 | 0 | 0 | 82 | 16 | 72 | 1 | 0 | 0 | 0 | 89 | 3 | 29 | 14 | 46 | 0 | 0 | 92 | 1 | 22 | 6 | 8 | 0 | 1 | 37 | 300 |
| 5:45 PM | 30 | 59 | 9 | 1 | 0 | 0 | 99 | 17 | 56 | 7 | 0 | 0 | 0 | 80 | 7 | 31 | 15 | 44 | 0 | 0 | 97 | 2 | 16 | 14 | 4 | 0 | 0 | 36 | 312 |
| Hourly Total | 83 | 227 | 37 | 6 | 0 | 0 | 353 | 63 | 285 | 17 | 0 | 0 | 0 | 365 | 29 | 119 | 59 | 171 | 0 | 1 | 378 | 5 | 82 | 41 | 18 | 0 | 1 | 146 | 1242 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 340 | 1237 | 135 | 24 | 5 | 0 | 1741 | 314 | 1778 | 56 | 4 | 0 | 1 | 2152 | 150 | 580 | 344 | 755 | 0 | 4 | 1829 | 69 | 552 | 227 | 92 | 0 | 6 | 940 | 6662 |
| Approach % | 19.5 | 71.1 | 7.8 | 1.4 | 0.3 | - | - | 14.6 | 82.6 | 2.6 | 0.2 | 0.0 | - | - | 8.2 | 31.7 | 18.8 | 41.3 | 0.0 | - | - | 7.3 | 58.7 | 24.1 | 9.8 | 0.0 | - | - | - |
| Total % | 5.1 | 18.6 | 2.0 | 0.4 | 0.1 | - | 26.1 | 4.7 | 26.7 | 0.8 | 0.1 | 0.0 | - | 32.3 | 2.3 | 8.7 | 5.2 | 11.3 | 0.0 | - | 27.5 | 1.0 | 8.3 | 3.4 | 1.4 | 0.0 | - | 14.1 | - |
| Lights | 334 | 1217 | 135 | 24 | 5 | - | 1715 | 306 | 1751 | 55 | 4 | 0 | - | 2116 | 147 | 557 | 336 | 742 | 0 | - | 1782 | 68 | 532 | 213 | 90 | 0 | - | 903 | 6516 |
| % Lights | 98.2 | 98.4 | 100.0 | 100.0 | 100.0 | - | 98.5 | 97.5 | 98.5 | 98.2 | 100.0 | - | - | 98.3 | 98.0 | 96.0 | 97.7 | 98.3 | - | - | 97.4 | 98.6 | 96.4 | 93.8 | 97.8 | - | - | 96.1 | 97.8 |
| Buses | 3 | 13 | 0 | 0 | 0 | - | 16 | 4 | 17 | 1 | 0 | 0 | - | 22 | 1 | 12 | 5 | 3 | 0 | - | 21 | 1 | 13 | 9 | 1 | 0 | - | 24 | 83 |
| % Buses | 0.9 | 1.1 | 0.0 | 0.0 | 0.0 | - | 0.9 | 1.3 | 1.0 | 1.8 | 0.0 | - | - | 1.0 | 0.7 | 2.1 | 1.5 | 0.4 | - | - | 1.1 | 1.4 | 2.4 | 4.0 | 1.1 | - | - | 2.6 | 1.2 |
| Trucks | 3 | 7 | 0 | 0 | 0 | - | 10 | 4 | 10 | 0 | 0 | 0 | - | 14 | 2 | 11 | 3 | 10 | 0 | - | 26 | 0 | 7 | 5 | 1 | 0 | - | 13 | 63 |
| % Trucks | 0.9 | 0.6 | 0.0 | 0.0 | 0.0 | - | 0.6 | 1.3 | 0.6 | 0.0 | 0.0 | - | - | 0.7 | 1.3 | 1.9 | 0.9 | 1.3 | - | - | 1.4 | 0.0 | 1.3 | 2.2 | 1.1 | - | - | 1.4 | 0.9 |
| Bicycles on Crosswalk | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | 0.0 | - | - | - | - | - | - | 0.0 | - | - | - | - | - | - | 0.0 | - | - |
| Pedestrians | - | - | - | - | - | 0 | - | - | - | - | - | - | 1 | - | - | - | - | - | - | 4 | - | - | - | - | - | - | 6 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | 100.0 | - | - | - | - | - | - | 100.0 | - | - | - | - | - | - | 100.0 | - | - |

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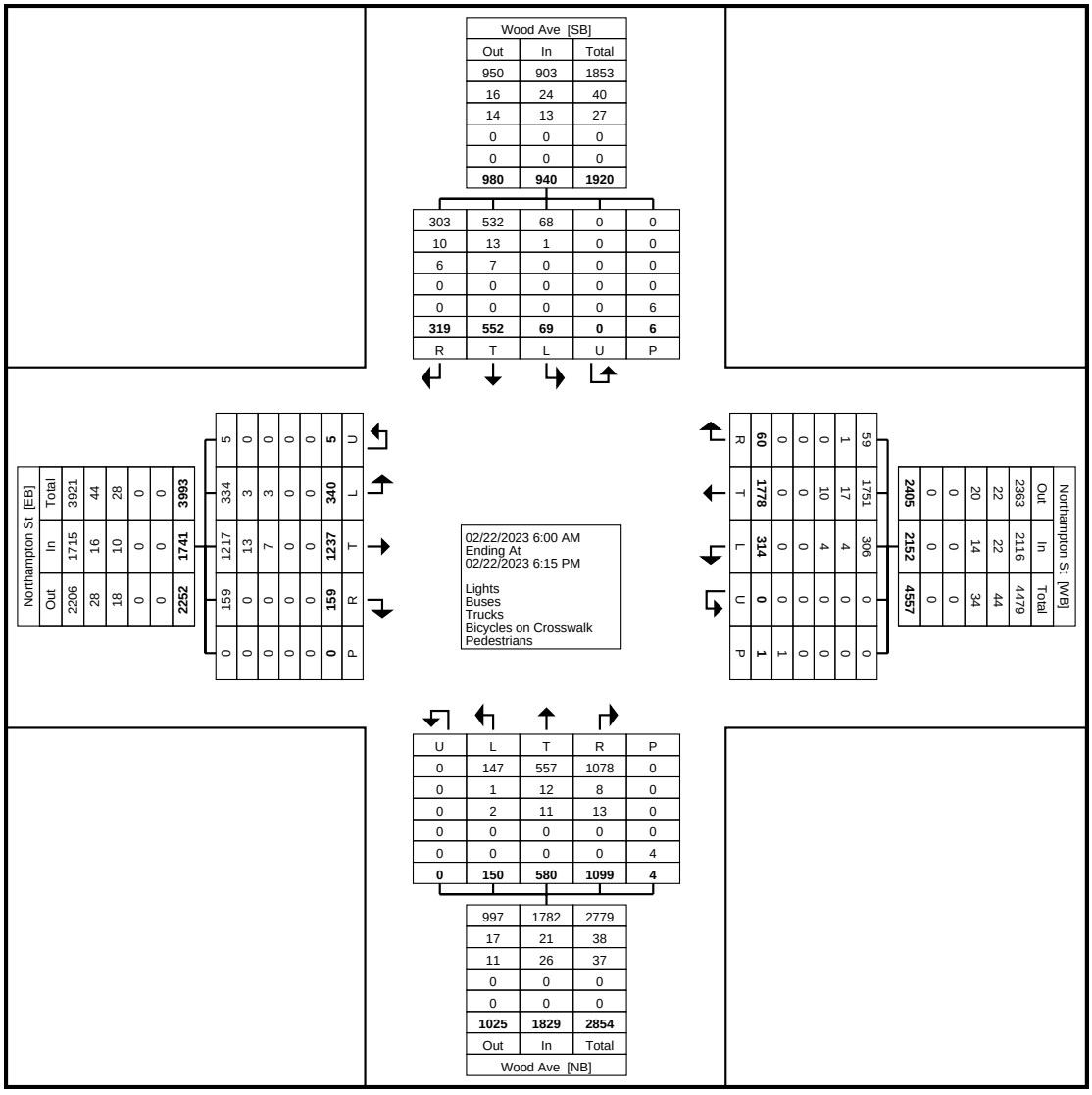
Northampton County, PA
Northampton St & Wood Ave
Wednesday, February 22, 2023
Location: 40.687309, -75.250197

Count Name: Northampton St & Wood Ave
Site Code:
Start Date: 02/22/2023


Turning Movement Data Plot

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Northampton County, PA
Northampton St & Wood Ave
Wednesday, February 22, 2023
Location: 40.687309, -75.250197

Count Name: Northampton St & Wood Ave
Site Code:
Start Date: 02/22/2023


# Turning Movement Peak Hour Data (7:00 AM)

| Start Time | Northampton St Eastbound | | | | | | | Northampton St Westbound | | | | | | | Wood Ave Northbound | | | | | | | Wood Ave Southbound | | | | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | |
| 7:00 AM | 11 | 39 | 4 | 0 | 0 | 0 | 54 | 18 | 53 | 3 | 0 | 0 | 0 | 74 | 5 | 17 | 20 | 21 | 0 | 0 | 63 | 2 | 75 | 11 | 1 | 0 | 0 | 89 | 280 |
| 7:15 AM | 17 | 63 | 4 | 1 | 0 | 0 | 85 | 9 | 75 | 4 | 0 | 0 | 0 | 88 | 5 | 40 | 20 | 32 | 0 | 0 | 97 | 2 | 21 | 13 | 3 | 0 | 2 | 39 | 309 |
| 7:30 AM | 15 | 42 | 5 | 0 | 0 | 0 | 62 | 11 | 97 | 3 | 0 | 0 | 0 | 111 | 7 | 16 | 4 | 33 | 0 | 0 | 60 | 3 | 15 | 7 | 2 | 0 | 0 | 27 | 260 |
| 7:45 AM | 8 | 60 | 3 | 0 | 0 | 0 | 71 | 11 | 63 | 1 | 0 | 0 | 0 | 75 | 5 | 17 | 14 | 42 | 0 | 0 | 78 | 6 | 13 | 11 | 2 | 0 | 0 | 32 | 256 |
| Total | 51 | 204 | 16 | 1 | 0 | 0 | 272 | 49 | 288 | 11 | 0 | 0 | 0 | 348 | 22 | 90 | 58 | 128 | 0 | 0 | 298 | 13 | 124 | 42 | 8 | 0 | 2 | 187 | 1105 |
| Approach % | 18.8 | 75.0 | 5.9 | 0.4 | 0.0 | - | - | 14.1 | 82.8 | 3.2 | 0.0 | 0.0 | - | - | 7.4 | 30.2 | 19.5 | 43.0 | 0.0 | - | - | 7.0 | 66.3 | 22.5 | 4.3 | 0.0 | - | - | - |
| Total % | 4.6 | 18.5 | 1.4 | 0.1 | 0.0 | - | 24.6 | 4.4 | 26.1 | 1.0 | 0.0 | 0.0 | - | 31.5 | 2.0 | 8.1 | 5.2 | 11.6 | 0.0 | - | 27.0 | 1.2 | 11.2 | 3.8 | 0.7 | 0.0 | - | 16.9 | - |
| PHF | 0.750 | 0.810 | 0.800 | 0.250 | 0.000 | - | 0.800 | 0.681 | 0.742 | 0.688 | 0.000 | 0.000 | - | 0.784 | 0.786 | 0.563 | 0.725 | 0.762 | 0.000 | - | 0.768 | 0.542 | 0.413 | 0.808 | 0.667 | 0.000 | - | 0.525 | 0.894 |
| Lights | 48 | 195 | 16 | 1 | 0 | - | 260 | 46 | 278 | 11 | 0 | 0 | - | 335 | 22 | 83 | 57 | 123 | 0 | - | 285 | 12 | 122 | 37 | 8 | 0 | - | 179 | 1059 |
| % Lights | 94.1 | 95.6 | 100.0 | 100.0 | - | - | 95.6 | 93.9 | 96.5 | 100.0 | - | - | - | 96.3 | 100.0 | 92.2 | 98.3 | 96.1 | - | - | 95.6 | 92.3 | 98.4 | 88.1 | 100.0 | - | - | 95.7 | 95.8 |
| Buses | 2 | 7 | 0 | 0 | 0 | - | 9 | 2 | 7 | 0 | 0 | 0 | - | 9 | 0 | 4 | 1 | 1 | 0 | - | 6 | 1 | 2 | 2 | 0 | 0 | - | 5 | 29 |
| % Buses | 3.9 | 3.4 | 0.0 | 0.0 | - | - | 3.3 | 4.1 | 2.4 | 0.0 | - | - | - | 2.6 | 0.0 | 4.4 | 1.7 | 0.8 | - | - | 2.0 | 7.7 | 1.6 | 4.8 | 0.0 | - | - | 2.7 | 2.6 |
| Trucks | 1 | 2 | 0 | 0 | 0 | - | 3 | 1 | 3 | 0 | 0 | 0 | - | 4 | 0 | 3 | 0 | 4 | 0 | - | 7 | 0 | 0 | 3 | 0 | 0 | - | 3 | 17 |
| % Trucks | 2.0 | 1.0 | 0.0 | 0.0 | - | - | 1.1 | 2.0 | 1.0 | 0.0 | - | - | - | 1.1 | 0.0 | 3.3 | 0.0 | 3.1 | - | - | 2.3 | 0.0 | 0.0 | 7.1 | 0.0 | - | - | 1.6 | 1.5 |
| Bicycles on Crosswalk | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.0 | - | - |
| Pedestrians | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 2 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 100.0 | - | - |

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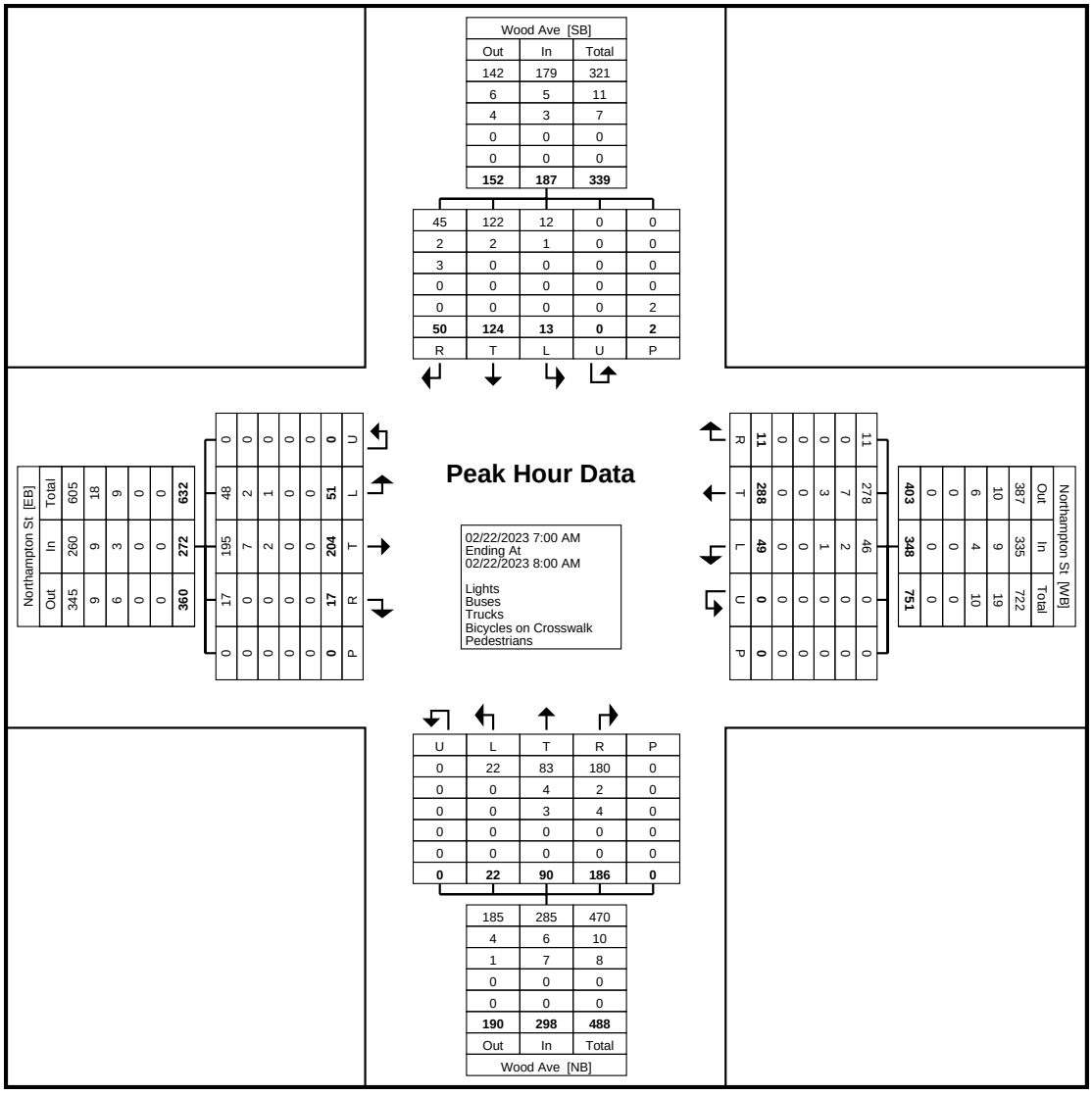
Location: 40.687309, -75.250197

Count Name: Northampton St & Wood Ave
Site Code:
Start Date: 02/22/2023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Northampton County, PA
Northampton St & Wood Ave
Wednesday, February 22, 2023
Location: 40.687309, -75.250197

Count Name: Northampton St & Wood Ave
Site Code:
Start Date: 02/22/2023


# Turning Movement Peak Hour Data (3:30 PM)

| Start Time | Northampton St Eastbound | | | | | | | Northampton St Westbound | | | | | | | Wood Ave Northbound | | | | | | | Wood Ave Southbound | | | | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | |
| 3:30 PM | 21 | 59 | 6 | 3 | 0 | 0 | 89 | 23 | 95 | 3 | 1 | 0 | 0 | 122 | 15 | 41 | 16 | 42 | 0 | 0 | 114 | 1 | 23 | 13 | 14 | 0 | 0 | 51 | 376 |
| 3:45 PM | 8 | 85 | 9 | 2 | 1 | 0 | 105 | 18 | 97 | 2 | 0 | 0 | 0 | 117 | 3 | 32 | 23 | 32 | 0 | 0 | 90 | 6 | 23 | 17 | 2 | 0 | 0 | 48 | 360 |
| 4:00 PM | 18 | 77 | 4 | 0 | 0 | 0 | 99 | 25 | 103 | 2 | 0 | 0 | 0 | 130 | 9 | 31 | 39 | 30 | 0 | 0 | 109 | 6 | 13 | 12 | 6 | 0 | 0 | 37 | 375 |
| 4:15 PM | 10 | 78 | 7 | 0 | 0 | 0 | 95 | 14 | 100 | 6 | 1 | 0 | 0 | 121 | 10 | 29 | 15 | 34 | 0 | 0 | 88 | 3 | 14 | 10 | 4 | 0 | 0 | 31 | 335 |
| Total | 57 | 299 | 26 | 5 | 1 | 0 | 388 | 80 | 395 | 13 | 2 | 0 | 0 | 490 | 37 | 133 | 93 | 138 | 0 | 0 | 401 | 16 | 73 | 52 | 26 | 0 | 0 | 167 | 1446 |
| Approach % | 14.7 | 77.1 | 6.7 | 1.3 | 0.3 | - | - | 16.3 | 80.6 | 2.7 | 0.4 | 0.0 | - | - | 9.2 | 33.2 | 23.2 | 34.4 | 0.0 | - | - | 9.6 | 43.7 | 31.1 | 15.6 | 0.0 | - | - | - |
| Total % | 3.9 | 20.7 | 1.8 | 0.3 | 0.1 | - | 26.8 | 5.5 | 27.3 | 0.9 | 0.1 | 0.0 | - | 33.9 | 2.6 | 9.2 | 6.4 | 9.5 | 0.0 | - | 27.7 | 1.1 | 5.0 | 3.6 | 1.8 | 0.0 | - | 11.5 | - |
| PHF | 0.679 | 0.879 | 0.722 | 0.417 | 0.250 | - | 0.924 | 0.800 | 0.959 | 0.542 | 0.500 | 0.000 | - | 0.942 | 0.617 | 0.811 | 0.596 | 0.821 | 0.000 | - | 0.879 | 0.667 | 0.793 | 0.765 | 0.464 | 0.000 | - | 0.819 | 0.961 |
| Lights | 57 | 296 | 26 | 5 | 1 | - | 385 | 79 | 393 | 12 | 2 | 0 | - | 486 | 37 | 126 | 92 | 134 | 0 | - | 389 | 16 | 71 | 46 | 26 | 0 | - | 159 | 1419 |
| % Lights | 100.0 | 99.0 | 100.0 | 100.0 | 100.0 | - | 99.2 | 98.8 | 99.5 | 92.3 | 100.0 | - | - | 99.2 | 100.0 | 94.7 | 98.9 | 97.1 | - | - | 97.0 | 100.0 | 97.3 | 88.5 | 100.0 | - | - | 95.2 | 98.1 |
| Buses | 0 | 1 | 0 | 0 | 0 | - | 1 | 0 | 2 | 1 | 0 | 0 | - | 3 | 0 | 3 | 1 | 1 | 0 | - | 5 | 0 | 1 | 5 | 0 | 0 | - | 6 | 15 |
| % Buses | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | - | 0.3 | 0.0 | 0.5 | 7.7 | 0.0 | - | - | 0.6 | 0.0 | 2.3 | 1.1 | 0.7 | - | - | 1.2 | 0.0 | 1.4 | 9.6 | 0.0 | - | - | 3.6 | 1.0 |
| Trucks | 0 | 2 | 0 | 0 | 0 | - | 2 | 1 | 0 | 0 | 0 | 0 | - | 1 | 0 | 4 | 0 | 3 | 0 | - | 7 | 0 | 1 | 1 | 0 | 0 | - | 2 | 12 |
| % Trucks | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | - | 0.5 | 1.3 | 0.0 | 0.0 | 0.0 | - | - | 0.2 | 0.0 | 3.0 | 0.0 | 2.2 | - | - | 1.7 | 0.0 | 1.4 | 1.9 | 0.0 | - | - | 1.2 | 0.8 |
| Bicycles on Crosswalk | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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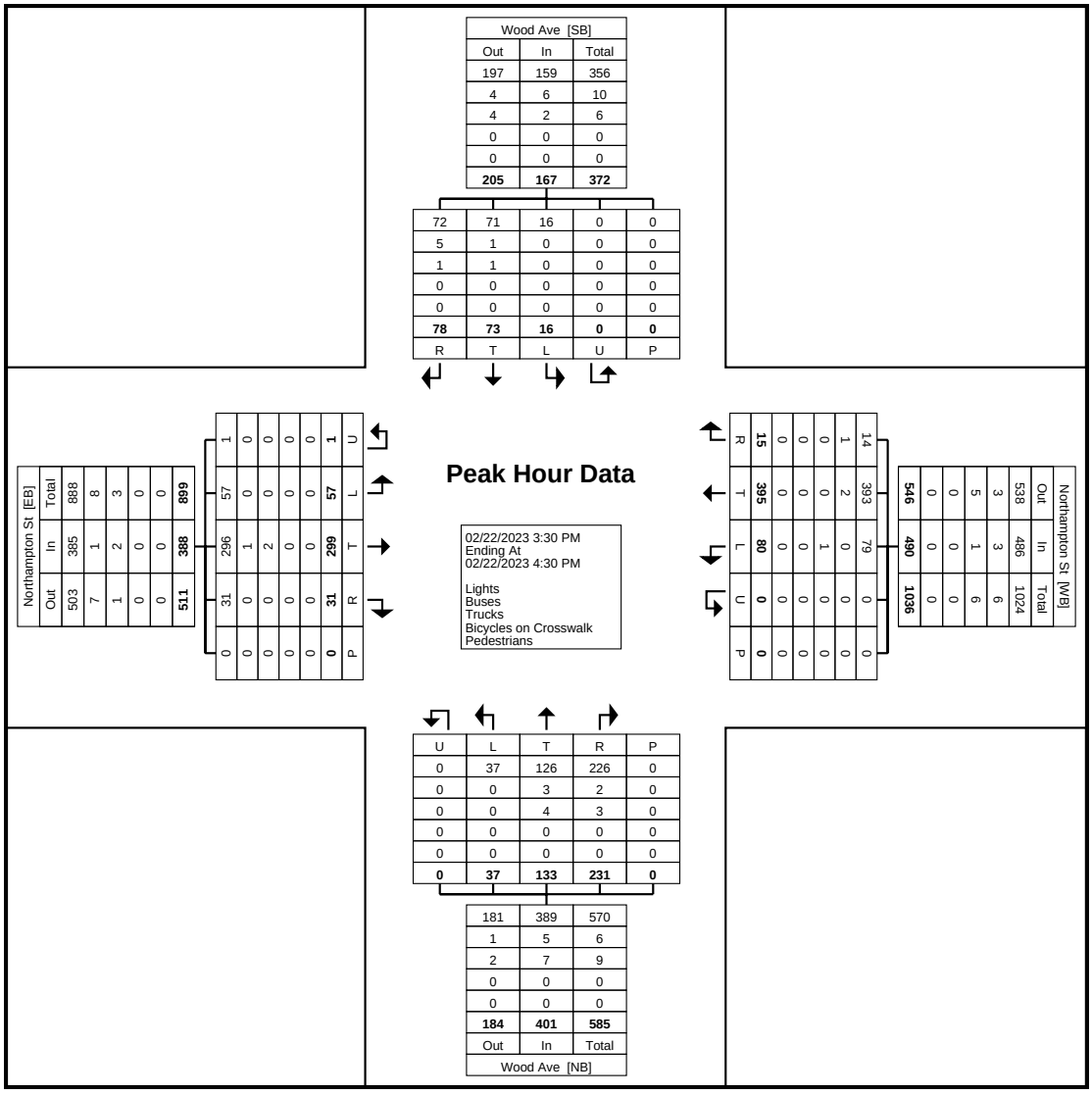
Northampton St & Wood Ave
Wednesday, February 22, 2023
Location: 40.687309, -75.250197

Count Name: Northampton St & Wood Ave
Site Code:
Start Date: 02/22/2023


Turning Movement Peak Hour Data Plot (3:30 PM)

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Northampton County, PA
Northampton St & 25th St
Wednesday, February 23, 2022
Location: 40.687058, -75.252409

Count Name: Northampton St & 25th St
Site Code:
Start Date: 02/22/2023


# Turning Movement Data

| Start Time | Northampton St Eastbound | | | | | | | Northampton St Westbound | | | | | | | 25th St Northbound | | | | | | 25th St Southbound | | | | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | |
| 6:00 AM | 0 | 6 | 7 | 8 | 0 | 0 | 21 | 0 | 7 | 20 | 10 | 0 | 0 | 37 | 8 | 57 | 0 | 0 | 0 | 65 | 15 | 59 | 7 | 0 | 0 | 0 | 81 | 204 |
| 6:15 AM | 0 | 8 | 3 | 8 | 0 | 0 | 19 | 0 | 15 | 22 | 17 | 0 | 0 | 54 | 13 | 87 | 0 | 0 | 0 | 100 | 19 | 75 | 8 | 3 | 0 | 0 | 105 | 278 |
| 6:30 AM | 1 | 13 | 20 | 15 | 0 | 0 | 49 | 0 | 17 | 25 | 17 | 0 | 0 | 59 | 18 | 121 | 0 | 0 | 0 | 139 | 28 | 113 | 6 | 2 | 0 | 0 | 149 | 396 |
| 6:45 AM | 0 | 18 | 25 | 12 | 0 | 0 | 55 | 0 | 24 | 29 | 20 | 0 | 0 | 73 | 21 | 121 | 0 | 0 | 0 | 142 | 31 | 131 | 5 | 3 | 0 | 0 | 170 | 440 |
| Hourly Total | 1 | 45 | 55 | 43 | 0 | 0 | 144 | 0 | 63 | 96 | 64 | 0 | 0 | 223 | 60 | 386 | 0 | 0 | 0 | 446 | 93 | 378 | 26 | 8 | 0 | 0 | 505 | 1318 |
| 7:00 AM | 0 | 19 | 30 | 8 | 0 | 2 | 57 | 0 | 25 | 26 | 21 | 0 | 0 | 72 | 16 | 99 | 0 | 0 | 0 | 115 | 33 | 166 | 8 | 8 | 0 | 0 | 215 | 459 |
| 7:15 AM | 0 | 25 | 11 | 17 | 0 | 0 | 53 | 0 | 28 | 53 | 16 | 0 | 0 | 97 | 21 | 135 | 1 | 0 | 0 | 157 | 56 | 93 | 6 | 4 | 1 | 0 | 160 | 467 |
| 7:30 AM | 0 | 18 | 22 | 15 | 0 | 0 | 55 | 0 | 36 | 51 | 27 | 0 | 0 | 114 | 24 | 141 | 0 | 0 | 0 | 165 | 40 | 76 | 14 | 12 | 1 | 0 | 143 | 477 |
| 7:45 AM | 0 | 23 | 24 | 13 | 0 | 0 | 60 | 0 | 32 | 31 | 19 | 0 | 0 | 82 | 25 | 155 | 0 | 0 | 0 | 180 | 46 | 102 | 16 | 4 | 1 | 0 | 169 | 491 |
| Hourly Total | 0 | 85 | 87 | 53 | 0 | 2 | 225 | 0 | 121 | 161 | 83 | 0 | 0 | 365 | 86 | 530 | 1 | 0 | 0 | 617 | 175 | 437 | 44 | 28 | 3 | 0 | 687 | 1894 |
| 8:00 AM | 0 | 20 | 11 | 14 | 0 | 0 | 45 | 0 | 27 | 25 | 19 | 0 | 0 | 71 | 16 | 130 | 0 | 0 | 0 | 146 | 52 | 96 | 12 | 5 | 0 | 0 | 165 | 427 |
| 8:15 AM | 0 | 16 | 14 | 11 | 0 | 0 | 41 | 0 | 29 | 22 | 16 | 0 | 0 | 67 | 20 | 115 | 1 | 0 | 0 | 136 | 35 | 85 | 8 | 3 | 0 | 0 | 131 | 375 |
| 8:30 AM | 0 | 24 | 18 | 15 | 0 | 0 | 57 | 0 | 21 | 27 | 23 | 0 | 0 | 71 | 27 | 122 | 0 | 0 | 0 | 149 | 41 | 97 | 9 | 4 | 0 | 0 | 151 | 428 |
| 8:45 AM | 0 | 15 | 13 | 8 | 0 | 0 | 36 | 0 | 30 | 32 | 36 | 0 | 0 | 98 | 24 | 145 | 1 | 0 | 0 | 170 | 41 | 125 | 8 | 3 | 0 | 0 | 177 | 481 |
| Hourly Total | 0 | 75 | 56 | 48 | 0 | 0 | 179 | 0 | 107 | 106 | 94 | 0 | 0 | 307 | 87 | 512 | 2 | 0 | 0 | 601 | 169 | 403 | 37 | 15 | 0 | 0 | 624 | 1711 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3:00 PM | 0 | 28 | 17 | 10 | 0 | 0 | 55 | 0 | 29 | 66 | 20 | 0 | 0 | 115 | 18 | 161 | 1 | 0 | 0 | 180 | 58 | 130 | 9 | 1 | 0 | 0 | 198 | 548 |
| 3:15 PM | 0 | 26 | 17 | 5 | 0 | 1 | 48 | 0 | 34 | 72 | 16 | 0 | 0 | 122 | 25 | 159 | 1 | 0 | 0 | 185 | 50 | 112 | 7 | 1 | 0 | 0 | 170 | 525 |
| 3:30 PM | 0 | 36 | 24 | 5 | 0 | 0 | 65 | 0 | 39 | 75 | 24 | 0 | 0 | 138 | 20 | 153 | 1 | 0 | 0 | 174 | 59 | 118 | 5 | 2 | 0 | 0 | 184 | 561 |
| 3:45 PM | 0 | 29 | 17 | 8 | 0 | 0 | 54 | 0 | 36 | 59 | 14 | 0 | 0 | 109 | 16 | 166 | 2 | 0 | 0 | 184 | 75 | 151 | 5 | 6 | 0 | 0 | 237 | 584 |
| Hourly Total | 0 | 119 | 75 | 28 | 0 | 1 | 222 | 0 | 138 | 272 | 74 | 0 | 0 | 484 | 79 | 639 | 5 | 0 | 0 | 723 | 242 | 511 | 26 | 10 | 0 | 0 | 789 | 2218 |
| 4:00 PM | 0 | 29 | 17 | 3 | 0 | 1 | 49 | 0 | 43 | 70 | 29 | 0 | 0 | 142 | 20 | 163 | 1 | 0 | 1 | 184 | 72 | 134 | 5 | 2 | 0 | 0 | 213 | 588 |
| 4:15 PM | 0 | 19 | 13 | 7 | 0 | 0 | 39 | 1 | 35 | 67 | 18 | 0 | 0 | 121 | 13 | 162 | 4 | 0 | 0 | 179 | 76 | 146 | 7 | 4 | 0 | 0 | 233 | 572 |
| 4:30 PM | 0 | 26 | 16 | 6 | 0 | 0 | 48 | 0 | 39 | 67 | 18 | 0 | 0 | 124 | 11 | 178 | 3 | 0 | 0 | 192 | 59 | 130 | 6 | 1 | 0 | 0 | 196 | 560 |
| 4:45 PM | 0 | 27 | 7 | 9 | 0 | 0 | 43 | 1 | 46 | 49 | 14 | 0 | 0 | 110 | 18 | 153 | 4 | 0 | 0 | 175 | 51 | 132 | 11 | 4 | 0 | 0 | 198 | 526 |
| Hourly Total | 0 | 101 | 53 | 25 | 0 | 1 | 179 | 2 | 163 | 253 | 79 | 0 | 0 | 497 | 62 | 656 | 12 | 0 | 1 | 730 | 258 | 542 | 29 | 11 | 0 | 0 | 840 | 2246 |
| 5:00 PM | 0 | 26 | 16 | 11 | 0 | 0 | 53 | 0 | 26 | 54 | 18 | 0 | 0 | 98 | 19 | 137 | 4 | 0 | 0 | 160 | 56 | 145 | 8 | 1 | 0 | 0 | 210 | 521 |
| 5:15 PM | 0 | 18 | 16 | 8 | 0 | 0 | 42 | 0 | 30 | 49 | 23 | 0 | 0 | 102 | 17 | 150 | 3 | 0 | 0 | 170 | 64 | 137 | 12 | 1 | 0 | 0 | 214 | 528 |
| 5:30 PM | 0 | 23 | 14 | 13 | 0 | 0 | 50 | 0 | 21 | 53 | 22 | 0 | 0 | 96 | 20 | 149 | 0 | 0 | 0 | 169 | 61 | 130 | 4 | 3 | 0 | 0 | 198 | 513 |
| 5:45 PM | 0 | 31 | 10 | 5 | 0 | 0 | 46 | 0 | 23 | 43 | 13 | 0 | 0 | 79 | 24 | 147 | 2 | 0 | 0 | 173 | 62 | 131 | 8 | 3 | 0 | 0 | 204 | 502 |
| Hourly Total | 0 | 98 | 56 | 37 | 0 | 0 | 191 | 0 | 100 | 199 | 76 | 0 | 0 | 375 | 80 | 583 | 9 | 0 | 0 | 672 | 243 | 543 | 32 | 8 | 0 | 0 | 826 | 2064 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 1 | 523 | 382 | 234 | 0 | 4 | 1140 | 2 | 692 | 1087 | 470 | 0 | 0 | 2251 | 454 | 3306 | 29 | 0 | 1 | 3789 | 1180 | 2814 | 194 | 80 | 3 | 0 | 4271 | 11451 |
| Approach % | 0.1 | 45.9 | 33.5 | 20.5 | 0.0 | - | - | 0.1 | 30.7 | 48.3 | 20.9 | 0.0 | - | - | 12.0 | 87.3 | 0.8 | 0.0 | - | - | 27.6 | 65.9 | 4.5 | 1.9 | 0.1 | - | - | - |
| Total % | 0.0 | 4.6 | 3.3 | 2.0 | 0.0 | - | 10.0 | 0.0 | 6.0 | 9.5 | 4.1 | 0.0 | - | 19.7 | 4.0 | 28.9 | 0.3 | 0.0 | - | 33.1 | 10.3 | 24.6 | 1.7 | 0.7 | 0.0 | - | 37.3 | - |
| Lights | 1 | 510 | 372 | 234 | 0 | - | 1117 | 2 | 668 | 1067 | 469 | 0 | - | 2206 | 449 | 3187 | 29 | 0 | - | 3665 | 1166 | 2752 | 187 | 79 | 3 | - | 4187 | 11175 |
| % Lights | 100.0 | 97.5 | 97.4 | 100.0 | - | - | 98.0 | 100.0 | 96.5 | 98.2 | 99.8 | - | - | 98.0 | 98.9 | 96.4 | 100.0 | - | - | 96.7 | 98.8 | 97.8 | 96.4 | 98.8 | 100.0 | - | 98.0 | 97.6 |
| Buses | 0 | 7 | 7 | 0 | 0 | - | 14 | 0 | 19 | 8 | 0 | 0 | - | 27 | 3 | 40 | 0 | 0 | - | 43 | 10 | 33 | 5 | 1 | 0 | - | 49 | 133 |
| % Buses | 0.0 | 1.3 | 1.8 | 0.0 | - | - | 1.2 | 0.0 | 2.7 | 0.7 | 0.0 | - | - | 1.2 | 0.7 | 1.2 | 0.0 | - | - | 1.1 | 0.8 | 1.2 | 2.6 | 1.3 | 0.0 | - | 1.1 | 1.2 |
| Trucks | 0 | 6 | 3 | 0 | 0 | - | 9 | 0 | 5 | 12 | 1 | 0 | - | 18 | 2 | 79 | 0 | 0 | - | 81 | 4 | 29 | 2 | 0 | 0 | - | 35 | 143 |
| % Trucks | 0.0 | 1.1 | 0.8 | 0.0 | - | - | 0.8 | 0.0 | 0.7 | 1.1 | 0.2 | - | - | 0.8 | 0.4 | 2.4 | 0.0 | - | - | 2.1 | 0.3 | 1.0 | 1.0 | 0.0 | 0.0 | - | 0.8 | 1.2 |
| Bicycles on Crosswalk | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | 0.0 | - | - | - | - | - | - | - | - | - | - | - | - | 0.0 | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | - | - | 4 | - | - | - | - | - | - | 0 | - | - | - | - | - | 1 | - | - | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | 100.0 | - | - | - | - | - | - | - | - | - | - | - | - | 100.0 | - | - | - | - | - | - | - | - | - |

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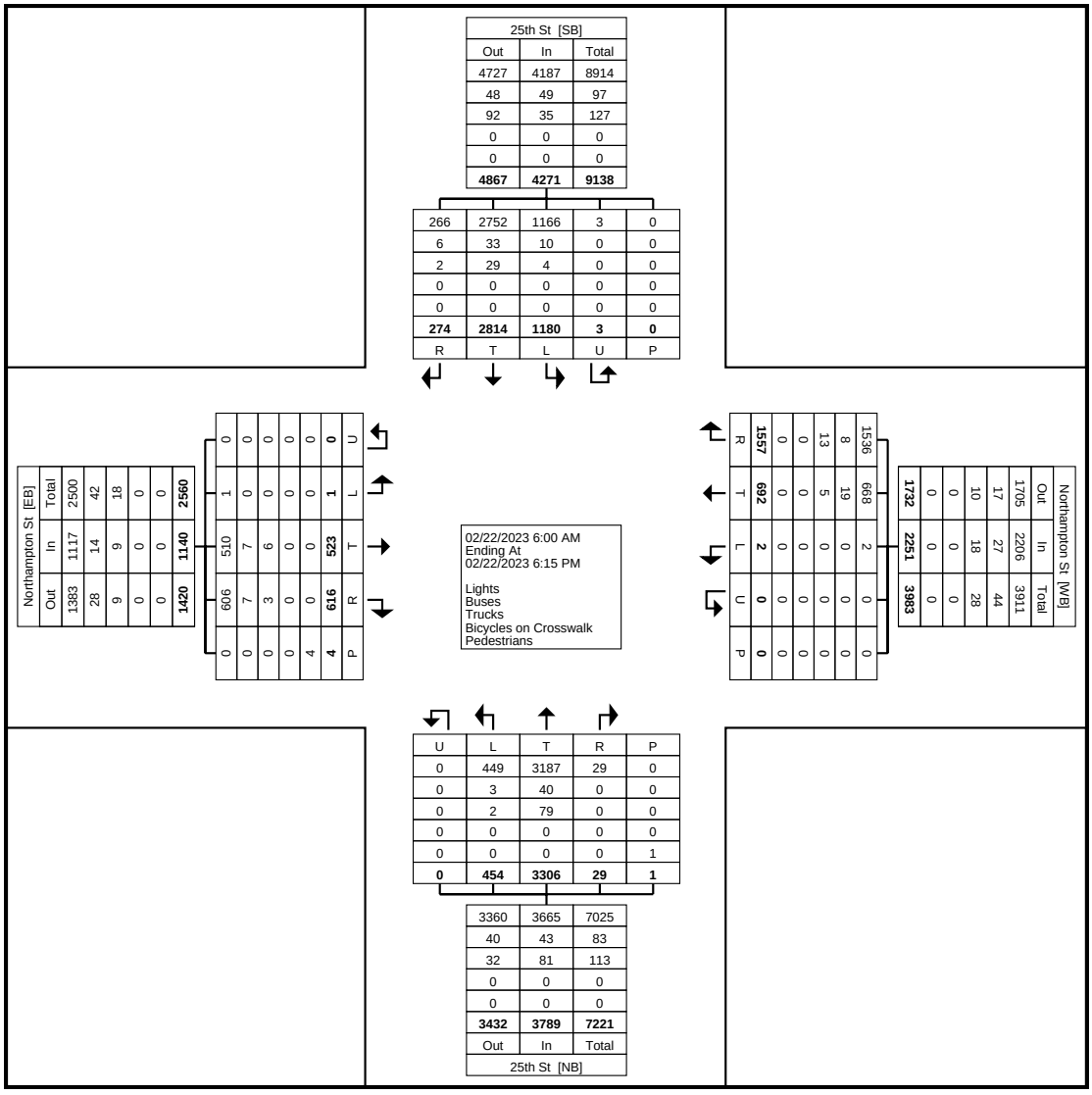
Northampton County, PA
Northampton St & 25th St
Wednesday, February 23, 2022
Location: 40.687058, -75.252409

Count Name: Northampton St & 25th St
Site Code:
Start Date: 02/22/2023


Turning Movement Data Plot

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Northampton County, PA
Northampton St & 25th St
Wednesday, February 23, 2022
Location: 40.687058, -75.252409

Count Name: Northampton St & 25th St
Site Code:
Start Date: 02/22/2023


# Turning Movement Peak Hour Data (7:00 AM)

| Start Time | Northampton St Eastbound | | | | | | | Northampton St Westbound | | | | | | | 25th St Northbound | | | | | | 25th St Southbound | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Int. Total |
| 7:00 AM | 0 | 19 | 30 | 8 | 0 | 2 | 57 | 0 | 25 | 26 | 21 | 0 | 0 | 72 | 16 | 99 | 0 | 0 | 0 | 115 | 33 | 166 | 8 | 8 | 0 | 0 | 215 | 459 |
| 7:15 AM | 0 | 25 | 11 | 17 | 0 | 0 | 53 | 0 | 28 | 53 | 16 | 0 | 0 | 97 | 21 | 135 | 1 | 0 | 0 | 157 | 56 | 93 | 6 | 4 | 1 | 0 | 160 | 467 |
| 7:30 AM | 0 | 18 | 22 | 15 | 0 | 0 | 55 | 0 | 36 | 51 | 27 | 0 | 0 | 114 | 24 | 141 | 0 | 0 | 0 | 165 | 40 | 76 | 14 | 12 | 1 | 0 | 143 | 477 |
| 7:45 AM | 0 | 23 | 24 | 13 | 0 | 0 | 60 | 0 | 32 | 31 | 19 | 0 | 0 | 82 | 25 | 155 | 0 | 0 | 0 | 180 | 46 | 102 | 16 | 4 | 1 | 0 | 169 | 491 |
| Total | 0 | 85 | 87 | 53 | 0 | 2 | 225 | 0 | 121 | 161 | 83 | 0 | 0 | 365 | 86 | 530 | 1 | 0 | 0 | 617 | 175 | 437 | 44 | 28 | 3 | 0 | 687 | 1894 |
| Approach % | 0.0 | 37.8 | 38.7 | 23.6 | 0.0 | - | - | 0.0 | 33.2 | 44.1 | 22.7 | 0.0 | - | - | 13.9 | 85.9 | 0.2 | 0.0 | - | - | 25.5 | 63.6 | 6.4 | 4.1 | 0.4 | - | - | - |
| Total % | 0.0 | 4.5 | 4.6 | 2.8 | 0.0 | - | 11.9 | 0.0 | 6.4 | 8.5 | 4.4 | 0.0 | - | 19.3 | 4.5 | 28.0 | 0.1 | 0.0 | - | 32.6 | 9.2 | 23.1 | 2.3 | 1.5 | 0.2 | - | 36.3 | - |
| PHF | 0.000 | 0.850 | 0.725 | 0.779 | 0.000 | - | 0.938 | 0.000 | 0.840 | 0.759 | 0.769 | 0.000 | - | 0.800 | 0.860 | 0.855 | 0.250 | 0.000 | - | 0.857 | 0.781 | 0.658 | 0.688 | 0.583 | 0.750 | - | 0.799 | 0.964 |
| Lights | 0 | 78 | 86 | 53 | 0 | - | 217 | 0 | 114 | 154 | 83 | 0 | - | 351 | 85 | 492 | 1 | 0 | - | 578 | 170 | 424 | 43 | 27 | 3 | - | 667 | 1813 |
| % Lights | - | 91.8 | 98.9 | 100.0 | - | - | 96.4 | - | 94.2 | 95.7 | 100.0 | - | - | 96.2 | 98.8 | 92.8 | 100.0 | - | - | 93.7 | 97.1 | 97.0 | 97.7 | 96.4 | 100.0 | - | 97.1 | 95.7 |
| Buses | 0 | 5 | 1 | 0 | 0 | - | 6 | 0 | 4 | 5 | 0 | 0 | - | 9 | 1 | 11 | 0 | 0 | - | 12 | 4 | 8 | 1 | 1 | 0 | - | 14 | 41 |
| % Buses | - | 5.9 | 1.1 | 0.0 | - | - | 2.7 | - | 3.3 | 3.1 | 0.0 | - | - | 2.5 | 1.2 | 2.1 | 0.0 | - | - | 1.9 | 2.3 | 1.8 | 2.3 | 3.6 | 0.0 | - | 2.0 | 2.2 |
| Trucks | 0 | 2 | 0 | 0 | 0 | - | 2 | 0 | 3 | 2 | 0 | 0 | - | 5 | 0 | 27 | 0 | 0 | - | 27 | 1 | 5 | 0 | 0 | 0 | - | 6 | 40 |
| % Trucks | - | 2.4 | 0.0 | 0.0 | - | - | 0.9 | - | 2.5 | 1.2 | 0.0 | - | - | 1.4 | 0.0 | 5.1 | 0.0 | - | - | 4.4 | 0.6 | 1.1 | 0.0 | 0.0 | 0.0 | - | 0.9 | 2.1 |
| Bicycles on Crosswalk | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | 0.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | - | - | 2 | - | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | 100.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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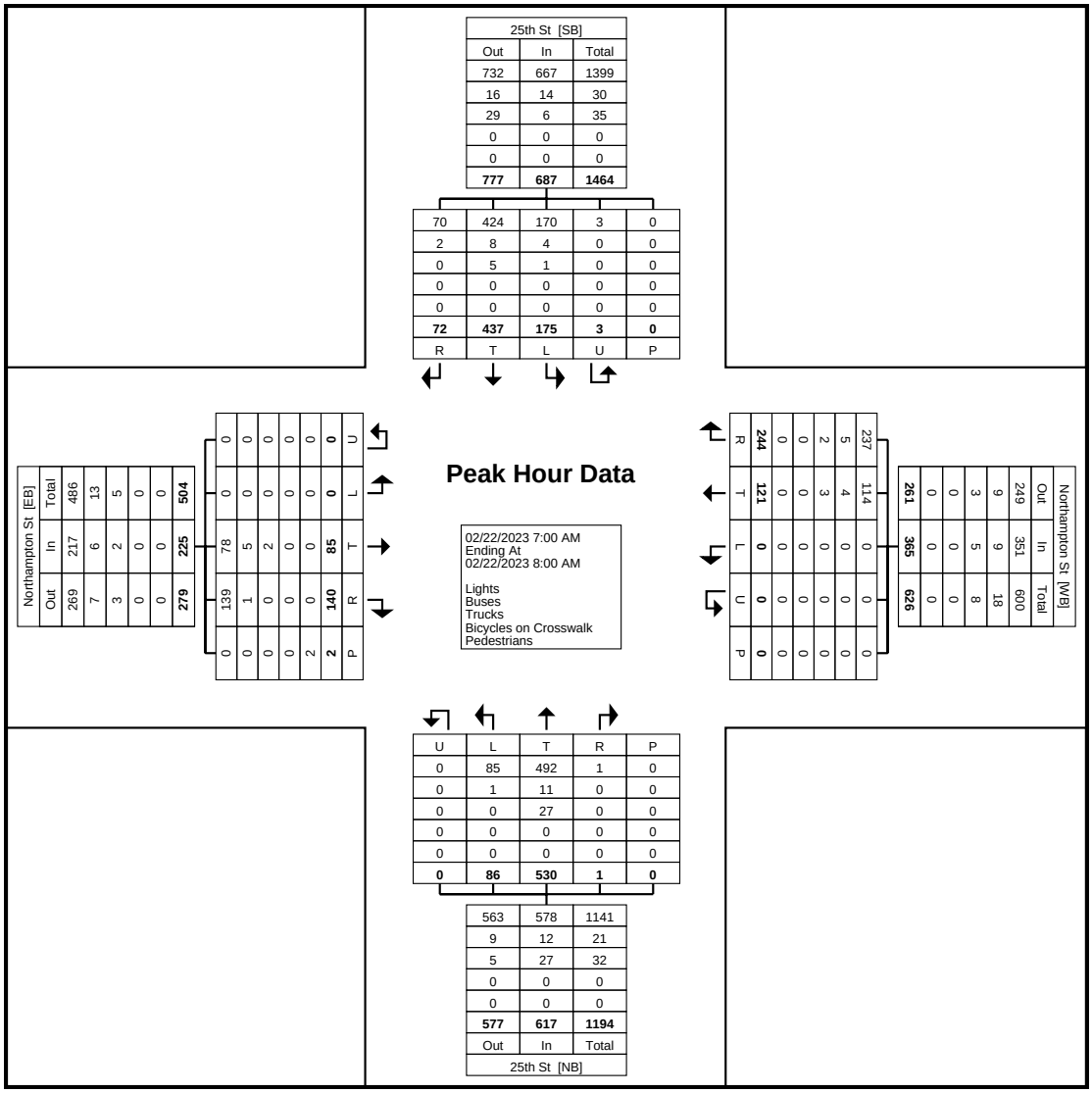
Wednesday, February 23, 2022
Location: 40.687058, -75.252409

Count Name: Northampton St & 25th St
Site Code:
Start Date: 02/22/2023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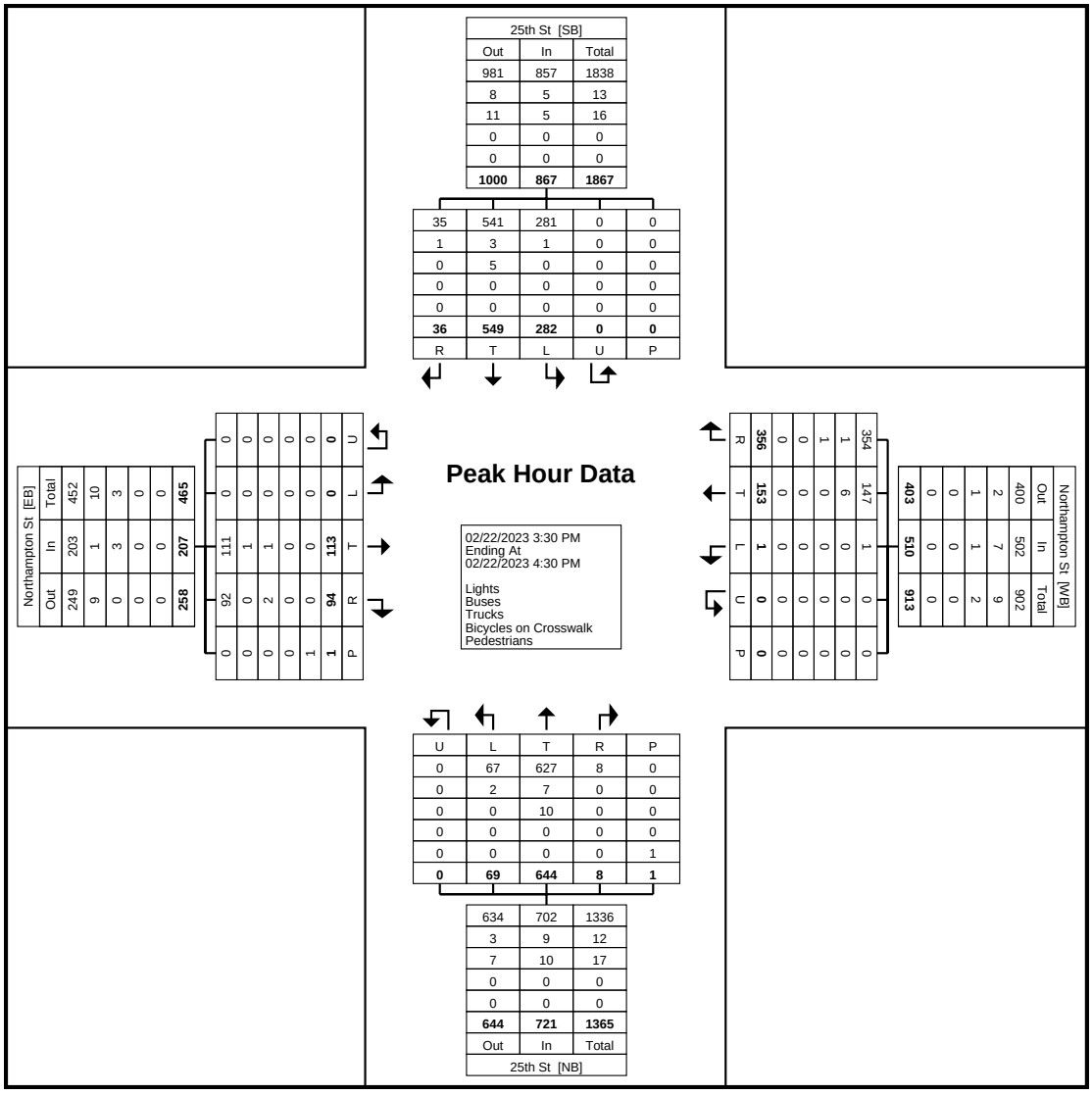
Northampton County, PA
Northampton St & 25th St
Wednesday, February 23, 2022
Location: 40.687058, -75.252409

Count Name: Northampton St & 25th St
Site Code:
Start Date: 02/22/2023


# Turning Movement Peak Hour Data (3:30 PM)

| Start Time | Northampton St Eastbound | | | | | | | Northampton St Westbound | | | | | | | 25th St Northbound | | | | | | 25th St Southbound | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Int. Total |
| 3:30 PM | 0 | 36 | 24 | 5 | 0 | 0 | 65 | 0 | 39 | 75 | 24 | 0 | 0 | 138 | 20 | 153 | 1 | 0 | 0 | 174 | 59 | 118 | 5 | 2 | 0 | 0 | 184 | 561 |
| 3:45 PM | 0 | 29 | 17 | 8 | 0 | 0 | 54 | 0 | 36 | 59 | 14 | 0 | 0 | 109 | 16 | 166 | 2 | 0 | 0 | 184 | 75 | 151 | 5 | 6 | 0 | 0 | 237 | 584 |
| 4:00 PM | 0 | 29 | 17 | 3 | 0 | 1 | 49 | 0 | 43 | 70 | 29 | 0 | 0 | 142 | 20 | 163 | 1 | 0 | 1 | 184 | 72 | 134 | 5 | 2 | 0 | 0 | 213 | 588 |
| 4:15 PM | 0 | 19 | 13 | 7 | 0 | 0 | 39 | 1 | 35 | 67 | 18 | 0 | 0 | 121 | 13 | 162 | 4 | 0 | 0 | 179 | 76 | 146 | 7 | 4 | 0 | 0 | 233 | 572 |
| Total | 0 | 113 | 71 | 23 | 0 | 1 | 207 | 1 | 153 | 271 | 85 | 0 | 0 | 510 | 69 | 644 | 8 | 0 | 1 | 721 | 282 | 549 | 22 | 14 | 0 | 0 | 867 | 2305 |
| Approach % | 0.0 | 54.6 | 34.3 | 11.1 | 0.0 | - | - | 0.2 | 30.0 | 53.1 | 16.7 | 0.0 | - | - | 9.6 | 89.3 | 1.1 | 0.0 | - | - | 32.5 | 63.3 | 2.5 | 1.6 | 0.0 | - | - | - |
| Total % | 0.0 | 4.9 | 3.1 | 1.0 | 0.0 | - | 9.0 | 0.0 | 6.6 | 11.8 | 3.7 | 0.0 | - | 22.1 | 3.0 | 27.9 | 0.3 | 0.0 | - | 31.3 | 12.2 | 23.8 | 1.0 | 0.6 | 0.0 | - | 37.6 | - |
| PHF | 0.000 | 0.785 | 0.740 | 0.719 | 0.000 | - | 0.796 | 0.250 | 0.890 | 0.903 | 0.733 | 0.000 | - | 0.898 | 0.863 | 0.970 | 0.500 | 0.000 | - | 0.980 | 0.928 | 0.909 | 0.786 | 0.583 | 0.000 | - | 0.915 | 0.980 |
| Lights | 0 | 111 | 69 | 23 | 0 | - | 203 | 1 | 147 | 269 | 85 | 0 | - | 502 | 67 | 627 | 8 | 0 | - | 702 | 281 | 541 | 21 | 14 | 0 | - | 857 | 2264 |
| % Lights | - | 98.2 | 97.2 | 100.0 | - | - | 98.1 | 100.0 | 96.1 | 99.3 | 100.0 | - | - | 98.4 | 97.1 | 97.4 | 100.0 | - | - | 97.4 | 99.6 | 98.5 | 95.5 | 100.0 | - | - | 98.8 | 98.2 |
| Buses | 0 | 1 | 0 | 0 | 0 | - | 1 | 0 | 6 | 1 | 0 | 0 | - | 7 | 2 | 7 | 0 | 0 | - | 9 | 1 | 3 | 1 | 0 | 0 | - | 5 | 22 |
| % Buses | - | 0.9 | 0.0 | 0.0 | - | - | 0.5 | 0.0 | 3.9 | 0.4 | 0.0 | - | - | 1.4 | 2.9 | 1.1 | 0.0 | - | - | 1.2 | 0.4 | 0.5 | 4.5 | 0.0 | - | - | 0.6 | 1.0 |
| Trucks | 0 | 1 | 2 | 0 | 0 | - | 3 | 0 | 0 | 1 | 0 | 0 | - | 1 | 0 | 10 | 0 | 0 | - | 10 | 0 | 5 | 0 | 0 | 0 | - | 5 | 19 |
| % Trucks | - | 0.9 | 2.8 | 0.0 | - | - | 1.4 | 0.0 | 0.0 | 0.4 | 0.0 | - | - | 0.2 | 0.0 | 1.6 | 0.0 | - | - | 1.4 | 0.0 | 0.9 | 0.0 | 0.0 | - | - | 0.6 | 0.8 |
| Bicycles on Crosswalk | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | 0.0 | - | - | - | - | - | - | - | - | - | - | - | - | 0.0 | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | - | - | 1 | - | - | - | - | - | - | 0 | - | - | - | - | - | 1 | - | - | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | 100.0 | - | - | - | - | - | - | - | - | - | - | - | - | 100.0 | - | - | - | - | - | - | - | - | - |




Turning Movement Peak Hour Data Plot (3:30 PM)

TRI-STATE TRAFFIC DATA

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Northampton County, PA
25th St & Sales St/US 22 WB Ramps
Wednesday, February 22, 2023
Location: 40.687949, -75.253357

Count Name: 25th St & Sales St/US 22 WB Ramps
Site Code:
Start Date: 02/22/2023


# Turning Movement Data

| Start Time | Sales St Eastbound | | | | | | | US 22 WB Ramps Westbound | | | | | | | 25th St Northbound | | | | | | | 25th St Southbound | | | | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | |
| 6:00 AM | 5 | 6 | 0 | 0 | 0 | 0 | 11 | 10 | 11 | 2 | 12 | 0 | 0 | 35 | 0 | 41 | 41 | 13 | 0 | 0 | 95 | 7 | 69 | 3 | 0 | 0 | 0 | 79 | 220 |
| 6:15 AM | 5 | 12 | 0 | 0 | 0 | 0 | 17 | 11 | 6 | 6 | 18 | 0 | 0 | 41 | 0 | 54 | 50 | 18 | 0 | 0 | 122 | 6 | 80 | 4 | 0 | 0 | 0 | 90 | 270 |
| 6:30 AM | 7 | 18 | 0 | 1 | 0 | 0 | 26 | 29 | 11 | 5 | 17 | 0 | 0 | 62 | 0 | 79 | 33 | 55 | 0 | 0 | 167 | 11 | 117 | 5 | 0 | 0 | 0 | 133 | 388 |
| 6:45 AM | 6 | 16 | 0 | 0 | 0 | 0 | 22 | 38 | 18 | 8 | 16 | 0 | 0 | 80 | 0 | 71 | 48 | 52 | 0 | 0 | 171 | 10 | 126 | 7 | 0 | 0 | 0 | 143 | 416 |
| Hourly Total | 23 | 52 | 0 | 1 | 0 | 0 | 76 | 88 | 46 | 21 | 63 | 0 | 0 | 218 | 0 | 245 | 172 | 138 | 0 | 0 | 555 | 34 | 392 | 19 | 0 | 0 | 0 | 445 | 1294 |
| 7:00 AM | 9 | 34 | 0 | 0 | 0 | 0 | 43 | 46 | 22 | 6 | 9 | 0 | 0 | 83 | 0 | 82 | 53 | 19 | 0 | 0 | 154 | 7 | 149 | 5 | 0 | 0 | 0 | 161 | 441 |
| 7:15 AM | 7 | 32 | 0 | 0 | 0 | 0 | 39 | 22 | 14 | 19 | 9 | 0 | 1 | 64 | 0 | 89 | 74 | 47 | 0 | 0 | 210 | 14 | 127 | 7 | 0 | 0 | 0 | 148 | 461 |
| 7:30 AM | 20 | 29 | 0 | 0 | 0 | 0 | 49 | 17 | 17 | 14 | 12 | 0 | 0 | 60 | 0 | 109 | 77 | 36 | 0 | 0 | 222 | 27 | 112 | 11 | 2 | 0 | 0 | 152 | 483 |
| 7:45 AM | 12 | 27 | 1 | 0 | 0 | 0 | 40 | 33 | 27 | 25 | 18 | 0 | 0 | 103 | 0 | 112 | 67 | 31 | 0 | 1 | 210 | 23 | 133 | 9 | 0 | 0 | 0 | 165 | 518 |
| Hourly Total | 48 | 122 | 1 | 0 | 0 | 0 | 171 | 118 | 80 | 64 | 48 | 0 | 1 | 310 | 0 | 392 | 271 | 133 | 0 | 1 | 796 | 71 | 521 | 32 | 2 | 0 | 0 | 626 | 1903 |
| 8:00 AM | 9 | 19 | 1 | 0 | 0 | 0 | 29 | 20 | 12 | 12 | 19 | 0 | 0 | 63 | 0 | 90 | 60 | 24 | 1 | 0 | 175 | 14 | 119 | 10 | 2 | 0 | 0 | 145 | 412 |
| 8:15 AM | 21 | 19 | 3 | 0 | 0 | 0 | 43 | 22 | 19 | 5 | 28 | 0 | 0 | 74 | 0 | 73 | 51 | 27 | 0 | 0 | 151 | 12 | 92 | 14 | 1 | 0 | 1 | 119 | 387 |
| 8:30 AM | 4 | 18 | 1 | 2 | 0 | 0 | 25 | 28 | 18 | 7 | 22 | 0 | 0 | 75 | 0 | 93 | 62 | 15 | 0 | 0 | 170 | 15 | 112 | 4 | 2 | 0 | 0 | 133 | 403 |
| 8:45 AM | 15 | 24 | 3 | 0 | 0 | 0 | 42 | 38 | 28 | 8 | 39 | 0 | 0 | 113 | 1 | 135 | 51 | 17 | 0 | 0 | 204 | 16 | 131 | 9 | 1 | 0 | 2 | 157 | 516 |
| Hourly Total | 49 | 80 | 8 | 2 | 0 | 0 | 139 | 108 | 77 | 32 | 108 | 0 | 0 | 325 | 1 | 391 | 224 | 83 | 1 | 0 | 700 | 57 | 454 | 37 | 6 | 0 | 3 | 554 | 1718 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3:00 PM | 16 | 20 | 0 | 0 | 0 | 0 | 36 | 40 | 36 | 24 | 23 | 0 | 0 | 123 | 0 | 130 | 71 | 42 | 0 | 0 | 243 | 11 | 150 | 10 | 0 | 0 | 2 | 171 | 573 |
| 3:15 PM | 20 | 23 | 1 | 0 | 0 | 0 | 44 | 49 | 41 | 18 | 24 | 0 | 0 | 132 | 0 | 144 | 71 | 34 | 0 | 0 | 249 | 10 | 130 | 7 | 1 | 0 | 1 | 148 | 573 |
| 3:30 PM | 15 | 26 | 0 | 0 | 0 | 0 | 41 | 55 | 39 | 24 | 40 | 0 | 0 | 158 | 0 | 142 | 62 | 39 | 0 | 0 | 243 | 17 | 136 | 8 | 1 | 0 | 0 | 162 | 604 |
| 3:45 PM | 19 | 11 | 2 | 0 | 0 | 0 | 32 | 55 | 51 | 34 | 28 | 0 | 0 | 168 | 0 | 150 | 49 | 36 | 0 | 0 | 235 | 13 | 172 | 14 | 0 | 0 | 2 | 199 | 634 |
| Hourly Total | 70 | 80 | 3 | 0 | 0 | 0 | 153 | 199 | 167 | 100 | 115 | 0 | 0 | 581 | 0 | 566 | 253 | 151 | 0 | 0 | 970 | 51 | 588 | 39 | 2 | 0 | 5 | 680 | 2384 |
| 4:00 PM | 17 | 19 | 0 | 1 | 0 | 0 | 37 | 59 | 45 | 34 | 36 | 0 | 0 | 174 | 0 | 159 | 55 | 45 | 0 | 0 | 259 | 15 | 168 | 8 | 1 | 0 | 1 | 192 | 662 |
| 4:15 PM | 18 | 21 | 2 | 0 | 0 | 0 | 41 | 55 | 33 | 28 | 31 | 0 | 0 | 147 | 0 | 138 | 70 | 42 | 0 | 0 | 250 | 14 | 175 | 7 | 1 | 0 | 0 | 197 | 635 |
| 4:30 PM | 25 | 18 | 1 | 0 | 0 | 0 | 44 | 49 | 47 | 25 | 34 | 0 | 0 | 155 | 0 | 147 | 67 | 41 | 0 | 0 | 255 | 13 | 130 | 8 | 0 | 0 | 0 | 151 | 605 |
| 4:45 PM | 20 | 28 | 0 | 0 | 0 | 0 | 48 | 53 | 56 | 26 | 38 | 0 | 0 | 173 | 0 | 136 | 42 | 31 | 0 | 0 | 209 | 19 | 147 | 13 | 0 | 0 | 0 | 179 | 609 |
| Hourly Total | 80 | 86 | 3 | 1 | 0 | 0 | 170 | 216 | 181 | 113 | 139 | 0 | 0 | 649 | 0 | 580 | 234 | 159 | 0 | 0 | 973 | 61 | 620 | 36 | 2 | 0 | 1 | 719 | 2511 |
| 5:00 PM | 16 | 19 | 2 | 0 | 0 | 0 | 37 | 56 | 47 | 21 | 35 | 0 | 0 | 159 | 0 | 147 | 51 | 25 | 0 | 0 | 223 | 15 | 154 | 7 | 0 | 0 | 0 | 176 | 595 |
| 5:15 PM | 18 | 17 | 0 | 1 | 0 | 0 | 36 | 42 | 52 | 27 | 35 | 0 | 0 | 156 | 0 | 131 | 52 | 40 | 0 | 0 | 223 | 6 | 163 | 7 | 0 | 0 | 0 | 176 | 591 |
| 5:30 PM | 12 | 24 | 1 | 0 | 0 | 0 | 37 | 56 | 31 | 27 | 35 | 0 | 0 | 149 | 0 | 144 | 42 | 37 | 0 | 0 | 223 | 12 | 139 | 6 | 0 | 0 | 1 | 157 | 566 |
| 5:45 PM | 17 | 15 | 0 | 0 | 0 | 0 | 32 | 48 | 57 | 13 | 28 | 0 | 0 | 146 | 0 | 135 | 46 | 32 | 0 | 0 | 213 | 10 | 139 | 13 | 0 | 0 | 2 | 162 | 553 |
| Hourly Total | 63 | 75 | 3 | 1 | 0 | 0 | 142 | 202 | 187 | 88 | 133 | 0 | 0 | 610 | 0 | 557 | 191 | 134 | 0 | 0 | 882 | 43 | 595 | 33 | 0 | 0 | 3 | 671 | 2305 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Grand Total | 333 | 495 | 18 | 5 | 0 | 0 | 851 | 931 | 738 | 418 | 607 | 0 | 1 | 2694 | 1 | 2731 | 1345 | 798 | 1 | 1 | 4876 | 317 | 3170 | 196 | 12 | 0 | 12 | 3695 | 12116 |
| Approach % | 39.1 | 58.2 | 2.1 | 0.6 | 0.0 | - | - | 34.6 | 27.4 | 15.5 | 22.5 | 0.0 | - | - | 0.0 | 56.0 | 27.6 | 16.4 | 0.0 | - | - | 8.6 | 85.8 | 5.3 | 0.3 | 0.0 | - | - | - |
| Total % | 2.7 | 4.1 | 0.1 | 0.0 | 0.0 | - | 7.0 | 7.7 | 6.1 | 3.4 | 5.0 | 0.0 | - | 22.2 | 0.0 | 22.5 | 11.1 | 6.6 | 0.0 | - | 40.2 | 2.6 | 26.2 | 1.6 | 0.1 | 0.0 | - | 30.5 | - |
| Lights | 324 | 490 | 18 | 5 | 0 | - | 837 | 919 | 729 | 412 | 598 | 0 | - | 2658 | 1 | 2644 | 1308 | 780 | 1 | - | 4734 | 314 | 3092 | 191 | 12 | 0 | - | 3609 | 11838 |
| % Lights | 97.3 | 99.0 | 100.0 | 100.0 | - | - | 98.4 | 98.7 | 98.8 | 98.6 | 98.5 | - | - | 98.7 | 100.0 | 96.8 | 97.2 | 97.7 | 100.0 | - | 97.1 | 99.1 | 97.5 | 97.4 | 100.0 | - | - | 97.7 | 97.7 |
| Buses | 3 | 1 | 0 | 0 | 0 | - | 4 | 2 | 1 | 0 | 1 | 0 | - | 4 | 0 | 48 | 3 | 2 | 0 | - | 53 | 0 | 46 | 1 | 0 | 0 | - | 47 | 108 |
| % Buses | 0.9 | 0.2 | 0.0 | 0.0 | - | - | 0.5 | 0.2 | 0.1 | 0.0 | 0.2 | - | - | 0.1 | 0.0 | 1.8 | 0.2 | 0.3 | 0.0 | - | 1.1 | 0.0 | 1.5 | 0.5 | 0.0 | - | - | 1.3 | 0.9 |
| Trucks | 6 | 4 | 0 | 0 | 0 | - | 10 | 10 | 8 | 6 | 8 | 0 | - | 32 | 0 | 39 | 34 | 16 | 0 | - | 89 | 3 | 32 | 4 | 0 | 0 | - | 39 | 170 |
| % Trucks | 1.8 | 0.8 | 0.0 | 0.0 | - | - | 1.2 | 1.1 | 1.1 | 1.4 | 1.3 | - | - | 1.2 | 0.0 | 1.4 | 2.5 | 2.0 | 0.0 | - | 1.8 | 0.9 | 1.0 | 2.0 | 0.0 | - | - | 1.1 | 1.4 |
| Bicycles on Crosswalk | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | 0.0 | - | - | - | - | - | - | 0.0 | - | - | - | - | - | - | 0.0 | - | - |
| Pedestrians | - | - | - | - | - | 0 | - | - | - | - | - | - | 1 | - | - | - | - | - | - | 1 | - | - | - | - | - | - | 12 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | 100.0 | - | - | - | - | - | - | 100.0 | - | - | - | - | - | - | 100.0 | - | - |

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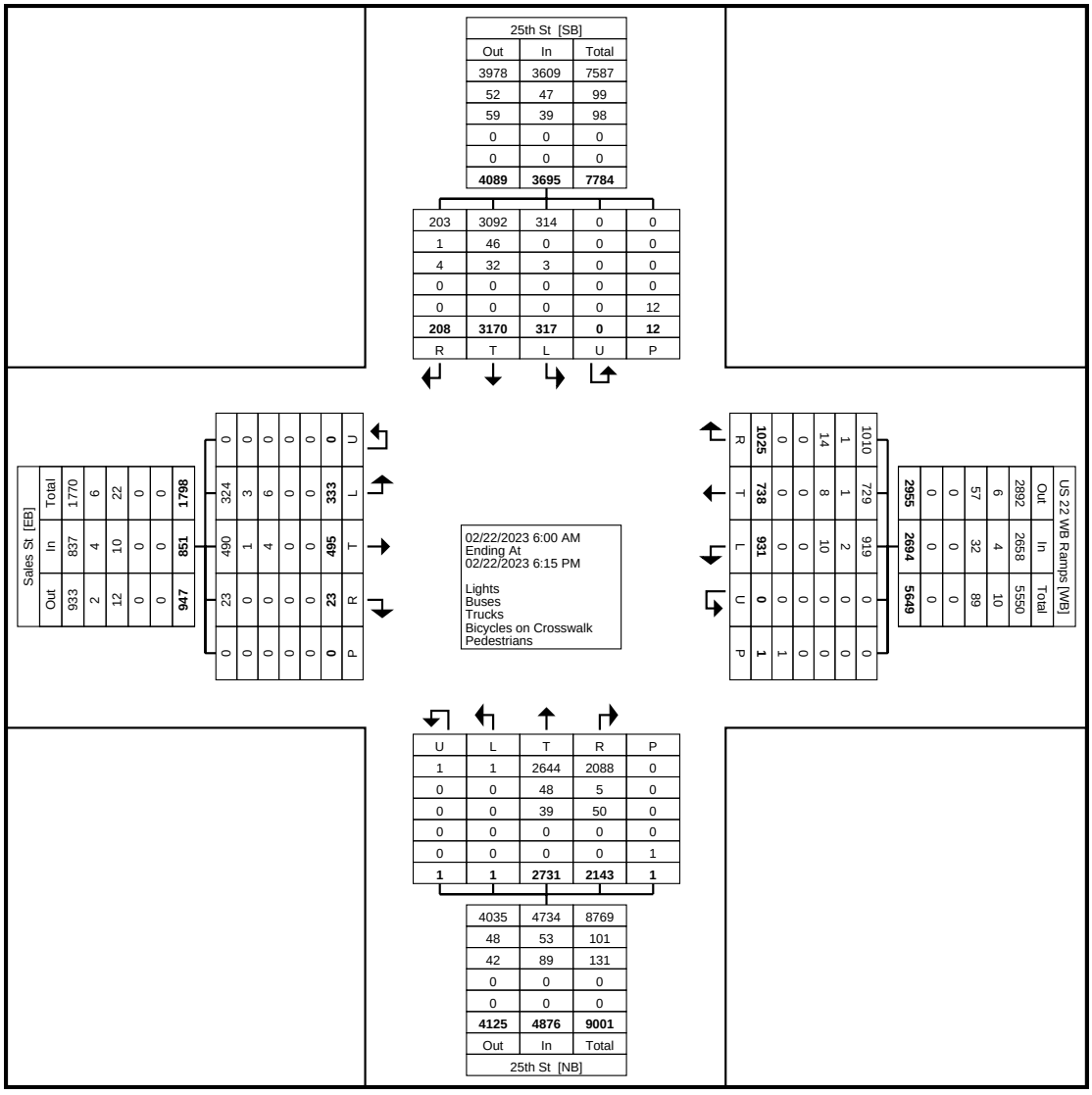


Turning Movement Data Plot

Northampton County, PA
25th St & Sales St/US 22 WB Ramps
Wednesday, February 22, 2023
Location: 40.687949, -75.253357

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# Turning Movement Peak Hour Data (7:00 AM)

| Start Time | Sales St Eastbound | | | | | | | US 22 WB Ramps Westbound | | | | | | | 25th St Northbound | | | | | | | 25th St Southbound | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Int. Total |
| 7:00 AM | 9 | 34 | 0 | 0 | 0 | 0 | 43 | 46 | 22 | 6 | 9 | 0 | 0 | 83 | 0 | 82 | 53 | 19 | 0 | 0 | 154 | 7 | 149 | 5 | 0 | 0 | 0 | 161 | 441 |
| 7:15 AM | 7 | 32 | 0 | 0 | 0 | 0 | 39 | 22 | 14 | 19 | 9 | 0 | 1 | 64 | 0 | 89 | 74 | 47 | 0 | 0 | 210 | 14 | 127 | 7 | 0 | 0 | 0 | 148 | 461 |
| 7:30 AM | 20 | 29 | 0 | 0 | 0 | 0 | 49 | 17 | 17 | 14 | 12 | 0 | 0 | 60 | 0 | 109 | 77 | 36 | 0 | 0 | 222 | 27 | 112 | 11 | 2 | 0 | 0 | 152 | 483 |
| 7:45 AM | 12 | 27 | 1 | 0 | 0 | 0 | 40 | 33 | 27 | 25 | 18 | 0 | 0 | 103 | 0 | 112 | 67 | 31 | 0 | 1 | 210 | 23 | 133 | 9 | 0 | 0 | 0 | 165 | 518 |
| Total | 48 | 122 | 1 | 0 | 0 | 0 | 171 | 118 | 80 | 64 | 48 | 0 | 1 | 310 | 0 | 392 | 271 | 133 | 0 | 1 | 796 | 71 | 521 | 32 | 2 | 0 | 0 | 626 | 1903 |
| Approach % | 28.1 | 71.3 | 0.6 | 0.0 | 0.0 | - | - | 38.1 | 25.8 | 20.6 | 15.5 | 0.0 | - | - | 0.0 | 49.2 | 34.0 | 16.7 | 0.0 | - | - | 11.3 | 83.2 | 5.1 | 0.3 | 0.0 | - | - | - |
| Total % | 2.5 | 6.4 | 0.1 | 0.0 | 0.0 | - | 9.0 | 6.2 | 4.2 | 3.4 | 2.5 | 0.0 | - | 16.3 | 0.0 | 20.6 | 14.2 | 7.0 | 0.0 | - | 41.8 | 3.7 | 27.4 | 1.7 | 0.1 | 0.0 | - | 32.9 | - |
| PHF | 0.600 | 0.897 | 0.250 | 0.000 | 0.000 | - | 0.872 | 0.641 | 0.741 | 0.640 | 0.667 | 0.000 | - | 0.752 | 0.000 | 0.875 | 0.880 | 0.707 | 0.000 | - | 0.896 | 0.657 | 0.874 | 0.727 | 0.250 | 0.000 | - | 0.948 | 0.918 |
| Lights | 47 | 121 | 1 | 0 | 0 | - | 169 | 116 | 79 | 62 | 48 | 0 | - | 305 | 0 | 363 | 260 | 127 | 0 | - | 750 | 69 | 498 | 32 | 2 | 0 | - | 601 | 1825 |
| % Lights | 97.9 | 99.2 | 100.0 | - | - | - | 98.8 | 98.3 | 98.8 | 96.9 | 100.0 | - | - | 98.4 | - | 92.6 | 95.9 | 95.5 | - | - | 94.2 | 97.2 | 95.6 | 100.0 | 100.0 | - | - | 96.0 | 95.9 |
| Buses | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 16 | 2 | 0 | 0 | - | 18 | 0 | 15 | 0 | 0 | 0 | - | 15 | 33 |
| % Buses | 0.0 | 0.0 | 0.0 | - | - | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | - | 4.1 | 0.7 | 0.0 | - | - | 2.3 | 0.0 | 2.9 | 0.0 | 0.0 | - | - | 2.4 | 1.7 |
| Trucks | 1 | 1 | 0 | 0 | 0 | - | 2 | 2 | 1 | 2 | 0 | 0 | - | 5 | 0 | 13 | 9 | 6 | 0 | - | 28 | 2 | 8 | 0 | 0 | 0 | - | 10 | 45 |
| % Trucks | 2.1 | 0.8 | 0.0 | - | - | - | 1.2 | 1.7 | 1.3 | 3.1 | 0.0 | - | - | 1.6 | - | 3.3 | 3.3 | 4.5 | - | - | 3.5 | 2.8 | 1.5 | 0.0 | 0.0 | - | - | 1.6 | 2.4 |
| Bicycles on Crosswalk | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | 0.0 | - | - | - | - | - | - | 0.0 | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | - | - | 0 | - | - | - | - | - | - | 1 | - | - | - | - | - | - | 1 | - | - | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | 100.0 | - | - | - | - | - | - | 100.0 | - | - | - | - | - | - | - | - | - |

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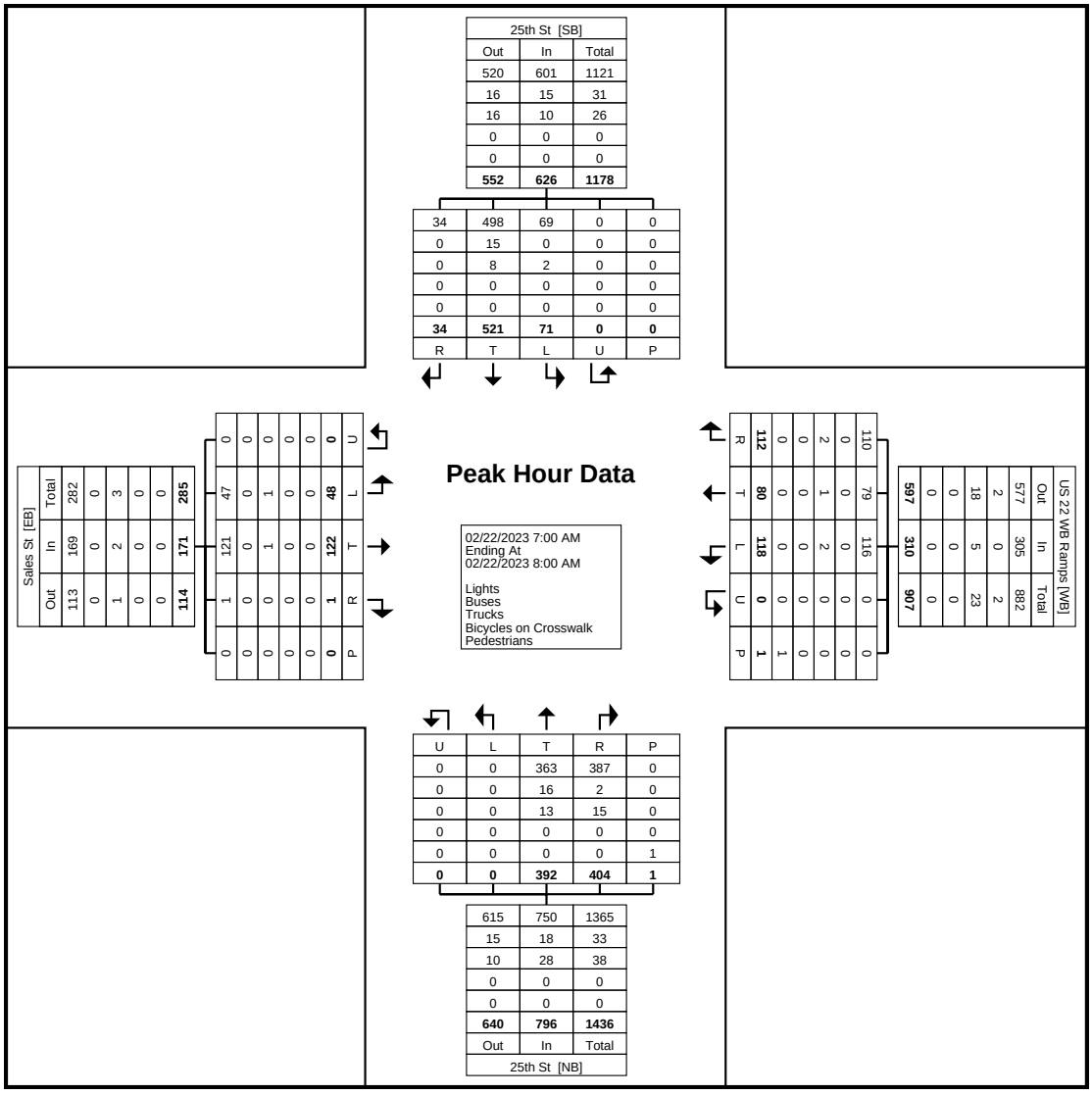


Turning Movement Peak Hour Data Plot (7:00 AM)

Northampton County, PA
25th St & Sales St/US 22 WB Ramps
Wednesday, February 22, 2023
Location: 40.687949, -75.253357

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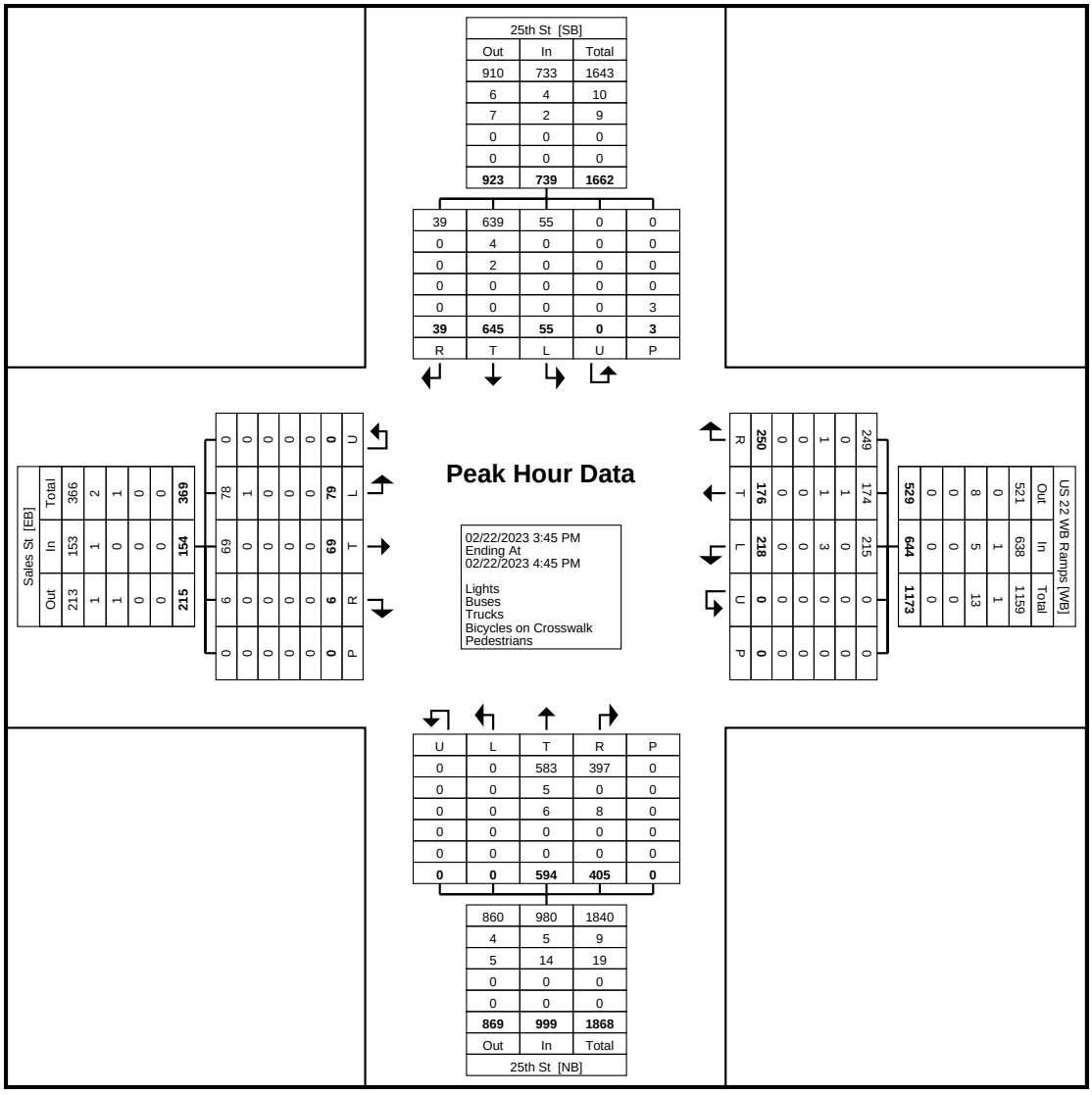
# Turning Movement Peak Hour Data (3:45 PM)

| Start Time | Sales St Eastbound | | | | | | | US 22 WB Ramps Westbound | | | | | | | 25th St Northbound | | | | | | | 25th St Southbound | | | | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | |
| 3:45 PM | 19 | 11 | 2 | 0 | 0 | 0 | 32 | 55 | 51 | 34 | 28 | 0 | 0 | 168 | 0 | 150 | 49 | 36 | 0 | 0 | 235 | 13 | 172 | 14 | 0 | 0 | 2 | 199 | 634 |
| 4:00 PM | 17 | 19 | 0 | 1 | 0 | 0 | 37 | 59 | 45 | 34 | 36 | 0 | 0 | 174 | 0 | 159 | 55 | 45 | 0 | 0 | 259 | 15 | 168 | 8 | 1 | 0 | 1 | 192 | 662 |
| 4:15 PM | 18 | 21 | 2 | 0 | 0 | 0 | 41 | 55 | 33 | 28 | 31 | 0 | 0 | 147 | 0 | 138 | 70 | 42 | 0 | 0 | 250 | 14 | 175 | 7 | 1 | 0 | 0 | 197 | 635 |
| 4:30 PM | 25 | 18 | 1 | 0 | 0 | 0 | 44 | 49 | 47 | 25 | 34 | 0 | 0 | 155 | 0 | 147 | 67 | 41 | 0 | 0 | 255 | 13 | 130 | 8 | 0 | 0 | 0 | 151 | 605 |
| Total | 79 | 69 | 5 | 1 | 0 | 0 | 154 | 218 | 176 | 121 | 129 | 0 | 0 | 644 | 0 | 594 | 241 | 164 | 0 | 0 | 999 | 55 | 645 | 37 | 2 | 0 | 3 | 739 | 2536 |
| Approach % | 51.3 | 44.8 | 3.2 | 0.6 | 0.0 | - | - | 33.9 | 27.3 | 18.8 | 20.0 | 0.0 | - | - | 0.0 | 59.5 | 24.1 | 16.4 | 0.0 | - | - | 7.4 | 87.3 | 5.0 | 0.3 | 0.0 | - | - | - |
| Total % | 3.1 | 2.7 | 0.2 | 0.0 | 0.0 | - | 6.1 | 8.6 | 6.9 | 4.8 | 5.1 | 0.0 | - | 25.4 | 0.0 | 23.4 | 9.5 | 6.5 | 0.0 | - | 39.4 | 2.2 | 25.4 | 1.5 | 0.1 | 0.0 | - | 29.1 | - |
| PHF | 0.790 | 0.821 | 0.625 | 0.250 | 0.000 | - | 0.875 | 0.924 | 0.863 | 0.890 | 0.896 | 0.000 | - | 0.925 | 0.000 | 0.934 | 0.861 | 0.911 | 0.000 | - | 0.964 | 0.917 | 0.921 | 0.661 | 0.500 | 0.000 | - | 0.928 | 0.958 |
| Lights | 78 | 69 | 5 | 1 | 0 | - | 153 | 215 | 174 | 121 | 128 | 0 | - | 638 | 0 | 583 | 235 | 162 | 0 | - | 980 | 55 | 639 | 37 | 2 | 0 | - | 733 | 2504 |
| % Lights | 98.7 | 100.0 | 100.0 | 100.0 | - | - | 99.4 | 98.6 | 98.9 | 100.0 | 99.2 | - | - | 99.1 | - | 98.1 | 97.5 | 98.8 | - | - | 98.1 | 100.0 | 99.1 | 100.0 | 100.0 | - | - | 99.2 | 98.7 |
| Buses | 1 | 0 | 0 | 0 | 0 | - | 1 | 0 | 1 | 0 | 0 | 0 | - | 1 | 0 | 5 | 0 | 0 | 0 | - | 5 | 0 | 4 | 0 | 0 | 0 | - | 4 | 11 |
| % Buses | 1.3 | 0.0 | 0.0 | 0.0 | - | - | 0.6 | 0.0 | 0.6 | 0.0 | 0.0 | - | - | 0.2 | - | 0.8 | 0.0 | 0.0 | - | - | 0.5 | 0.0 | 0.6 | 0.0 | 0.0 | - | - | 0.5 | 0.4 |
| Trucks | 0 | 0 | 0 | 0 | 0 | - | 0 | 3 | 1 | 0 | 1 | 0 | - | 5 | 0 | 6 | 6 | 2 | 0 | - | 14 | 0 | 2 | 0 | 0 | 0 | - | 2 | 21 |
| % Trucks | 0.0 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 1.4 | 0.6 | 0.0 | 0.8 | - | - | 0.8 | - | 1.0 | 2.5 | 1.2 | - | - | 1.4 | 0.0 | 0.3 | 0.0 | 0.0 | - | - | 0.3 | 0.8 |
| Bicycles on Crosswalk | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.0 | - | - |
| Pedestrians | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 3 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 100.0 | - | - |




Turning Movement Peak Hour Data Plot (3:45 PM)

Northampton County, PA
Tatamy Rd/ParkAve & Hackett Ave/Mall Entrance
Wednesday, February 22, 2023
Location: 40.698544, -75.252672

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610-466-1469
Serving Transportation Professionals Since 1995

Count Name: Tatamy Rd/Park Ave & Hackett Ave/Mall Entrance
Site Code:
Start Date: 02/22/2023


# Turning Movement Data

| Start Time | Mall Entrance Eastbound | | | | | | | Hackett Ave Westbound | | | | | | | Park Ave Northbound | | | | | | | Tatamy Rd Southbound | | | | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 15 | 1 | 0 | 0 | 19 | 0 | 20 | 0 | 0 | 0 | 0 | 20 | 21 | 9 | 0 | 0 | 0 | 0 | 30 | 69 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 21 | 1 | 0 | 0 | 26 | 0 | 15 | 0 | 0 | 0 | 0 | 15 | 21 | 53 | 0 | 0 | 0 | 0 | 74 | 115 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 41 | 3 | 0 | 0 | 51 | 0 | 27 | 2 | 1 | 0 | 0 | 30 | 33 | 53 | 0 | 0 | 0 | 0 | 86 | 167 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 36 | 1 | 0 | 0 | 44 | 0 | 34 | 3 | 0 | 0 | 0 | 37 | 33 | 78 | 0 | 0 | 0 | 0 | 111 | 192 |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 2 | 113 | 6 | 0 | 0 | 140 | 0 | 96 | 5 | 1 | 0 | 0 | 102 | 108 | 193 | 0 | 0 | 0 | 0 | 301 | 543 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 33 | 2 | 0 | 0 | 39 | 0 | 53 | 1 | 1 | 0 | 0 | 55 | 30 | 82 | 0 | 0 | 0 | 0 | 112 | 206 |
| 7:15 AM | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 30 | 1 | 0 | 0 | 41 | 0 | 78 | 12 | 0 | 0 | 0 | 90 | 38 | 61 | 2 | 0 | 0 | 0 | 101 | 233 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 2 | 38 | 1 | 0 | 0 | 49 | 0 | 58 | 11 | 1 | 0 | 0 | 70 | 35 | 66 | 2 | 0 | 0 | 0 | 103 | 222 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 2 | 37 | 4 | 0 | 0 | 52 | 0 | 55 | 11 | 1 | 0 | 0 | 67 | 35 | 71 | 2 | 0 | 0 | 0 | 108 | 227 |
| Hourly Total | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 31 | 4 | 138 | 8 | 0 | 0 | 181 | 0 | 244 | 35 | 3 | 0 | 0 | 282 | 138 | 280 | 6 | 0 | 0 | 0 | 424 | 888 |
| 8:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 8 | 0 | 31 | 1 | 0 | 0 | 40 | 0 | 33 | 4 | 1 | 0 | 0 | 38 | 31 | 56 | 1 | 0 | 0 | 0 | 88 | 167 |
| 8:15 AM | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 4 | 3 | 18 | 4 | 0 | 0 | 29 | 0 | 54 | 7 | 1 | 0 | 0 | 62 | 34 | 53 | 5 | 0 | 0 | 0 | 92 | 184 |
| 8:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 30 | 2 | 0 | 0 | 36 | 0 | 63 | 13 | 3 | 0 | 0 | 79 | 29 | 64 | 4 | 0 | 0 | 0 | 97 | 213 |
| 8:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 18 | 1 | 34 | 1 | 0 | 0 | 54 | 0 | 44 | 6 | 1 | 0 | 0 | 51 | 27 | 70 | 4 | 0 | 0 | 0 | 101 | 207 |
| Hourly Total | 2 | 0 | 2 | 0 | 0 | 0 | 4 | 33 | 5 | 113 | 8 | 0 | 0 | 159 | 0 | 194 | 30 | 6 | 0 | 0 | 230 | 121 | 243 | 14 | 0 | 0 | 0 | 378 | 771 |
| 9:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3:00 PM | 2 | 3 | 0 | 0 | 0 | 0 | 5 | 9 | 7 | 39 | 2 | 0 | 0 | 57 | 0 | 62 | 9 | 1 | 0 | 0 | 72 | 43 | 72 | 6 | 0 | 0 | 0 | 121 | 255 |
| 3:15 PM | 6 | 3 | 2 | 0 | 0 | 0 | 11 | 19 | 4 | 50 | 1 | 0 | 0 | 74 | 0 | 78 | 10 | 1 | 0 | 0 | 89 | 33 | 43 | 4 | 0 | 0 | 0 | 80 | 254 |
| 3:30 PM | 11 | 2 | 1 | 0 | 0 | 0 | 14 | 14 | 6 | 54 | 1 | 0 | 0 | 75 | 0 | 60 | 7 | 0 | 0 | 0 | 67 | 44 | 73 | 8 | 0 | 0 | 0 | 125 | 281 |
| 3:45 PM | 9 | 3 | 0 | 0 | 0 | 0 | 12 | 24 | 8 | 67 | 1 | 0 | 0 | 100 | 0 | 57 | 11 | 0 | 0 | 0 | 68 | 36 | 86 | 5 | 0 | 0 | 0 | 127 | 307 |
| Hourly Total | 28 | 11 | 3 | 0 | 0 | 0 | 42 | 66 | 25 | 210 | 5 | 0 | 0 | 306 | 0 | 257 | 37 | 2 | 0 | 0 | 296 | 156 | 274 | 23 | 0 | 0 | 0 | 453 | 1097 |
| 4:00 PM | 8 | 3 | 3 | 0 | 0 | 0 | 14 | 21 | 5 | 53 | 3 | 0 | 0 | 82 | 0 | 66 | 3 | 2 | 0 | 0 | 71 | 43 | 53 | 8 | 0 | 0 | 0 | 104 | 271 |
| 4:15 PM | 8 | 1 | 0 | 0 | 0 | 0 | 9 | 18 | 5 | 50 | 0 | 0 | 0 | 73 | 0 | 66 | 7 | 1 | 0 | 0 | 74 | 36 | 58 | 7 | 0 | 0 | 0 | 101 | 257 |
| 4:30 PM | 7 | 3 | 0 | 0 | 0 | 0 | 10 | 13 | 6 | 58 | 4 | 0 | 0 | 81 | 0 | 67 | 7 | 1 | 0 | 0 | 75 | 48 | 73 | 6 | 0 | 0 | 0 | 127 | 293 |
| 4:45 PM | 4 | 4 | 1 | 0 | 0 | 0 | 9 | 11 | 10 | 68 | 0 | 0 | 0 | 89 | 0 | 66 | 6 | 0 | 0 | 0 | 72 | 32 | 69 | 6 | 0 | 0 | 0 | 107 | 277 |
| Hourly Total | 27 | 11 | 4 | 0 | 0 | 0 | 42 | 63 | 26 | 229 | 7 | 0 | 0 | 325 | 0 | 265 | 23 | 4 | 0 | 0 | 292 | 159 | 253 | 27 | 0 | 0 | 0 | 439 | 1098 |
| 5:00 PM | 8 | 8 | 2 | 0 | 0 | 0 | 18 | 12 | 3 | 48 | 2 | 0 | 0 | 65 | 0 | 68 | 7 | 0 | 0 | 0 | 75 | 35 | 52 | 3 | 0 | 0 | 0 | 90 | 248 |
| 5:15 PM | 7 | 4 | 1 | 1 | 0 | 0 | 13 | 11 | 6 | 44 | 1 | 0 | 0 | 62 | 0 | 65 | 6 | 1 | 0 | 0 | 72 | 30 | 52 | 5 | 0 | 0 | 0 | 87 | 234 |
| 5:30 PM | 3 | 4 | 1 | 0 | 0 | 0 | 8 | 9 | 3 | 45 | 2 | 0 | 0 | 59 | 0 | 50 | 6 | 2 | 0 | 0 | 58 | 28 | 55 | 4 | 0 | 0 | 0 | 87 | 212 |
| 5:45 PM | 6 | 4 | 0 | 0 | 0 | 0 | 10 | 3 | 1 | 41 | 0 | 0 | 0 | 45 | 0 | 83 | 6 | 1 | 0 | 0 | 90 | 19 | 46 | 0 | 0 | 0 | 0 | 65 | 210 |
| Hourly Total | 24 | 20 | 4 | 1 | 0 | 0 | 49 | 35 | 13 | 178 | 5 | 0 | 0 | 231 | 0 | 266 | 25 | 4 | 0 | 0 | 295 | 112 | 205 | 12 | 0 | 0 | 0 | 329 | 904 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 82 | 42 | 13 | 1 | 0 | 0 | 138 | 247 | 75 | 981 | 39 | 0 | 0 | 1342 | 0 | 1322 | 155 | 20 | 0 | 0 | 1497 | 794 | 1448 | 82 | 0 | 0 | 0 | 2324 | 5301 |
| Approach % | 59.4 | 30.4 | 9.4 | 0.7 | 0.0 | - | - | 18.4 | 5.6 | 73.1 | 2.9 | 0.0 | - | - | 0.0 | 88.3 | 10.4 | 1.3 | 0.0 | - | - | 34.2 | 62.3 | 3.5 | 0.0 | 0.0 | - | - | - |
| Total % | 1.5 | 0.8 | 0.2 | 0.0 | 0.0 | - | 2.6 | 4.7 | 1.4 | 18.5 | 0.7 | 0.0 | - | 25.3 | 0.0 | 24.9 | 2.9 | 0.4 | 0.0 | - | 28.2 | 15.0 | 27.3 | 1.5 | 0.0 | 0.0 | - | 43.8 | - |
| Lights | 80 | 42 | 12 | 1 | 0 | - | 135 | 239 | 71 | 957 | 39 | 0 | - | 1306 | 0 | 1250 | 150 | 20 | 0 | - | 1420 | 779 | 1397 | 81 | 0 | 0 | - | 2257 | 5118 |
| % Lights | 97.6 | 100.0 | 92.3 | 100.0 | - | - | 97.8 | 96.8 | 94.7 | 97.6 | 100.0 | - | - | 97.3 | - | 94.6 | 96.8 | 100.0 | - | - | 94.9 | 98.1 | 96.5 | 98.8 | - | - | - | 97.1 | 96.5 |
| Buses | 2 | 0 | 1 | 0 | 0 | - | 3 | 6 | 3 | 11 | 0 | 0 | - | 20 | 0 | 62 | 4 | 0 | 0 | - | 66 | 10 | 38 | 1 | 0 | 0 | - | 49 | 138 |
| % Buses | 2.4 | 0.0 | 7.7 | 0.0 | - | - | 2.2 | 2.4 | 4.0 | 1.1 | 0.0 | - | - | 1.5 | - | 4.7 | 2.6 | 0.0 | - | - | 4.4 | 1.3 | 2.6 | 1.2 | - | - | - | 2.1 | 2.6 |
| Trucks | 0 | 0 | 0 | 0 | 0 | - | 0 | 2 | 1 | 13 | 0 | 0 | - | 16 | 0 | 10 | 1 | 0 | 0 | - | 11 | 5 | 13 | 0 | 0 | 0 | - | 18 | 45 |
| % Trucks | 0.0 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.8 | 1.3 | 1.3 | 0.0 | - | - | 1.2 | - | 0.8 | 0.6 | 0.0 | - | - | 0.7 | 0.6 | 0.9 | 0.0 | - | - | - | 0.8 | 0.8 |
| Bicycles on Crosswalk | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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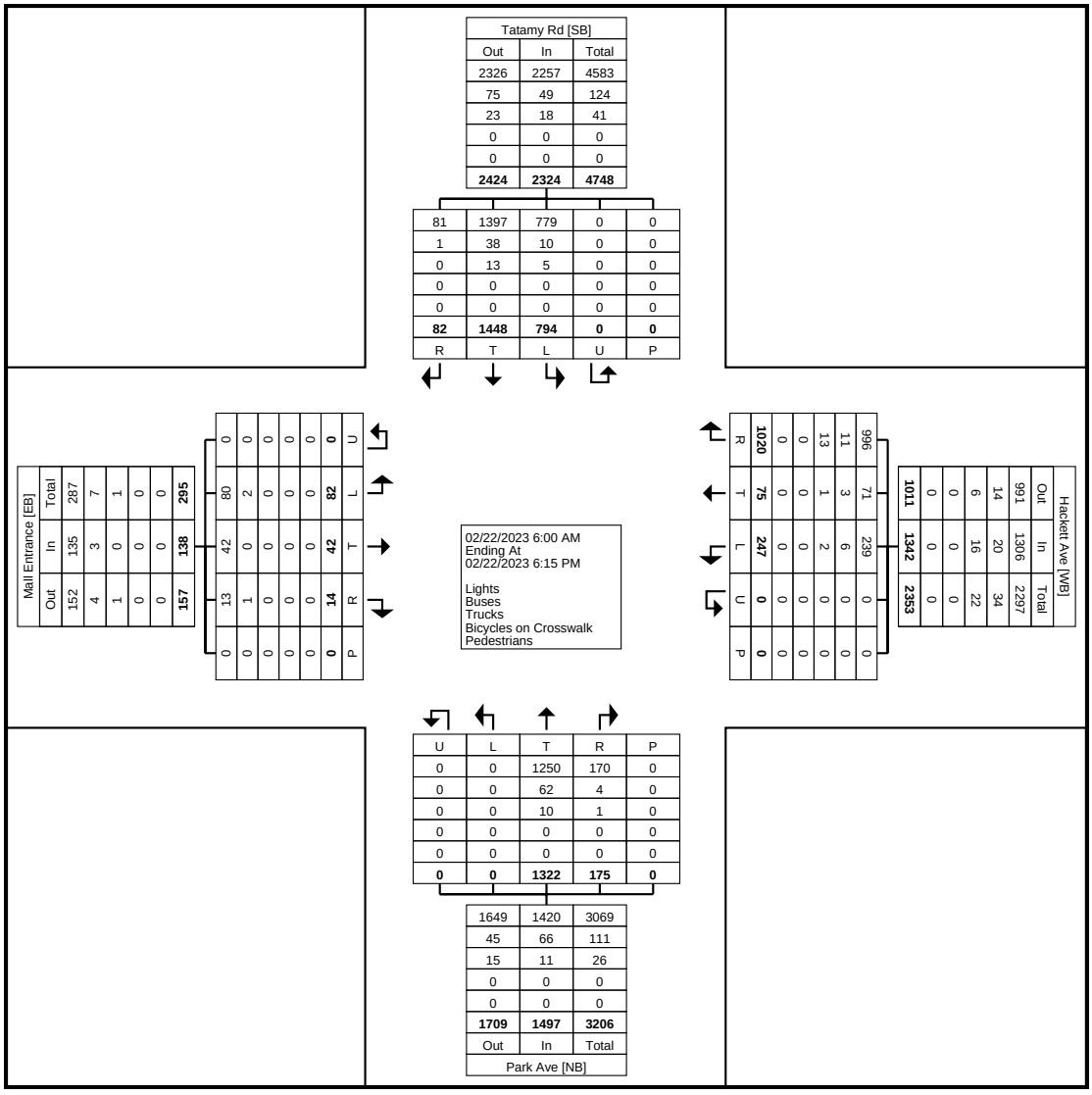


Turning Movement Data Plot

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Northampton County, PA
Tatamy Rd/ParkAve & Hackett Ave/Mall Entrance
Wednesday, February 22, 2023
Location: 40.698544, -75.252672

Count Name: Tatamy Rd/Park Ave & Hackett Ave/Mall Entrance
Site Code:
Start Date: 02/22/2023


# Turning Movement Peak Hour Data (7:00 AM)

| Start Time | Mall Entrance Eastbound | | | | | | | Hackett Ave Westbound | | | | | | | Park Ave Northbound | | | | | | | Tatamy Rd Southbound | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Int. Total |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 33 | 2 | 0 | 0 | 39 | 0 | 53 | 1 | 1 | 0 | 0 | 55 | 30 | 82 | 0 | 0 | 0 | 0 | 112 | 206 |
| 7:15 AM | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 30 | 1 | 0 | 0 | 41 | 0 | 78 | 12 | 0 | 0 | 0 | 90 | 38 | 61 | 2 | 0 | 0 | 0 | 101 | 233 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 2 | 38 | 1 | 0 | 0 | 49 | 0 | 58 | 11 | 1 | 0 | 0 | 70 | 35 | 66 | 2 | 0 | 0 | 0 | 103 | 222 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 2 | 37 | 4 | 0 | 0 | 52 | 0 | 55 | 11 | 1 | 0 | 0 | 67 | 35 | 71 | 2 | 0 | 0 | 0 | 108 | 227 |
| Total | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 31 | 4 | 138 | 8 | 0 | 0 | 181 | 0 | 244 | 35 | 3 | 0 | 0 | 282 | 138 | 280 | 6 | 0 | 0 | 0 | 424 | 888 |
| Approach % | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | 17.1 | 2.2 | 76.2 | 4.4 | 0.0 | - | - | 0.0 | 86.5 | 12.4 | 1.1 | 0.0 | - | - | 32.5 | 66.0 | 1.4 | 0.0 | 0.0 | - | - | - |
| Total % | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.1 | 3.5 | 0.5 | 15.5 | 0.9 | 0.0 | - | 20.4 | 0.0 | 27.5 | 3.9 | 0.3 | 0.0 | - | 31.8 | 15.5 | 31.5 | 0.7 | 0.0 | 0.0 | - | 47.7 | - |
| PHF | 0.250 | 0.000 | 0.000 | 0.000 | 0.000 | - | 0.250 | 0.775 | 0.500 | 0.908 | 0.500 | 0.000 | - | 0.870 | 0.000 | 0.782 | 0.729 | 0.750 | 0.000 | - | 0.783 | 0.908 | 0.854 | 0.750 | 0.000 | 0.000 | - | 0.946 | 0.953 |
| Lights | 0 | 0 | 0 | 0 | 0 | - | 0 | 27 | 3 | 134 | 8 | 0 | - | 172 | 0 | 219 | 33 | 3 | 0 | - | 255 | 136 | 266 | 5 | 0 | 0 | - | 407 | 834 |
| % Lights | 0.0 | - | - | - | - | - | 0.0 | 87.1 | 75.0 | 97.1 | 100.0 | - | - | 95.0 | - | 89.8 | 94.3 | 100.0 | - | - | 90.4 | 98.6 | 95.0 | 83.3 | - | - | - | 96.0 | 93.9 |
| Buses | 1 | 0 | 0 | 0 | 0 | - | 1 | 3 | 1 | 2 | 0 | 0 | - | 6 | 0 | 22 | 2 | 0 | 0 | - | 24 | 2 | 9 | 1 | 0 | 0 | - | 12 | 43 |
| % Buses | 100.0 | - | - | - | - | - | 100.0 | 9.7 | 25.0 | 1.4 | 0.0 | - | - | 3.3 | - | 9.0 | 5.7 | 0.0 | - | - | 8.5 | 1.4 | 3.2 | 16.7 | - | - | - | 2.8 | 4.8 |
| Trucks | 0 | 0 | 0 | 0 | 0 | - | 0 | 1 | 0 | 2 | 0 | 0 | - | 3 | 0 | 3 | 0 | 0 | 0 | - | 3 | 0 | 5 | 0 | 0 | 0 | - | 5 | 11 |
| % Trucks | 0.0 | - | - | - | - | - | 0.0 | 3.2 | 0.0 | 1.4 | 0.0 | - | - | 1.7 | - | 1.2 | 0.0 | 0.0 | - | - | 1.1 | 0.0 | 1.8 | 0.0 | - | - | - | 1.2 | 1.2 |
| Bicycles on Crosswalk | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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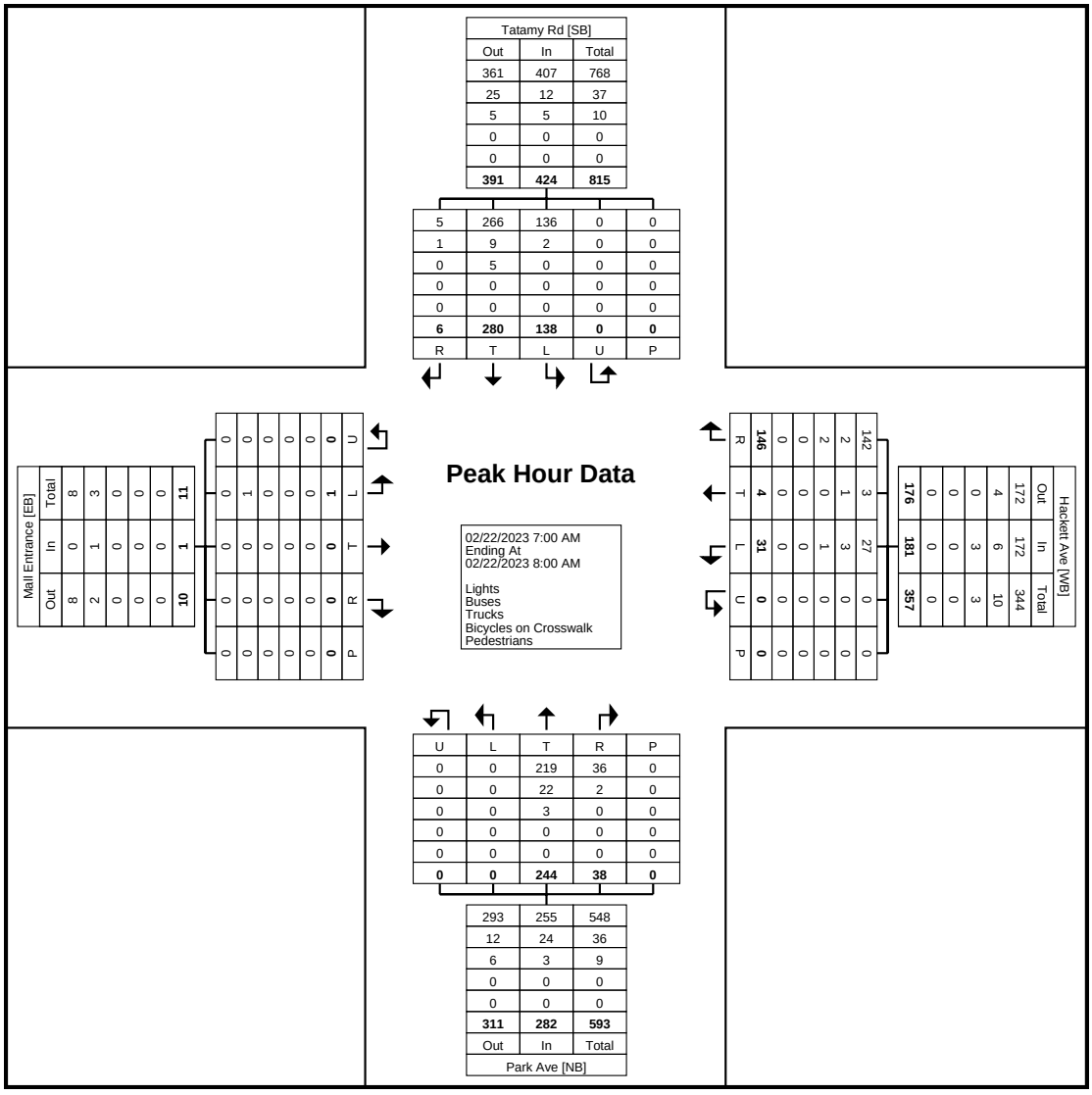


Turning Movement Peak Hour Data Plot (7:00 AM)

Northampton County, PA
Tatamy Rd/ParkAve & Hackett Ave/Mall Entrance
Wednesday, February 22, 2023
Location: 40.698544, -75.252672

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184 Baker Rd

Coatesville, Pennsylvania, United States 19320
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# Turning Movement Peak Hour Data (3:45 PM)

| Start Time | Mall Entrance Eastbound | | | | | | | Hackett Ave Westbound | | | | | | | Park Ave Northbound | | | | | | | Tatamy Rd Southbound | | | | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | Left | Thru | Right | Right on Red | U-Turn | Peds | App. Total | |
| 3:45 PM | 9 | 3 | 0 | 0 | 0 | 0 | 12 | 24 | 8 | 67 | 1 | 0 | 0 | 100 | 0 | 57 | 11 | 0 | 0 | 0 | 68 | 36 | 86 | 5 | 0 | 0 | 0 | 127 | 307 |
| 4:00 PM | 8 | 3 | 3 | 0 | 0 | 0 | 14 | 21 | 5 | 53 | 3 | 0 | 0 | 82 | 0 | 66 | 3 | 2 | 0 | 0 | 71 | 43 | 53 | 8 | 0 | 0 | 0 | 104 | 271 |
| 4:15 PM | 8 | 1 | 0 | 0 | 0 | 0 | 9 | 18 | 5 | 50 | 0 | 0 | 0 | 73 | 0 | 66 | 7 | 1 | 0 | 0 | 74 | 36 | 58 | 7 | 0 | 0 | 0 | 101 | 257 |
| 4:30 PM | 7 | 3 | 0 | 0 | 0 | 0 | 10 | 13 | 6 | 58 | 4 | 0 | 0 | 81 | 0 | 67 | 7 | 1 | 0 | 0 | 75 | 48 | 73 | 6 | 0 | 0 | 0 | 127 | 293 |
| Total | 32 | 10 | 3 | 0 | 0 | 0 | 45 | 76 | 24 | 228 | 8 | 0 | 0 | 336 | 0 | 256 | 28 | 4 | 0 | 0 | 288 | 163 | 270 | 26 | 0 | 0 | 0 | 459 | 1128 |
| Approach % | 71.1 | 22.2 | 6.7 | 0.0 | 0.0 | - | - | 22.6 | 7.1 | 67.9 | 2.4 | 0.0 | - | - | 0.0 | 88.9 | 9.7 | 1.4 | 0.0 | - | - | 35.5 | 58.8 | 5.7 | 0.0 | 0.0 | - | - | - |
| Total % | 2.8 | 0.9 | 0.3 | 0.0 | 0.0 | - | 4.0 | 6.7 | 2.1 | 20.2 | 0.7 | 0.0 | - | 29.8 | 0.0 | 22.7 | 2.5 | 0.4 | 0.0 | - | 25.5 | 14.5 | 23.9 | 2.3 | 0.0 | 0.0 | - | 40.7 | - |
| PHF | 0.889 | 0.833 | 0.250 | 0.000 | 0.000 | - | 0.804 | 0.792 | 0.750 | 0.851 | 0.500 | 0.000 | - | 0.840 | 0.000 | 0.955 | 0.636 | 0.500 | 0.000 | - | 0.960 | 0.849 | 0.785 | 0.813 | 0.000 | 0.000 | - | 0.904 | 0.919 |
| Lights | 31 | 10 | 3 | 0 | 0 | - | 44 | 75 | 21 | 223 | 8 | 0 | - | 327 | 0 | 241 | 28 | 4 | 0 | - | 273 | 161 | 263 | 26 | 0 | 0 | - | 450 | 1094 |
| % Lights | 96.9 | 100.0 | 100.0 | - | - | - | 97.8 | 98.7 | 87.5 | 97.8 | 100.0 | - | - | 97.3 | - | 94.1 | 100.0 | 100.0 | - | - | 94.8 | 98.8 | 97.4 | 100.0 | - | - | - | 98.0 | 97.0 |
| Buses | 1 | 0 | 0 | 0 | 0 | - | 1 | 1 | 2 | 3 | 0 | 0 | - | 6 | 0 | 14 | 0 | 0 | 0 | - | 14 | 0 | 5 | 0 | 0 | 0 | - | 5 | 26 |
| % Buses | 3.1 | 0.0 | 0.0 | - | - | - | 2.2 | 1.3 | 8.3 | 1.3 | 0.0 | - | - | 1.8 | - | 5.5 | 0.0 | 0.0 | - | - | 4.9 | 0.0 | 1.9 | 0.0 | - | - | - | 1.1 | 2.3 |
| Trucks | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 1 | 2 | 0 | 0 | - | 3 | 0 | 1 | 0 | 0 | 0 | - | 1 | 2 | 2 | 0 | 0 | 0 | - | 4 | 8 |
| % Trucks | 0.0 | 0.0 | 0.0 | - | - | - | 0.0 | 0.0 | 4.2 | 0.9 | 0.0 | - | - | 0.9 | - | 0.4 | 0.0 | 0.0 | - | - | 0.3 | 1.2 | 0.7 | 0.0 | - | - | - | 0.9 | 0.7 |
| Bicycles on Crosswalk | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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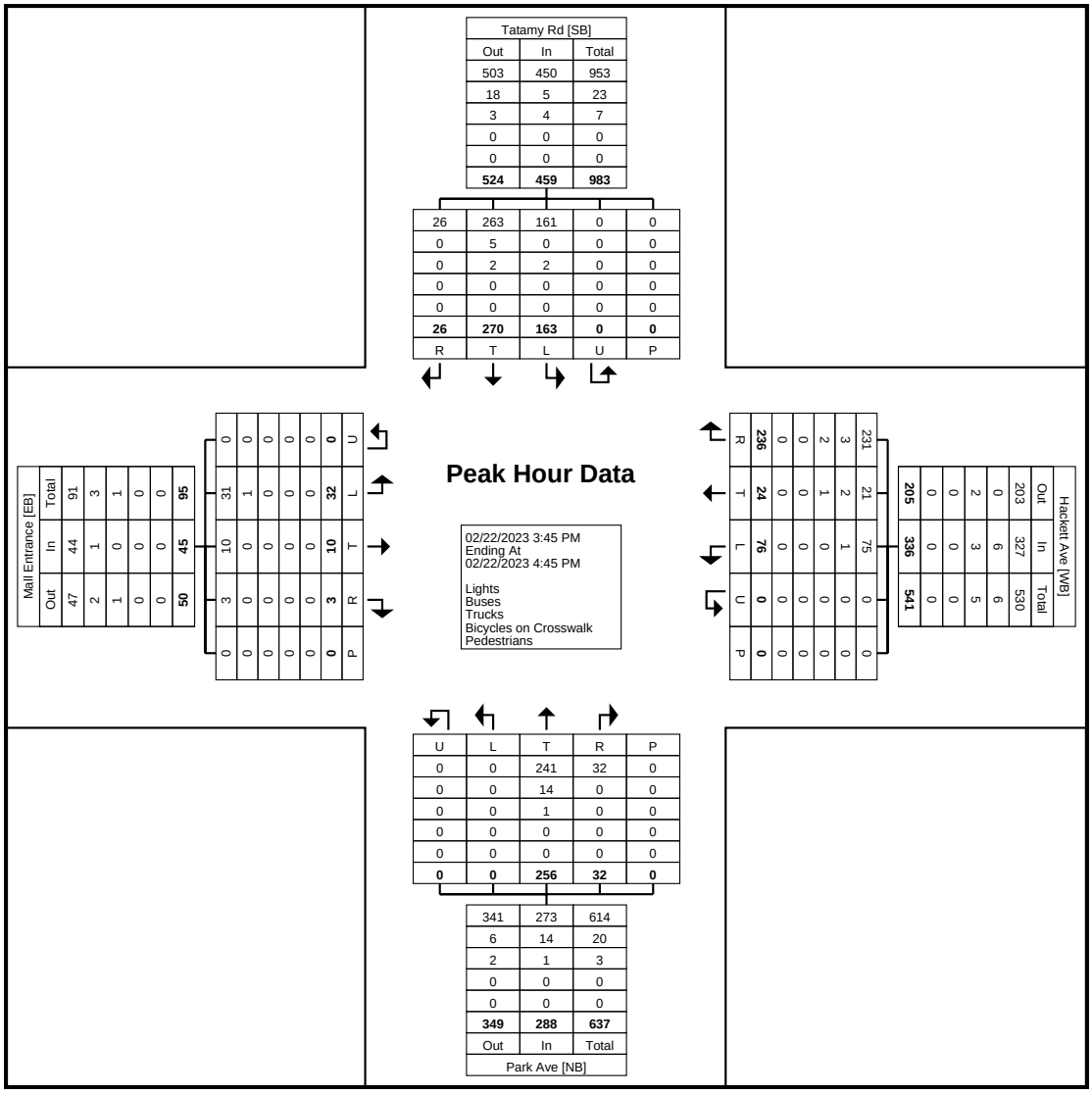



Turning Movement Peak Hour Data Plot (3:45 PM)

| | |
|---|---|
| Project Name: | Proposed Warehouse at 1525 Wood Ave |
| Client/Agency: | Easton Wood Avenue PropCo, LLC |
| Consultant: | KCI Technologies Inc. |
| Project Number: | 222209756 |
| Analyst: | ICP/VRG |
| Date: | 09/18/2023 |
| Description | TIS Regional/Background Traffic Growth |

| Opening Year | | |
|---|---|---|
| Type: | Compound | |
| Growth per Year: | 0.43 | % |
| Existing Year: | 2023 | |
| Design Year | 2025 | |
| Growth Rate | 0.86 | % |

| Horizon Year | | |
|---|---|---|
| Type: | Compound | |
| Growth per Year: | 0.43 | % |
| Existing Year: | 2023 | |
| Design Year | 2030 | |
| Growth Rate | 3.05 | % |

| Growth Factors for September 2023 to July 2024 | | | | |
|---|---|---|---|---|
| **County** | **Urban Interstate** | **Rural Interstate** | **Urban Non-Interstate** | **Rural Non-Interstate** |
| ADAMS | * | * | 0.45 | 0.59 |
| ALLEGHENY | 0.94 | * | 0.00 | 0.43 |
| ARMSTRONG | 0.77 | * | 0.00 | 0.36 |
| BEAVER | 0.61 | 2.05 | 0.00 | 0.29 |
| BEDFORD | * | 2.20 | 0.00 | 0.38 |
| BERKS | 1.31 | 2.54 | 0.27 | 0.57 |
| BLAIR | 0.82 | 2.34 | 0.00 | 0.39 |
| BRADFORD | 1.03 | * | 0.00 | 0.47 |
| BUCKS | 1.31 | 2.63 | 0.16 | 0.57 |
| BUTLER | 1.62 | 2.89 | 0.23 | 0.70 |
| CAMBRIA | 0.31 | * | 0.00 | 0.18 |
| CAMERON | * | * | 0.00 | 0.11 |
| CARBON | 1.38 | 2.68 | 0.23 | 0.59 |
| CENTRE | 1.74 | 2.76 | 0.66 | 0.72 |
| CHESTER | 1.72 | 2.92 | 0.48 | 0.76 |
| CLARION | 0.76 | 2.24 | 0.00 | 0.36 |
| CLEARFIELD | 0.57 | 1.94 | 0.00 | 0.30 |
| CLINTON | 1.07 | 2.37 | 0.00 | 0.48 |
| COLUMBIA | 1.07 | 2.33 | 0.02 | 0.48 |
| CRAWFORD | 0.70 | 2.12 | 0.00 | 0.35 |
| CUMBERLAND | 1.59 | 2.80 | 0.54 | 0.68 |
| DAUPHIN | 1.49 | * | 0.29 | 0.65 |
| DELAWARE | 1.23 | * | 0.00 | 0.56 |
| ELK | * | * | 0.00 | 0.29 |
| ERIE | 0.92 | 2.31 | 0.00 | 0.42 |
| FAYETTE | 0.82 | * | 0.00 | 0.38 |
| FOREST | * | * | * | 0.96 |
| FRANKLIN | 1.67 | 2.82 | 0.69 | 0.71 |
| FULTON | * | 2.34 | * | 0.49 |
| GREENE | 0.70 | 2.29 | 0.00 | 0.35 |
| HUNTINGDON | * | 2.50 | 0.00 | 0.49 |
| INDIANA | 0.91 | * | 0.00 | 0.43 |
| JEFFERSON | * | 2.33 | 0.00 | 0.45 |
| JUNIATA | * | * | * | 0.53 |
| LACKAWANNA | 0.95 | 2.36 | 0.00 | 0.43 |
| LANCASTER | 1.62 | 2.85 | 0.54 | 0.69 |
| LAWRENCE | 0.65 | 2.18 | 0.00 | 0.32 |
| LEBANON | * | 2.56 | 0.42 | 0.61 |
| LEHIGH | 1.71 | 3.10 | 0.49 | 0.74 |
| LUZERNE | 1.00 | 2.42 | 0.00 | 0.46 |
| LYCOMING | 0.96 | 2.37 | 0.00 | 0.43 |
| MCKEAN | 0.57 | * | 0.00 | 0.29 |
| MERCER | 0.89 | 2.53 | 0.00 | 0.43 |
| MIFFLIN | 1.13 | * | 0.00 | 0.50 |
| MONROE | 1.73 | 2.89 | 0.74 | 0.75 |
| MONTGOMERY | 1.24 | * | 0.21 | 0.54 |
| MONTOUR | 1.27 | 2.69 | 0.00 | 0.57 |
| NORTHAMPTON | 1.76 | 3.18 | 0.43 | 0.77 |
| NORTHUMBERLAND | 0.97 | 2.29 | 0.00 | 0.42 |
| PERRY | * | * | 0.20 | 0.53 |
| PHILADELPHIA | 1.14 | * | * | * |
| PIKE | 1.67 | 2.72 | 0.81 | 0.72 |
| POTTER | * | * | * | 0.34 |
| SCHUYLKILL | 0.98 | 2.46 | 0.00 | 0.44 |
| SNYDER | 1.20 | * | 0.17 | 0.53 |
| SOMERSET | 0.56 | 2.06 | 0.00 | 0.33 |
| SULLIVAN | * | * | * | 0.36 |
| SUSQUEHANNA | 1.06 | 2.43 | 0.00 | 0.46 |
| TIOGA | * | * | 0.00 | 0.41 |
| UNION | 1.50 | 2.69 | 0.39 | 0.63 |
| VENANGO | * | 1.92 | 0.00 | 0.26 |
| WARREN | * | * | 0.00 | 0.34 |
| WASHINGTON | 1.18 | 2.74 | 0.00 | 0.54 |
| WAYNE | * | 2.54 | 0.28 | 0.58 |
| WESTMORELAND | 0.85 | 2.18 | 0.00 | 0.39 |
| WYOMING | * | * | 0.00 | 0.43 |
| YORK | 1.53 | 2.90 | 0.41 | 0.69 |

* = Functional Class Doesn't Exist in County

Questions? Please contact Andrew O'Neill at the Bureau of Planning and Research, 717-346-3250 or andoneill@pa.gov

**NOTE:** The projected growth factors are derived using historical VMT (Vehicle Miles Traveled) data (1994 to 2022), as well as Woods and Poole demographic and economic data. The factors should be compounded when calculating future values. The factors should not be used to project traffic beyond a 20-year period. Please be aware that these factors are estimates, and unforeseen events (opening of shopping centers, fast food franchises, gas stations, etc) could cause growth to change over time.

pennsylvania
DEPARTMENT OF TRANSPORTATION

# APPENDIX D

## *Traffic Signal Plans*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue

TE-964 (11-14)

pennsylvania
DEPARTMENT OF TRANSPORTATION
www.dot.state.pa.us

# TRAFFIC SIGNAL PERMIT

Permit No. 48-302-038

Sheet 1 of 3

In accordance with the Vehicle Code, the Secretary of Transportation hereby approves the installation and operation of a traffic signal at the intersection of:

SR 2017 (Wood Avenue)

and SR 2019 (Thirteenth Street)

in the City of Easton, County of Northampton

This permit is issued to, and accepted by the City of Easton hereinafter known as the Permittee, as follows:

This installation shall be in accordance with the Vehicle Code and the Regulations for traffic signs, signals and markings of the Department of Transportation, and shall conform to the following requirements and those contained on the attached sheets.

Type of Controller Semi-Actuated

Type of Signal Mounting Post Mounted and Overhead

Hours of Operation as "Stop" and "Go" As indicated on the attached diagram.

Hours of Operation as "Flashing" As indicated on the attached diagram.

Controller Operation Controller to provide the phasing, timing and signal display as indicated on the attached diagram.

All work performed by the Permittee in the erection of the traffic signal shall be under and subject to the direction of the Secretary of Transportation or their authorized representatives. The said Permittee shall use due diligence in the execution of the work authorized under this permit and shall not obstruct or endanger travel along the said road. All operations must be conducted so as to permit safe and reasonable free travel at all times over the road within the limits of the work herein permitted.

The Permittee covenants and agrees to fully indemnify and save harmless the Department of Transportation and assume all liability for damages or injury, occurring to any person, persons or property through or in consequence of any act or omission of anyone working on the construction, or from faulty maintenance or operation of such traffic signal.

The Secretary of Transportation, by law, reserves the right to revoke and annul this permit if the Permittee shall at any time willfully or negligently fail to comply with the conditions contained in this permit, or, upon changes in the traffic conditions, fail to make any changes in the construction or operation of this signal, or to remove it, when so ordered by the Secretary of Transportation; or if this installation is not in operation within twenty-four (24) months of the receipt of this permit. The Permittee shall maintain the signal in a safe condition at all times. The Permittee shall not make any change in the construction or operation of this traffic signal without prior written approval of the Secretary of Transportation.

This permit cancels and supersedes all previous permits issued for this location upon completion of the installation specified herein.

INITIAL DATE: September 16, 1974
REVISION DATE: January 16, 2018
June 6, 2018
December 9, 2019

APPROVED Yassmin Gramian, P.E.
Acting Secretary of Transportation

BY Jill Kraus for
District Executive

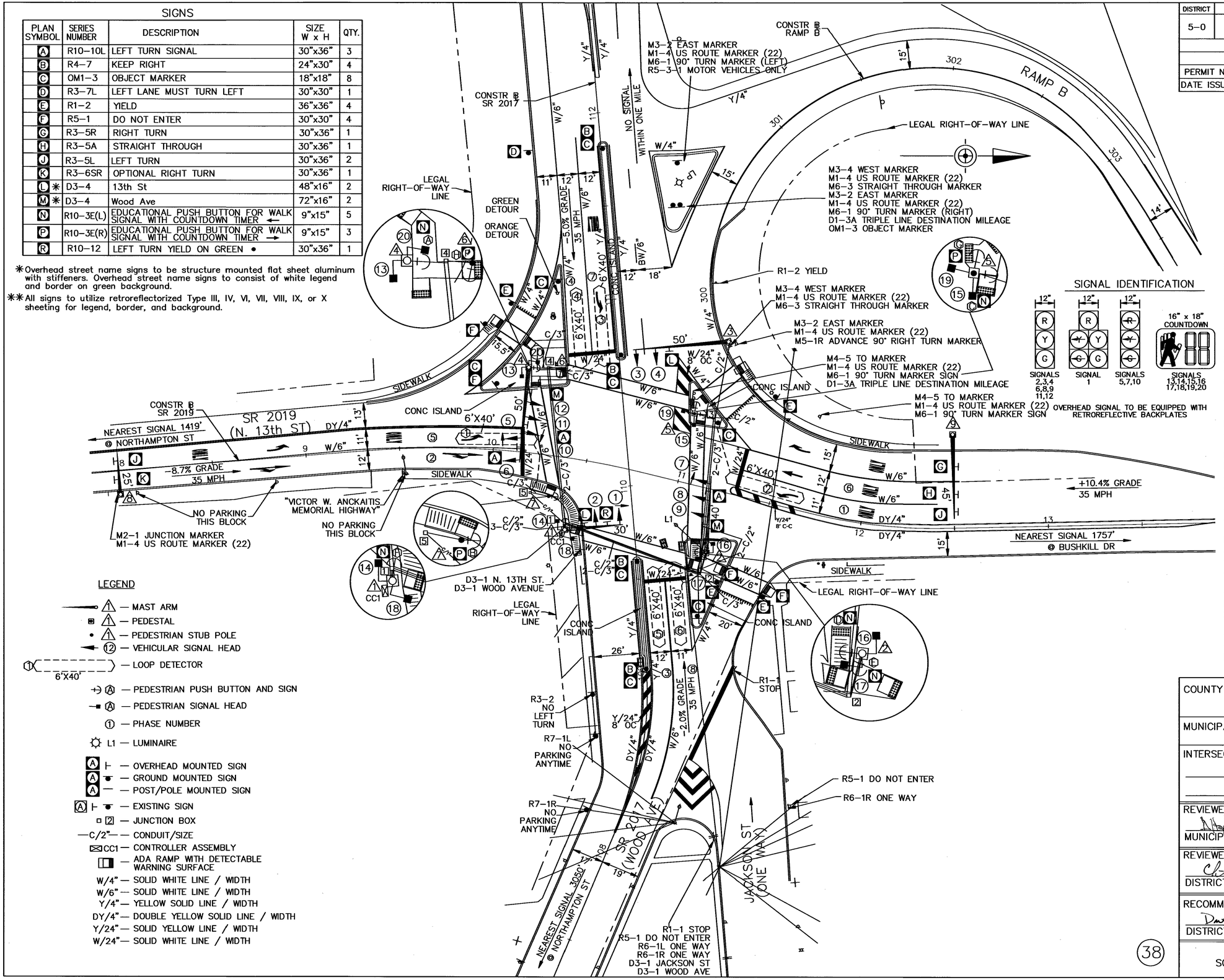
| DISTRICT | COUNTY | ROUTE | SECTION | SHEET |
|---|---|---|---|---|
| 5-0 | NORTHAMPTON | 2017 | TSI | 2 of 3 |
| CITY OF EASTON | | | | |
| PERMIT NO. 48-302-038 | | SHEET 2 OF 3 | | |
| DATE ISSUED: 4-16-74 | | DATE REVISED: 12-9-19 | | |

## SIGNS

| PLAN SYMBOL | SERIES NUMBER | DESCRIPTION | SIZE W x H | QTY. |
|---|---|---|---|---|
| A | R10-10L | LEFT TURN SIGNAL | 30"x36" | 3 |
| B | R4-7 | KEEP RIGHT | 24"x30" | 4 |
| C | OM1-3 | OBJECT MARKER | 18"x18" | 8 |
| D | R3-7L | LEFT LANE MUST TURN LEFT | 30"x30" | 1 |
| E | R1-2 | YIELD | 36"x36" | 4 |
| F | R5-1 | DO NOT ENTER | 30"x30" | 4 |
| G | R3-5R | RIGHT TURN | 30"x36" | 1 |
| H | R3-5A | STRAIGHT THROUGH | 30"x36" | 1 |
| J | R3-5L | LEFT TURN | 30"x36" | 2 |
| K | R3-6SR | OPTIONAL RIGHT TURN | 30"x36" | 1 |
| L * | D3-4 | 13th St | 48"x16" | 2 |
| M * | D3-4 | Wood Ave | 72"x16" | 2 |
| N | R10-3E(L) | EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL WITH COUNTDOWN TIMER ← | 9"x15" | 5 |
| P | R10-3E(R) | EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL WITH COUNTDOWN TIMER → | 9"x15" | 3 |
| R | R10-12 | LEFT TURN YIELD ON GREEN • | 30"x36" | 1 |

*Overhead street name signs to be structure mounted flat sheet aluminum with stiffeners. Overhead street name signs to consist of white legend and border on green background.

**All signs to utilize retroreflectorized Type III, IV, VI, VII, VIII, IX, or X sheeting for legend, border, and background.




### LEGEND

- MAST ARM
- PEDESTAL
- PEDESTRIAN STUB POLE
- VEHICULAR SIGNAL HEAD
- LOOP DETECTOR 6'X40'
- PEDESTRIAN PUSH BUTTON AND SIGN
- PEDESTRIAN SIGNAL HEAD
- PHASE NUMBER
- L1 — LUMINAIRE
- OVERHEAD MOUNTED SIGN
- GROUND MOUNTED SIGN
- POST/POLE MOUNTED SIGN
- EXISTING SIGN
- JUNCTION BOX
- C/2" — CONDUIT/SIZE
- CC1 — CONTROLLER ASSEMBLY
- ADA RAMP WITH DETECTABLE WARNING SURFACE
- W/4" — SOLID WHITE LINE / WIDTH
- W/6" — SOLID WHITE LINE / WIDTH
- Y/4" — YELLOW SOLID LINE / WIDTH
- DY/4" — DOUBLE YELLOW SOLID LINE / WIDTH
- Y/24" — SOLID YELLOW LINE / WIDTH
- W/24" — SOLID WHITE LINE / WIDTH

## GENERAL NOTES

Installation, operation and maintenance of this traffic signal to be in accordance with Pennsylvania Department of Transportation Regulations on Official Traffic Control Devices.

No modifications of this installation are permitted unless prior approval is granted, in writing, by the department.

All maintenance necessary for proper visibility of the signals, including trimming trees, is the responsibility of the Permittee.

All signs and pavement markings indicated on this drawing are considered part of the permit and are to be installed and maintained by the Permittee, unless otherwise indicated, except the longitudinal pavement markings on State highways which will be maintained by the department.

Install Traffic Signal Supports in accordance with Publication 149, Chapter 5.

The bottom of signal heads and signs erected over the roadway are not to be less than 15 feet nor more than 19 feet above the roadway. The bottom of post mounted signal heads are to be not less than 8 feet nor more than 15 feet above the sidewalk or pavement grade.

The minimum horizontal distance between signal heads measured at right angles to the approach is to be 8 feet.

In addition to this signal permit, the Permittee will obtain a Highway Occupancy Permit prior to any openings being made in or under any portion of a State Highway, if applicable.

This drawing cannot be used as a construction drawing unless the Permittee complies with the provision of Act 287-1974 as amended, Prevention of Damage to Underground Utilities. Prior to construction, consult with utility companies to resolve any problems which may be created due to the location of utilities.

Place pavement markings in accordance with the Department of Transportation Pavement Marking TC-8600 Series Standards.

Maintenance and protection of traffic for the installation and maintenance of this traffic signal to be in accordance with Publication 213, Work Zone Traffic Control.

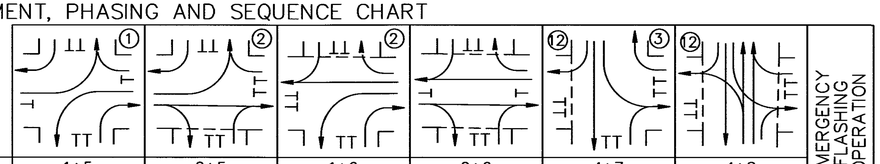
| | |
|---|---|
| COUNTY | NORTHAMPTON |
| MUNICIPALITY | CITY OF EASTON |
| INTERSECTION | SR 2019 (N. THIRTEENTH STREET) & SR 2017 (WOOD AVENUE) |
| REVIEWED MUNICIPAL OFFICIAL | DATE 11/25/19 |
| REVIEWED DISTRICT TRAFFIC SIGNALS UNIT | DATE 11/27/19 |
| RECOMMENDED DISTRICT TRAFFIC ENGINEER | DATE 11/27/19 |
| SCALE: 25 0 25 50 SCALE IN FEET | |

| DISTRICT | COUNTY | ROUTE | SECTION | SHEET |
|---|---|---|---|---|
| 5-0 | NORTHAMPTON | 2017 | TSI | 3 of 3 |
| CITY OF EASTON | | | | |
| PERMIT NO. 48-302-038 | | SHEET 3 OF 3 | | |
| DATE ISSUED: 4-16-74 | | DATE REVISED: 12-9-19 | | |

## PROGRAM CHART

| EVENT NO. | DAY OF WEEK | | | | | | | TIME | | | CYCLE | OFFSET (SEC) | REMARK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | T | W | T | F | S | S | HOUR | MIN. | SEC. | | | |
| 1 | * | * | * | * | * | | | 07 | 00 | 00 | --- | ---- | Max 1, AM Free |
| 2 | * | * | * | * | * | | | 09 | 00 | 00 | --- | ---- | Max 3, OFF Free |
| 3 | * | * | * | * | * | | | 16 | 00 | 00 | --- | ---- | Max 2, PM Free |
| 4 | * | * | * | * | * | * | * | 18 | 00 | 00 | --- | ---- | Max 3, OFF Free |

## MOVEMENT, PHASING AND SEQUENCE CHART



| PHASE | 1+5 | | | | 2+5 | | | | 1+6 | | | | 2+6 | | | | 4+7 | | | | 4+8 | | | | EMERGENCY FLASHING OPERATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INTERVAL / SIGNAL | 1 | 2 | 3 | | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
| 1 | R | R | R | | R | R | R | R | R | R | R | R | R | R | R | R | G | G | Y | R | G | G | Y | R | R |
| 2 | R | R | R | | R | R | R | R | R | R | R | R | R | R | R | R | G | G | Y | R | G | G | Y | R | R |
| 3,4 | R | R | R | | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | G | G | Y | R | R |
| 5,7 | ~~G~~ | ~~Y~~ | ~~R~~ | | ~~G~~ | ~~G~~ | ~~Y~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | OFF |
| 6,8,9 | R | R | R | | G | G | Y | R | R | R | R | R | G | G | Y | R | R | R | R | R | R | R | R | R | Y |
| 10 | ~~G~~ | ~~Y~~ | ~~R~~ | | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~G~~ | ~~G~~ | ~~Y~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | ~~R~~ | OFF |
| 11,12 | R | R | R | | R | R | R | R | G | G | Y | R | G | G | Y | R | R | R | R | R | R | R | R | R | Y |
| 13,14 | H | H | H | | H | H | H | H | H | H | H | H | H | H | H | H | M | FH | H | H | M | FH | H | H | OFF |
| 15,16 | H | H | H | | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | M | FH | H | H | OFF |
| 17,18 | H | H | H | | M | FH | H | H | H | H | H | H | M | FH | H | H | H | H | H | H | H | H | H | H | OFF |
| 19,20 | H | H | H | | H | H | H | H | M | FH | H | H | M | FH | H | H | H | H | H | H | H | H | H | H | OFF |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| FIXED | | 4.5 | 2.5 | | | | 4.5 | 2.5 | | | 4.5 | 2.5 | | | 4.5 | 2.5 | | | 4 | 2 | | | 4 | 2 | |
| MINIMUM | 7 | | | | 7 | | | | 7 | | | | 10 | | | | 7 | | | | 7 | | | | |
| PASSAGE | 3 | | | | 3 | | | | 3 | | | | | | | | 3 | | | | 3 | | | | |
| MAXIMUM 1 | 11 | | | | 11 | | | | 11 | | | | 27 | | | | 18 | | | | 28 | | | | |
| MAXIMUM 2 | 14 | | | | 14 | | | | 14 | | | | 12 | | | | 21 | | | | 22 | | | | |
| MAXIMUM 3 | 14 | | | | 14 | | | | 14 | | | | 12 | | | | 20 | | | | 23 | | | | |
| PEDESTRIAN (4) | | | | | (5) | | | | (5) | | | | 7 | 18 | | | (6) | | | | 7 | 19 | | | |
| MEMORY | NL | | | | NL | | | | NL | | | | MR | | | | NL | | | | NL | | | | |

## OPERATION NOTES

① PHASE TO FOLLOW PHASE 2+6, 4+7, OR 4+8 ONLY
② PHASE TO FOLLOW PHASE 1+5, 2+6, 4+7, OR 4+8 ONLY
③ PHASE TO FOLLOW PHASE 2+6 ONLY
④ UPON PEDESTRIAN ACTIVATION ONLY, OTHERWISE "HAND" AT ALL TIMES
⑤ TIMING FOR THIS PHASE SHALL BE AS SHOWN IN PHASE 2+6 AND SHALL TIME OUT IN PHASE 2+6
⑥ TIMING FOR THIS PHASE SHALL BE AS SHOWN IN PHASE 4+8 AND SHALL TIME OUT IN PHASE 4+8
⑦ ~~Y~~/G IF FOLLOWED BY PHASE 4+8
⑧ G IF FOLLOWED BY PHASE 4+8
⑨ G IF FOLLOWED BY PHASE 2+6
⑩ M IF FOLLOWED BY PHASE 2+6
⑪ M IF FOLLOWED BY PHASE 4+8
⑫ DETECTOR #3 TO CALL AND EXTEND PHASES 4+7 AND 4+8
⑬ ~~G~~ IF FOLLOWED BY PHASE 2+5
⑭ ~~G~~ IF FOLLOWED BY PHASE 1+6

COUNTY
NORTHAMPTON

MUNICIPALITY
CITY OF EASTON

INTERSECTION
SR 2019 (N. THIRTEENTH STREET) &
SR 2017 (WOOD AVENUE)

REVIEWED
MUNICIPAL OFFICIAL — DATE 11/25/19

REVIEWED
DISTRICT TRAFFIC SIGNALS UNIT — DATE 11/27/19

RECOMMENDED
DISTRICT TRAFFIC ENGINEER — DATE 11/27/19

TE-964 (11-14)

pennsylvania
DEPARTMENT OF TRANSPORTATION
www.dot.state.pa.us

# TRAFFIC SIGNAL PERMIT

Permit No. 48-212-012

Sheet 1 of 3

In accordance with the Vehicle Code, the Secretary of Transportation hereby approves the installation and operation of a traffic signal at the intersection of:

SR 2012 (25th Street)

and SR 2024 (Wood Street)/SR 2040 (Route 22 Ramp A)

in the Township of Palmer, County of Northampton

This permit is issued to, and accepted by the Township of Palmer hereinafter known as the Permittee, as follows:

This installation shall be in accordance with the Vehicle Code and the Regulations for traffic signs, signals and markings of the Department of Transportation, and shall conform to the following requirements and those contained on the attached sheets.

Type of Controller Semi-Actuated

Type of Signal Mounting Post Mounted and Overhead

Hours of Operation as "Stop" and "Go" As indicated on the attached diagram.

Hours of Operation as "Flashing" As indicated on the attached diagram.

Controller Operation Controller to provide the phasing, timing and signal display as indicated on the attached diagram.

Controller to be interconnected with adjacent signal controllers along 25th Street to provide a progressive movement of traffic. Master controller located at 25th St & William Penn Highway/Butler Street.

Preemption for emergency vehicles (fire apparatus) to provide the operation indicated on the attached diagram.

All work performed by the Permittee in the erection of the traffic signal shall be under and subject to the direction of the Secretary of Transportation or their authorized representatives. The said Permittee shall use due diligence in the execution of the work authorized under this permit and shall not obstruct or endanger travel along the said road. All operations must be conducted so as to permit safe and reasonable free travel at all times over the road within the limits of the work herein permitted.

The Permittee covenants and agrees to fully indemnify and save harmless the Department of Transportation and assume all liability for damages or injury, occurring to any person, persons or property through or in consequence of any act or omission of anyone working on the construction, or from faulty maintenance or operation of such traffic signal.

The Secretary of Transportation, by law, reserves the right to revoke and annul this permit if the Permittee shall at any time willfully or negligently fail to comply with the conditions contained in this permit, or, upon changes in the traffic conditions, fail to make any changes in the construction or operation of this signal, or to remove it, when so ordered by the Secretary of Transportation; or if this installation is not in operation within twenty-four (24) months of the receipt of this permit. The Permittee shall maintain the signal in a safe condition at all times. The Permittee shall not make any change in the construction or operation of this traffic signal without prior written approval of the Secretary of Transportation.

This permit cancels and supersedes all previous permits issued for this location upon completion of the installation specified herein.

INITIAL DATE: August 23, 1972
REVISION DATE: May 24, 1979
August 6, 1990
August 13, 2003
September 2, 2004
March 5, 2013
September 9, 2016
July 1, 2021

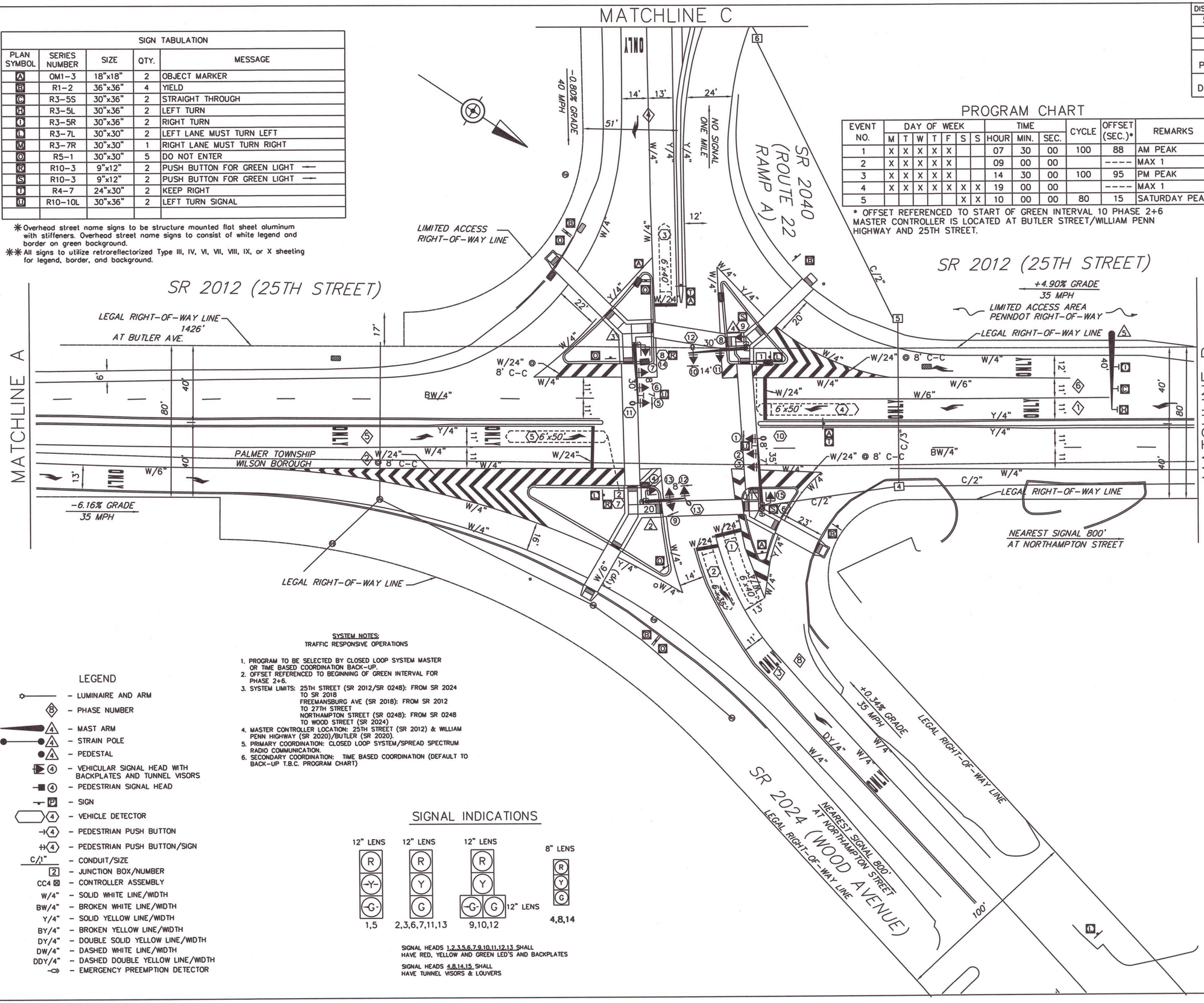
APPROVED Yassmin Gramian P.E.
Secretary of Transportation

BY Thomas W. Rogal
for District Executive

| DISTRICT | COUNTY | ROUTE | SECTION | SHEET |
|---|---|---|---|---|
| 5-0 | NORTHAMPTON | S.R. 2012 | | 2 OF 3 |
| | PALMER TOWNSHIP & WILSON BOROUGH | | | |
| PERMIT NO. 48-212-012 | | SHEET 2 OF 3 | | |
| DATE ISSUED 8-23-72 | | DATE REVISED 7-1-21 | | |

| SIGN TABULATION | | | | |
|---|---|---|---|---|
| PLAN SYMBOL | SERIES NUMBER | SIZE | QTY. | MESSAGE |
| A | OM1-3 | 18"x18" | 2 | OBJECT MARKER |
| B | R1-2 | 36"x36" | 4 | YIELD |
| C | R3-5S | 30"x36" | 2 | STRAIGHT THROUGH |
| H | R3-5L | 30"x36" | 2 | LEFT TURN |
| I | R3-5R | 30"x36" | 2 | RIGHT TURN |
| L | R3-7L | 30"x30" | 2 | LEFT LANE MUST TURN LEFT |
| M | R3-7R | 30"x30" | 1 | RIGHT LANE MUST TURN RIGHT |
| O | R5-1 | 30"x30" | 5 | DO NOT ENTER |
| R | R10-3 | 9"x12" | 2 | PUSH BUTTON FOR GREEN LIGHT — |
| S | R10-3 | 9"x12" | 2 | PUSH BUTTON FOR GREEN LIGHT — |
| T | R4-7 | 24"x30" | 2 | KEEP RIGHT |
| U | R10-10L | 30"x36" | 2 | LEFT TURN SIGNAL |

* Overhead street name signs to be structure mounted flat sheet aluminum with stiffeners. Overhead street name signs to consist of white legend and border on green background.
** All signs to utilize retroreflectorized Type III, IV, VI, VII, VIII, IX, or X sheeting for legend, border, and background.




## PROGRAM CHART

| EVENT NO. | DAY OF WEEK | | | | | | | TIME | | | CYCLE | OFFSET (SEC.)* | REMARKS | PROGRAM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | T | W | T | F | S | S | HOUR | MIN. | SEC. | | | | |
| 1 | X | X | X | X | X | | | 07 | 30 | 00 | 100 | 88 | AM PEAK | 1 |
| 2 | X | X | X | X | X | | | 09 | 00 | 00 | | ---- | MAX 1 | FREE |
| 3 | X | X | X | X | X | | | 14 | 30 | 00 | 100 | 95 | PM PEAK | 2 |
| 4 | X | X | X | X | X | X | X | 19 | 00 | 00 | | ---- | MAX 1 | FREE |
| 5 | | | | | | X | X | 10 | 00 | 00 | 80 | 15 | SATURDAY PEAK | 3 |

* OFFSET REFERENCED TO START OF GREEN INTERVAL 10 PHASE 2+6 MASTER CONTROLLER IS LOCATED AT BUTLER STREET/WILLIAM PENN HIGHWAY AND 25TH STREET.

## GENERAL NOTES

Installation, operation and maintenance of this traffic signal to be in accordance with Pennsylvania Department of Transportation Regulations on Official Traffic Control Devices.

No modifications of this installation are permitted unless prior approval is granted, in writing, by the department.

All maintenance necessary for proper visibility of the signals, including trimming trees, is the responsibility of the Permittee.

All signs and pavement markings indicated on this drawing are considered part of the permit and are to be installed and maintained by the Permittee, unless otherwise indicated, except the longitudinal pavement markings on State highways which will be maintained by the department.

Install Traffic Signal Supports in Accordance with Publication 149, Chapter 5.

The bottom of signal heads and signs erected over the roadway are not to be less than 15 feet nor more than 19 feet above the roadway. The bottom of post mounted signal heads are to be not less than 8 feet nor more than 15 feet above the sidewalk or pavement grade.

The minimum horizontal distance between signal heads measured at right angles to the approach is to be 8 feet.

In addition to this signal permit, the Permittee will obtain a Highway Occupancy Permit prior to any openings being made in or under any portion of a State Highway, if applicable.

This drawing cannot be used as a construction drawing unless the Permittee complies with the provisions of Act 287-1974 as amended, Prevention of Damage to Underground Utilities. Prior to construction consult with utility companies to resolve any problems which may be created due to the location of utilities.

Place pavement markings in accordance with the Department of Transportation Pavement Marking TC-8600 Series Standards.

Maintenance and protection of traffic for the installation and maintenance of this traffic signal to be in accordance with Publication 213, Work Zone Traffic Control.

## LEGEND

- LUMINAIRE AND ARM
- PHASE NUMBER
- MAST ARM
- STRAIN POLE
- PEDESTAL
- VEHICULAR SIGNAL HEAD WITH BACKPLATES AND TUNNEL VISORS
- PEDESTRIAN SIGNAL HEAD
- SIGN
- VEHICLE DETECTOR
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN PUSH BUTTON/SIGN
- C/1" — CONDUIT/SIZE
- 2 — JUNCTION BOX/NUMBER
- CC4 — CONTROLLER ASSEMBLY
- W/4" — SOLID WHITE LINE/WIDTH
- BW/4" — BROKEN WHITE LINE/WIDTH
- Y/4" — SOLID YELLOW LINE/WIDTH
- BY/4" — BROKEN YELLOW LINE/WIDTH
- DY/4" — DOUBLE SOLID YELLOW LINE/WIDTH
- DW/4" — DASHED WHITE LINE/WIDTH
- DDY/4" — DASHED DOUBLE YELLOW LINE/WIDTH
- EMERGENCY PREEMPTION DETECTOR

**SYSTEM NOTES:**
TRAFFIC RESPONSIVE OPERATIONS

1. PROGRAM TO BE SELECTED BY CLOSED LOOP SYSTEM MASTER OR TIME BASED COORDINATION BACK-UP.
2. OFFSET REFERENCED TO BEGINNING OF GREEN INTERVAL FOR PHASE 2+6.
3. SYSTEM LIMITS: 25TH STREET (SR 2012/SR 0248): FROM SR 2024 TO SR 2018
   FREEMANSBURG AVE (SR 2018): FROM SR 2012 TO 27TH STREET
   NORTHAMPTON STREET (SR 0248): FROM SR 0248 TO WOOD STREET (SR 2024)
4. MASTER CONTROLLER LOCATION: 25TH STREET (SR 2012) & WILLIAM PENN HIGHWAY (SR 2020)/BUTLER (SR 2020).
5. PRIMARY COORDINATION: CLOSED LOOP SYSTEM/SPREAD SPECTRUM RADIO COMMUNICATION.
6. SECONDARY COORDINATION: TIME BASED COORDINATION (DEFAULT TO BACK-UP T.B.C. PROGRAM CHART)

## SIGNAL INDICATIONS




SIGNAL HEADS 1,2,3,5,6,7,9,10,11,12,13 SHALL HAVE RED, YELLOW AND GREEN LED'S AND BACKPLATES

SIGNAL HEADS 4,8,14,15 SHALL HAVE TUNNEL VISORS & LOUVERS

County: NORTHAMPTON
Municipality: PALMER TOWNSHIP & WILSON BOROUGH
Intersection: SR 2012 (25TH STREET) & SR 2024 (WOOD AVENUE) / SR 2040 (ROUTE 22 RAMP A)

Reviewed: _____ 7/1/21
Municipal Official — Date

Reviewed: _____ 6/29/21
District Traffic Signals Div. — Date

Recommended: _____ 6/29/21
District Traffic Engineer — Date

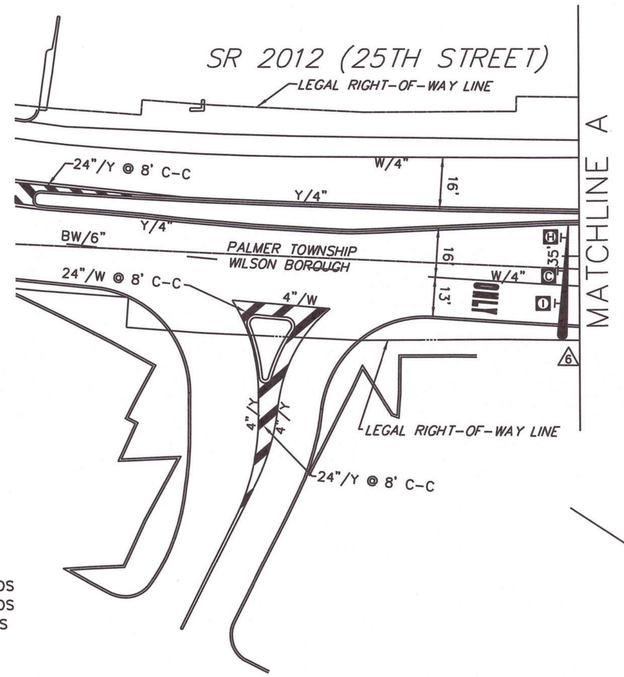
Scale: 25 0 25 50

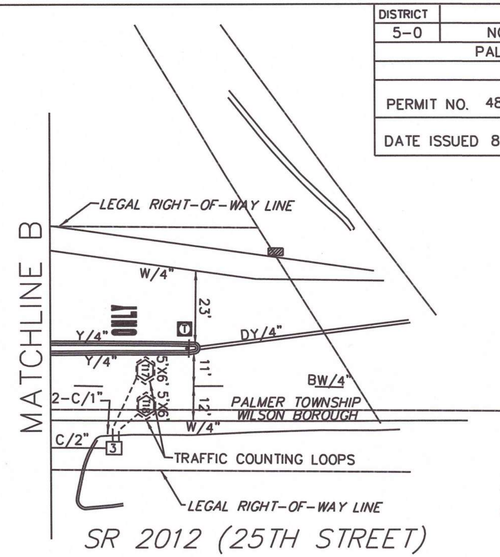
| DISTRICT | COUNTY | ROUTE | SECTION | SHEET |
|---|---|---|---|---|
| 5-0 | NORTHAMPTON | S.R. 2012 | | 3 OF 3 |
| PALMER TOWNSHIP & WILSON BOROUGH | | | | |
| PERMIT NO. 48-212-012 | | SHEET 3 OF 3 | | |
| DATE ISSUED 8-23-72 | | DATE REVISED 7-1-21 | | |

## PHASING, TIMING AND COLOR SEQUENCE CHART

| SIGNALS | PHASE 1+5 INTERVALS 1 | 2 | 3 | PHASE 2+5 INTERVALS 4 | 5 | 6 | PHASE 1+6 INTERVALS 7 | 8 | 9 | PHASE 2+6 INTERVALS 10 | 11 | 12 | PHASE 3+8 INTERVALS 13 | 14 | 15 | PHASE 4+8 INTERVALS 16 | 17 | 18 | EMERGENCY FLASHING OPERATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | R/G ① | Y | R | ~~G~~ | Y | R | R | R | R | R | R | R | R | R | R | R | R | R | OFF |
| 5 | R/G ① | Y | R | R | R | R | ~~G~~ | Y | R | R | R | R | R | R | R | R | R | R | OFF |
| 2,3 | R | R | R | G | Y | R | R | R | R | G | Y | R | R | R | R | R | R | R | Y |
| 6,7 | R | R | R | R | R | R | G | Y | R | G | Y | R | R | R | R | R | R | R | Y |
| 4 | R | R | R | G | Y | R | R | R | R | G | Y | R | R | R | R | R | R | R | OFF |
| 8 | R | R | R | R | R | R | G | Y | R | G | Y | R | R | R | R | R | R | R | OFF |
| 9,10 | R | R | R | R | R | R | R | R | R | R | R | R | G/~~G~~ ② | Y | R | R | R | R | R |
| 11 | R | R | R | R | R | R | R | R | R | R | R | R | G | Y | R | R | R | R | R |
| 12 | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | G/~~G~~ ② | Y | R | R |
| 13 | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | G | Y | R | R |
| 14 | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | G | Y | R | R |
| 15 | R | R | R | R | R | R | R | R | R | R | R | R | G | Y | R | R | R | R | R |
| FIXED | | 4.0 | 2.0 | | 4.0 | 2.0 | | 4.0 | 2.0 | | 4.0 | 2.0 | | 4.0 | 2.0 | | 4.0 | 2.0 | |
| MIN GREEN | 3 | | | 3 | | | 3 | | | | | | 3 | | | 3 | | | |
| PASSAGE | 3 | | | 3 | | | 3 | | | | | | 3 | | | 3 | | | |
| MAXIMUM 1 | 10 | | | 10 | | | 10 | | | 30 | | | 7 | | | 12 | | | |
| MAXIMUM 2 | 12 | | | 12 | | | 12 | | | 30 | | | 7 | | | 11 | | | |
| PEDESTRIAN ④ | | | | | | | | | | 14 | | | 17 | | | 17 | | | |
| MEMORY | LOCKING | | | LOCKING | | | LOCKING | | | MR | | | NON-LOCKING | | | NON-LOCKING | | | |
| PROGRAM 1 | 7 | 4.0 | 2.0 | 7 | 4.0 | 2.0 | 7 | 4.0 | 2.0 | 36 | 4.0 | 2.0 | 18 | 4.0 | 2.0 | 17 | 4.0 | 2.0 | 100 SECONDS |
| PROGRAM 2 | 5 | 4.0 | 2.0 | 5 | 4.0 | 2.0 | 5 | 4.0 | 2.0 | 42 | 4.0 | 2.0 | 10 | 4.0 | 2.0 | 23 | 4.0 | 2.0 | 100 SECONDS |
| PROGRAM 3 | 7 | 4.0 | 2.0 | 7 | 4.0 | 2.0 | 7 | 4.0 | 2.0 | 33 | 4.0 | 2.0 | 23 | 4.0 | 2.0 | 15 | 4.0 | 2.0 | 80 SECONDS |

① R/~~G~~ IF FOLLOWED BY 2+5
② R/~~G~~ IF FOLLOWED BY 1+6
③ G IF FOLLOWED BY 2+6
④ UPON PEDESTRIAN ACTUATION ONLY




## LEGEND

- LUMINAIRE AND ARM
- PHASE NUMBER
- MAST ARM
- STRAIN POLE
- PEDESTAL
- VEHICULAR SIGNAL HEAD WITH BACKPLATES AND TUNNEL VISORS
- PEDESTRIAN SIGNAL HEAD
- SIGN
- VEHICLE DETECTOR
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN PUSH BUTTON/SIGN
- C/1" – CONDUIT/SIZE
- 2 – JUNCTION BOX/NUMBER
- CC4 ⊠ – CONTROLLER ASSEMBLY
- W/4" – SOLID WHITE LINE/WIDTH
- BW/4" – BROKEN WHITE LINE/WIDTH
- Y/4" – SOLID YELLOW LINE/WIDTH
- BY/4" – BROKEN YELLOW LINE/WIDTH
- DY/4" – DOUBLE SOLID YELLOW LINE/WIDTH
- DW/4" – DASHED WHITE LINE/WIDTH
- DDY/4" – DASHED DOUBLE YELLOW LINE/WIDTH
- EMERGENCY PREEMPTION DETECTOR

## EMERGENCY PRE-EMPTION PHASING

| SIGNALS | PHASE 2 INTERVALS 19 | 20 | 21 | PHASE 4 INTERVALS 22 | 23 | 24 | PHASE 6 INTERVALS 25 | 26 | 27 | PHASE 8 INTERVALS 28 | 29 | 29 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ~~G~~ | ~~Y~~ | R | R | R | R | R | R | R | R | R | R |
| 2,3 | G | Y ③ | R ③ | R | R | R | R | R | R | R | R | R |
| 4,8 | R | R | R | R | R | R | R | R | R | R | R | R |
| 5 | R | R | R | R | R | R | ~~G~~ | ~~Y~~ | R | R | R | R |
| 6,7 | R | R | R | R | R | R | G | Y ③ | R ③ | R | R | R |
| 9,10 | R | R | R | R | R | R | R | R | R | G/~~G~~ | Y | R |
| 11 | R | R | R | R | R | R | R | R | R | G | Y | R |
| 12 | R | R | R | G/~~G~~ | Y | R | R | R | R | R | R | R |
| 13 | R | R | R | G | Y | R | R | R | R | R | R | R |
| 14 | R | R | R | R | R | R | R | R | R | R | R | R |
| 15 | R | R | R | R | R | R | R | R | R | R | R | R |
| FIXED TIME | * | 4.0 | 2.0 | * | 4.0 | 2.0 | * | 4.0 | 2.0 | * | 4.0 | 2.0 |

SELECTIVE CLEARANCES

* FOR DURATION OF PRE-EMPTION
③ TO REMAIN G IF FOLLOWED BY NORMAL OPERATION

### EMERGENCY PRE-EMPTION NOTES:

CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE EASTBOUND AND WESTBOUND APPROACHES OF ROUTE 22 RAMP A (S.R. 2040) AND WOOD STREET (S.R. 2024) AND THE NORTHBOUND AND SOUTHBOUND APPROACHES OF 25TH STREET (S.R. 2012) WITH A FLASHING FAIL SAFE DEVICE FOR EACH DIRECTION.

THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TERMINATE ALL GREEN INDICATIONS, EXCEPT THE GREEN INDICATIONS FOR THE PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE PRE-EMPTION OCCURS. THE GREEN INDICATIONS FOR THE PRE-EMPTED PHASE SHALL REMAIN GREEN FOR THE DURATION OF SIGNAL PRE-EMPTION AND RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.

THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE ACTUATION OF THE APPROACHING EMERGENCY VEHICLE.

IF THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, ARE FLASHING ALL SIGNALS SHALL REMAIN FLASHING.

UPON COMPLETION OF PRE-EMPTION PHASE 2 OR 6, IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 10 SHALL FOLLOW.

UPON COMPLETION OF PRE-EMPTION PHASE 4 OR 8, IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 10 SHALL FOLLOW.

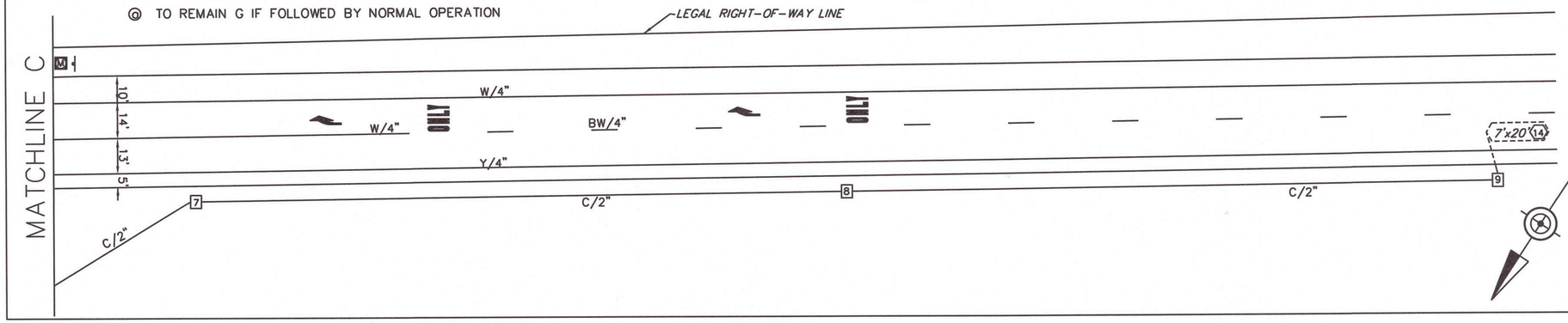
### EMERGENCY PRE-EMPTION NOTES:

IF THE PRE-EMPTION EQUIPMENT HAS ENCODING CAPABILTIES FOR VEHICLE IDENTIFICATION AND THERE IS THE NEED TO ALLOW PRE-EMPTION BY EMERGENCY VEHICLES FROM NEARBY MUNICIPALITIES WITH DIFFERENT EMITTERS, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON TO GIVE UNCODED EMMITTERS THE ABILITY TO ACTIVE THE EMERGENCY PRE-EMPTION.

IF THE SIGNALS HAVE BEEN ACTUATED BY A PEDESTRIAN PUSHBUTTON, AND THE SIGNAL IS SUBSEQUENTLY PRE-EMPTED BY AN APPROACHING EMERGENCY VEHICLE, THE PEDSTRIAN WALK (WALKING PERSON) INTERVAL SHALL TERMINATE IMMEDIATELY, FOLLOWED BY THE PEDESTRIAN CLEARANCE INTERVAL. THIS INTERVAL SHALL TIME OUT, FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE GOING INTO EMERGENCY PRE-EMPTION.

### OFF RAMP PRE-EMPTION NOTES:

1. WHEN PREEMPTION IS ACTIVATED ALL GREEN INDICATIONS EXCEPT SIGNALS 12, 13, AND 14 SHALL BE TERMINATED IMMEDIATELY, FOLLOWED BY SELECTIVE CLEARANCES DEPENDANT UPON THE PHASE IN WHICH THE PREEMPTION OCCURS.
2. WHEN PREEMPTION IS ACTIVATED ALL YELLOW AND RED INDICATIONS SHALL TIME OUT, FOLLOWED BY PREEMPTION PHASE.
3. IF SIGNALS ARE FLASHING WHEN ACTIVATED FOR PREEMPTION, ALL SIGNALS SHALL REMAIN FLASHING.
4. UPON COMPLETION OF THE PREEMPTION, PHASE 2+6 INTERVAL 10 SHALL FOLLOW.
5. A CONSTANT CALL ON THE RAMP PREEMPT DETECTOR NO.14 FOR 20 SECONDS SHALL ACTIVATE THE PREEMPTION.
6. A CONSTANT CALL ON THE RAMP PREEMPT DETECTOR NO.14 FOR 180 SECONDS SHALL INHIBIT THE PREEMPT CALL.




County: NORTHAMPTON
Municipality: PALMER TOWNSHIP & WILSON BOROUGH
Intersection: SR 2012 (25TH STREET) & SR 2024 (WOOD AVENUE) / SR 2040 (ROUTE 22 RAMP A)

Reviewed: _____ Municipal Official — Date 6/29/21

Reviewed: _____ District Traffic Signals Div. — Date 6/29/21

Recommended: _____ District Traffic Engineer — Date 6/29/21

Scale: 25 0 25 50

12

TE-964 (11-14)

pennsylvania
DEPARTMENT OF TRANSPORTATION
www.dot.state.pa.us

# TRAFFIC SIGNAL PERMIT

Permit No. 48-418-009

Sheet 1 of 2

In accordance with the Vehicle Code, the Secretary of Transportation hereby approves the installation and operation of a traffic signal at the intersection of:

SR 248 (Northampton Street)

and SR 2024 (Wood Street)

in the Borough of Wilson, County of Northampton

This permit is issued to, and accepted by the Borough of Wilson hereinafter known as the Permittee, as follows:

This installation shall be in accordance with the Vehicle Code and the Regulations for traffic signs, signals and markings of the Department of Transportation, and shall conform to the following requirements and those contained on the attached sheets.

Type of Controller Semi-Actuated

Type of Signal Mounting Post Mounted and Overhead

Hours of Operation as "Stop" and "Go" As indicated on the attached diagram.

Hours of Operation as "Flashing" As indicated on the attached diagram.

Controller Operation Controller to provide the phasing, timing and signal display as indicated on the attached diagram.

Controller to be interconnected with adjacent signal controllers along 25th Street to provide a progressive movement of traffic. Master controller located at 25th St & William Penn Highway/Butler Street.

All work performed by the Permittee in the erection of the traffic signal shall be under and subject to the direction of the Secretary of Transportation or her authorized representatives. The said Permittee shall use due diligence in the execution of the work authorized under this permit and shall not obstruct or endanger travel along the said road. All operations must be conducted so as to permit safe and reasonable free travel at all times over the road within the limits of the work herein permitted.

The Permittee covenants and agrees to fully indemnify and save harmless the Department of Transportation and assume all liability for damages or injury, occurring to any person, persons or property through or in consequence of any act or omission of anyone working on the construction, or from faulty maintenance or operation of such traffic signal.

The Secretary of Transportation, by law, reserves the right to revoke and annul this permit if the Permittee shall at any time willfully or negligently fail to comply with the conditions contained in this permit, or, upon changes in the traffic conditions, fail to make any changes in the construction or operation of this signal, or to remove it, when so ordered by the Secretary of Transportation; or if this installation is not in operation within twenty-four (24) months of the receipt of this permit. The Permittee shall maintain the signal in a safe condition at all times. The Permittee shall not make any change in the construction or operation of this traffic signal without prior written approval of the Secretary of Transportation.

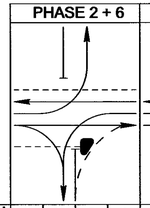
This permit cancels and supersedes all previous permits issued for this location upon completion of the installation specified herein.

INITIAL DATE: August 23, 1972
REVISION DATE: August 6, 1990
September 9, 2016
June 6, 2017
June 6, 2019

APPROVED Leslie S. Richards
Secretary of Transportation

BY _____
District Executive

## PHASING, TIMING AND COLOR SEQUENCE CHART



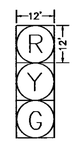

| SIGNAL \ INTERVAL | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | EMERGENCY FLASHING OPERATION |
|---|---|---|---|---|---|---|---|---|---|
| 1, 2, 3, 4 | G | G | Y | R | R | R | R | R | Y |
| 5, 6, 7, 8 | R | R | R | R | G | G | Y | R | R |
| 9, 10 | H | H | H | H | M | FH | H | H | OFF |
| 11, 12, 13, 14 | M | FH | H | H | H | H | H | H | OFF |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FIXED | | | 4.0 | 2.0 | | | 4.0 | 2.0 |
| MINIMUM | | | | | 3 | | | |
| PASSAGE | | | | | 3 | | | |
| MAXIMUM 1 | 52 | | | | 36 | | | |
| MAXIMUM 2 | 50 | | | | 38 | | | |
| MAXIMUM 3 | 36 | | | | 32 | | | |
| MEMORY | MR | | | | NON-LOCKING | | | |
| PEDESTRIAN ① | 12 | 20 | | | 7 | 17 | | |

### OPERATIONAL NOTES

① UPON ACTUATION ONLY, OTHERWISE H AT ALL TIMES

### SIGNAL INDICATIONS




1, 2, 3, 4
5, 6, 7, 8

ONE PIECE HOUSING WITH 11" SYMBOLS

9, 10, 11, 12, 13, 14

ALL PEDESTRIAN SIGNALS TO BE WHITE AND ORANGE LED.

## PROGRAM CHART

| EVENT NO. | DAY OF WEEK | | | | | | | TIME | | | PROGRAM | CYCLE | OFFSET (SEC.) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | T | W | T | F | S | S | HOUR | MIN. | SEC. | | | | |
| 1 | * | * | * | * | * | | | 07 | 30 | 00 | 1 | 100 | 16 | AM PEAK |
| 2 | * | * | * | * | * | | | 09 | 00 | 00 | FREE | — | — | OFF PEAK (MAX 1) |
| 3 | * | * | * | * | * | | | 14 | 30 | 00 | 2 | 100 | 66 | PM PEAK |
| 4 | * | * | * | * | * | * | * | 19 | 00 | 00 | FREE | — | — | OFF PEAK (MAX 1) |
| 5 | | | | | | * | * | 10 | 00 | 00 | 3 | 80 | 77 | SATURDAY PEAK |

OFFSET REFERENCE TO BEGINNING OF GREEN PHASE 2 + 6 INTERVAL 1

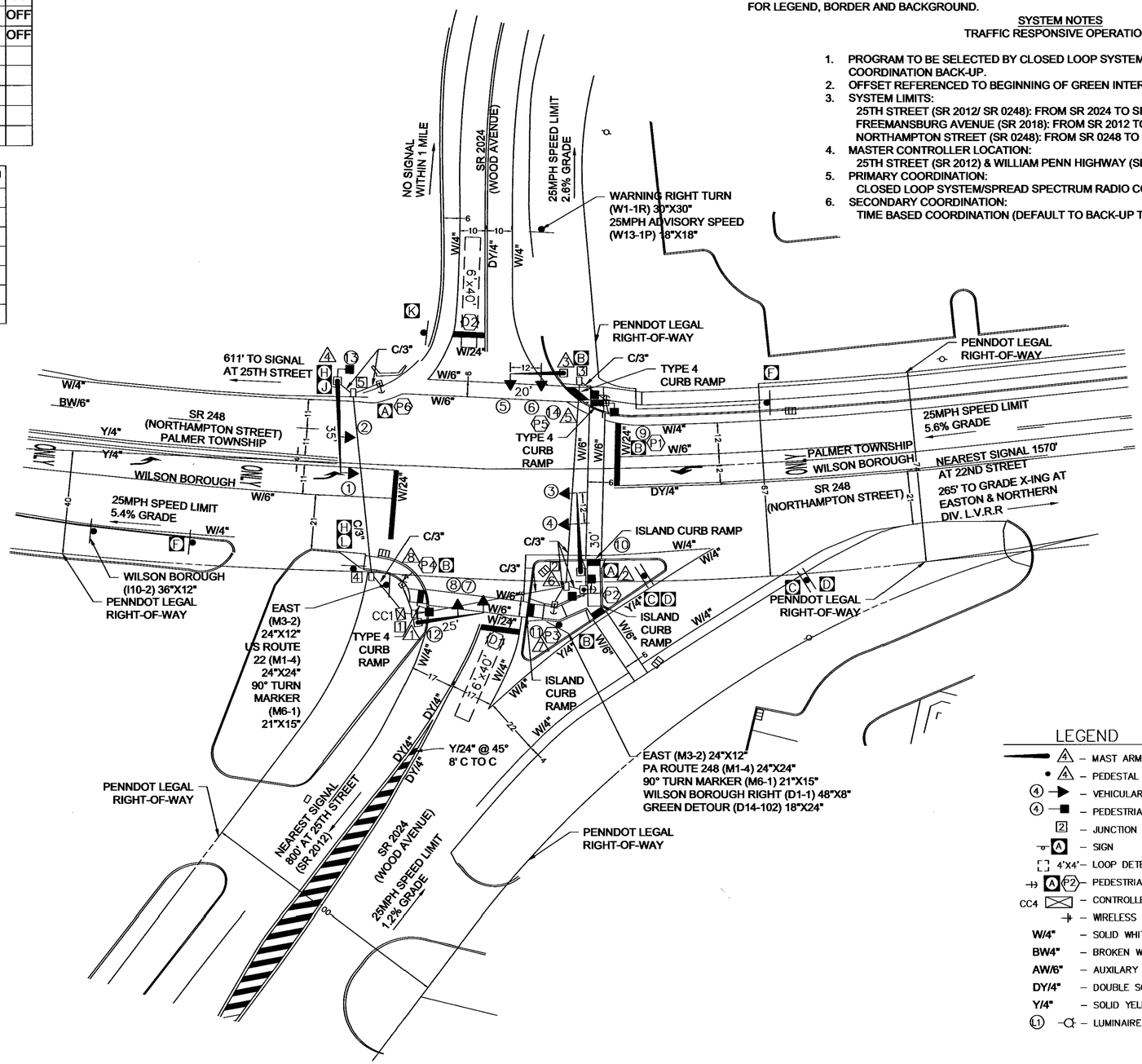
## SIGN TABULATION

| SIGN SYM. | SERIES | SIZE | QTY. | MESSAGE |
|---|---|---|---|---|
| A | R10-3E | 9" x 15" | 2 | EDUCATIONAL PUSHBUTTON FOR WALK SIGNAL WITH COUNTDOWN TIMER → |
| B | R10-3E | 9" x 15" | 4 | EDUCATIONAL PUSHBUTTON FOR WALK SIGNAL WITH COUNTDOWN TIMER ← |
| C | R1-2 | 36" x 36" | 2 | YIELD |
| D | R5-1 | 30" x 30" | 2 | DO NOT ENTER |
| F | R3-7L | 30" x 30" | 2 | LEFT LANE MUST TURN LEFT |
| H | R9-3 | 18" x 18" | 2 | NO PEDESTRIAN CROSSING |
| J | R9-3BPR | 18" x 12" | 1 | USE CROSSWALK RIGHT |
| K | D3-1 | 6" x 30" | 1 | WOOD AVE |
| L | R9-3BPL | 18" x 12" | 1 | USE CROSSWALK LEFT |
| | | | | |
| | | | | |

*ALL SIGNS TO UTILIZE RETROREFLECTORIZED TYPE III, IV, VI,VII,VIII, IX, OR X SHEETING FOR LEGEND, BORDER AND BACKGROUND.

### SYSTEM NOTES
TRAFFIC RESPONSIVE OPERATIONS

1. PROGRAM TO BE SELECTED BY CLOSED LOOP SYSTEM MASTER OR TIME BASED COORDINATION BACK-UP.
2. OFFSET REFERENCED TO BEGINNING OF GREEN INTERVAL FOR PHASE 2+6.
3. SYSTEM LIMITS:
   25TH STREET (SR 2012/ SR 0248): FROM SR 2024 TO SR 2018
   FREEMANSBURG AVENUE (SR 2018): FROM SR 2012 TO 27TH STREET
   NORTHAMPTON STREET (SR 0248): FROM SR 0248 TO WOOD STREET (SR 2024)
4. MASTER CONTROLLER LOCATION:
   25TH STREET (SR 2012) & WILLIAM PENN HIGHWAY (SR 2020)/BUTLER (SR 2020).
5. PRIMARY COORDINATION:
   CLOSED LOOP SYSTEM/SPREAD SPECTRUM RADIO COMMUNICATION
6. SECONDARY COORDINATION:
   TIME BASED COORDINATION (DEFAULT TO BACK-UP T.B.C. PROGRAM CHART)




### LEGEND

- A – MAST ARM
- A – PEDESTAL
- 4 – VEHICULAR SIGNAL HEAD
- 4 – PEDESTRIAN SIGNAL HEAD
- 2 – JUNCTION BOX
- A – SIGN
- 4'X4' – LOOP DETECTOR
- A P2 – PEDESTRIAN PUSH BUTTON/SIGN
- CC4 – CONTROLLER ASSEMBLY
- – WIRELESS ANTENNA
- W/4" – SOLID WHITE LINE/WIDTH
- BW4" – BROKEN WHITE LINE/WIDTH
- AW/6" – AUXILARY WHITE LINE/WIDTH
- DY/4" – DOUBLE SOLID YELLOW LINE/WIDTH
- Y/4" – SOLID YELLOW LINE/WIDTH
- L1 – LUMINAIRE

| DISTRICT | COUNTY | ROUTE | SECTION | SHEET |
|---|---|---|---|---|
| 5-0 | NORTHAMPTON | 0248 | | |
| WILSON BOROUGH AND PALMER TOWNSHIP | | | | |
| PERMIT NO. 48-418-009 | | SHEET 2 OF 2 | | |
| DATE ISSUED: 8-23-72 | | DATE REVISED: 6-6-19 | | |

## GENERAL NOTES

INSTALLATION, OPERATION, AND MAINTENANCE OF THIS TRAFFIC SIGNAL TO BE IN ACCORDANCE WITH THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES.

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY THE DEPARTMENT.

ALL MAINTENANCE NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS, INCLUDING TRIMMING TREES, IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND ARE TO BE INSTALLED AND MAINTAINED BY THE PERMITTEE, UNLESS OTHERWISE INDICATED, EXCEPT THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS WHICH WILL BE MAINTAINED BY THE DEPARTMENT.

INSTALL TRAFFIC SIGNAL SUPPORTS IN ACCORDANCE WITH PUBLICATION 149, CHAPTER 5.

THE BOTTOM OF SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY ARE NOT TO BE LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY. THE BOTTOM OF POST MOUNTED SIGNAL HEADS ARE TO BE NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNAL HEADS MEASURED AT RIGHT ANGLES TO THE APPROACH IS TO BE 8 FEET.

IN ADDITION TO THIS SIGNAL PERMIT, THE PERMITTEE WILL OBTAIN A HIGHWAY OCCUPANCY PERMIT PRIOR TO ANY OPENINGS BEING MADE IN OR UNDER ANY PORTION OF A STATE HIGHWAY IF APPLICABLE.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 287 OF 1974, AS AMENDED, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

PLACE PAVEMENT MARKINGS IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION PAVEMENT MARKING STANDARDS TC-8600 SERIES.

MAINTENANCE AND PROTECTION OF TRAFFIC FOR THE INSTALLATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL TO BE IN ACCORDANCE WITH PUBLICATION 213, TEMPORARY TRAFFIC CONTROL GUIDELINES.

THREADED PLATE MAST ARM CONNECTIONS WILL NOT BE PERMITTED FOR THIS TRAFFIC SIGNAL PERMIT.

| | |
|---|---|
| COUNTY : | NORTHAMPTON |
| MUNICIPALITY : | WILSON BOROUGH & PALMER TOWNSHIP |
| INTERSECTION : | SR 0248 (NORTHAMPTON STREET) SR 2024 (WOOD AVENUE) |

REVIEWED : Luis A. Garcia 5.30.19
MUNICIPAL OFFICIAL — DATE

RECOMMENDED : 6/3/19
DISTRICT TRAFFIC SIGNAL SECTION — DATE

REVIEWED : 6/3/2019
DISTRICT TRAFFIC ENGINEER — DATE

SCALE 25 0 25 50

TE-964 (11-14)

pennsylvania
DEPARTMENT OF TRANSPORTATION
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# TRAFFIC SIGNAL PERMIT

Permit No. 48-212-003

Sheet 1 of 3

In accordance with the Vehicle Code, the Secretary of Transportation hereby approves the installation and operation of a traffic signal at the intersection of:

SR 248/SR 2012 (25th Street)

and SR 248/T-884 (Northampton Street)

in the Township of Palmer, County of Northampton

This permit is issued to, and accepted by the Township of Palmer hereinafter known as the Permittee, as follows:

This installation shall be in accordance with the Vehicle Code and the Regulations for traffic signs, signals and markings of the Department of Transportation, and shall conform to the following requirements and those contained on the attached sheets.

Type of Controller Semi-Actuated

Type of Signal Mounting Post Mounted and Overhead

Hours of Operation as "Stop" and "Go" As indicated on the attached diagram.

Hours of Operation as "Flashing" As indicated on the attached diagram.

Controller Operation Controller to provide the phasing, timing and signal display as indicated on the attached diagram.

Controller to be interconnected with adjacent signal controllers along 25th Street to provide a progressive movement of traffic. Master controller located at 25th St & William Penn Highway/Butler Street.

Preemption for emergency vehicles (fire apparatus) to provide the operation indicated on the attached diagram.

All work performed by the Permittee in the erection of the traffic signal shall be under and subject to the direction of the Secretary of Transportation or her authorized representatives. The said Permittee shall use due diligence in the execution of the work authorized under this permit and shall not obstruct or endanger travel along the said road. All operations must be conducted so as to permit safe and reasonable free travel at all times over the road within the limits of the work herein permitted.

The Permittee covenants and agrees to fully indemnify and save harmless the Department of Transportation and assume all liability for damages or injury, occurring to any person, persons or property through or in consequence of any act or omission of anyone working on the construction, or from faulty maintenance or operation of such traffic signal.

The Secretary of Transportation, by law, reserves the right to revoke and annul this permit if the Permittee shall at any time willfully or negligently fail to comply with the conditions contained in this permit, or, upon changes in the traffic conditions, fail to make any changes in the construction or operation of this signal, or to remove it, when so ordered by the Secretary of Transportation; or if this installation is not in operation within twenty-four (24) months of the receipt of this permit. The Permittee shall maintain the signal in a safe condition at all times. The Permittee shall not make any change in the construction or operation of this traffic signal without prior written approval of the Secretary of Transportation.

This permit cancels and supersedes all previous permits issued for this location upon completion of the installation specified herein.

INITIAL DATE: February 6, 1961
REVISION DATE: July 13, 1962, November 14, 1953, October 25, 1967, May 24, 1979, August 13, 2003, March 5, 2013, January 10, 1963, April 26, 1966, August 7, 1972, September 2, 2004, February 5, 2015, September 9, 2016, August 22, 2022

APPROVED Yassmin Gramian P.E.
Secretary of Transportation

BY Jack W. Hubbard
For District Executive

DocuSign Envelope ID: 6CD9BCDB-F69E-416C-B99F-B0872CFFC567

| SIGN TABULATION | | | | |
|---|---|---|---|---|
| PLAN SYMBOL | SERIES NUMBER | SIZE | QTY. | MESSAGE |
| | R10-3BL | 9"x12" | 4 | EDUCATIONAL PUSH BUTTON FOR WALK ← |
| | R10-3BR | 9"x12" | 2 | EDUCATIONAL PUSH BUTTON FOR WALK → |
| | R3-7R | 30"x30" | 4 | RIGHT LANE MUST TURN RIGHT |
| | R3-6SR | 30"x36" | 2 | OPTIONAL RIGHT TURN SIGN |
| | R3-5S | 30"x36" | 1 | STRAIGHT THROUGH |
| | R3-5L | 30"x36" | 2 | LEFT TURN |
| * | D3-4 | 78"x16" | 2 | 25th St |
| * | D3-4 | 96"x16" | 2 | Northampton St |
| | R1-2 | 36"x36" | 2 | YIELD |
| | R3-2 | 24"x24" | 2 | NO LEFT TURN |
| | R3-2 | 36"x36" | 2 | NO LEFT TURN |
| | OM1-3 | 18"x18" | 5 | OBJECT MARKER |
| | R10-12 | 30"x36" | 2 | LEFT TURN YIELD ON GREEN ∘ |
| | R4-7 | 24"x30" | 3 | KEEP RIGHT |
| | R9-3A | 18"x18" | 2 | NO PEDESTRIAN CROSSING |
| | R10-10R | 30"x36" | 2 | RIGHT TURN SIGNAL |

✳ Overhead street name signs to be structure mounted flat sheet aluminum with stiffeners. Overhead street name signs to consist of white legend and border on green background.

✳✳ All signs to utilize retroreflectorized Type III, IV, VI, VII, VIII, IX, or X sheeting for legend, border, and background.

SYSTEM NOTES:
TRAFFIC RESPONSIVE OPERATIONS

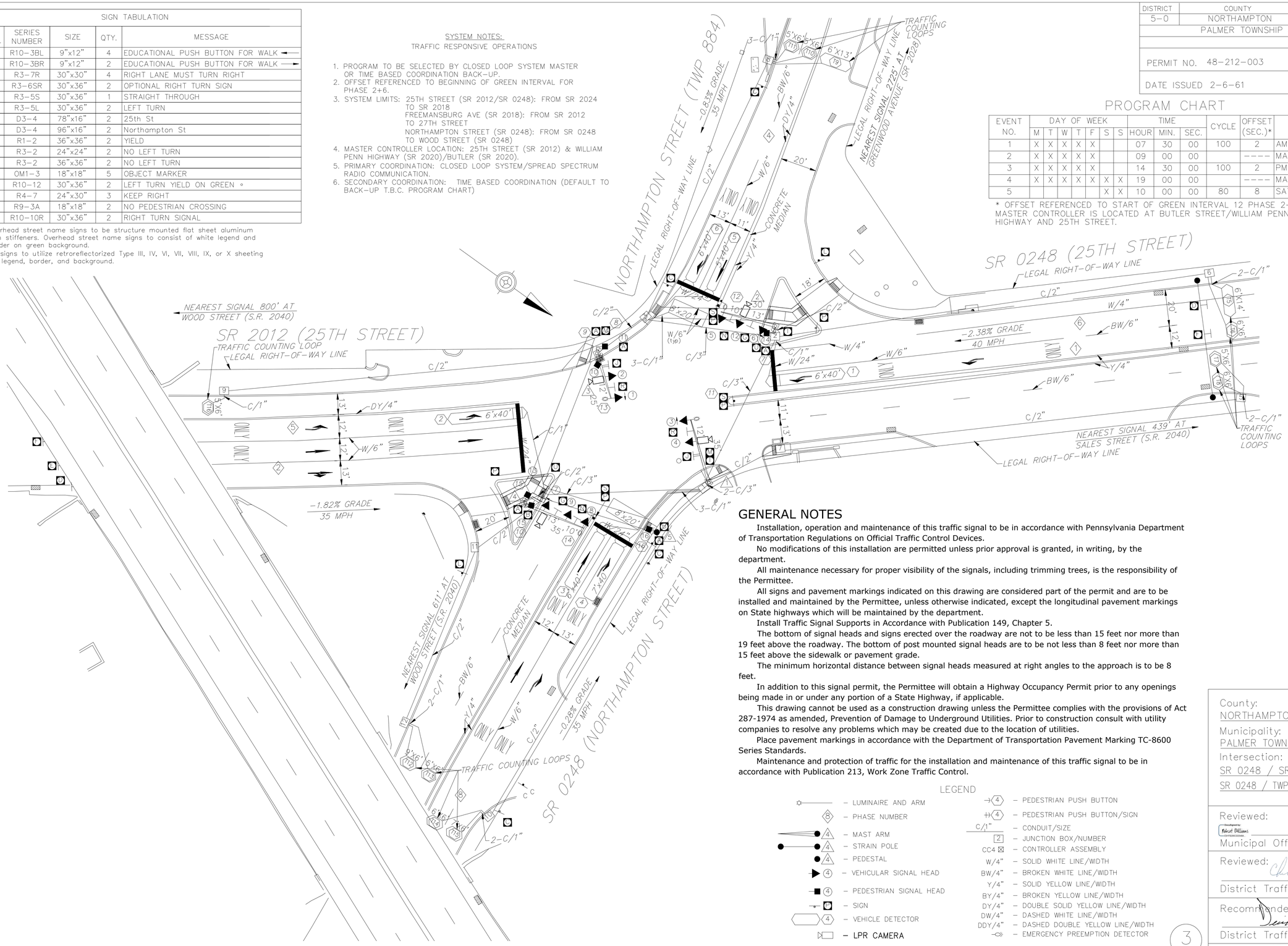
1. PROGRAM TO BE SELECTED BY CLOSED LOOP SYSTEM MASTER OR TIME BASED COORDINATION BACK-UP.
2. OFFSET REFERENCED TO BEGINNING OF GREEN INTERVAL FOR PHASE 2+6.
3. SYSTEM LIMITS: 25TH STREET (SR 2012/SR 0248): FROM SR 2024 TO SR 2018
   FREEMANSBURG AVE (SR 2018): FROM SR 2012 TO 27TH STREET
   NORTHAMPTON STREET (SR 0248): FROM SR 0248 TO WOOD STREET (SR 0248)
4. MASTER CONTROLLER LOCATION: 25TH STREET (SR 2012) & WILLIAM PENN HIGHWAY (SR 2020)/BUTLER (SR 2020).
5. PRIMARY COORDINATION: CLOSED LOOP SYSTEM/SPREAD SPECTRUM RADIO COMMUNICATION.
6. SECONDARY COORDINATION: TIME BASED COORDINATION (DEFAULT TO BACK-UP T.B.C. PROGRAM CHART)

| DISTRICT | COUNTY | ROUTE | SECTION | SHEET |
|---|---|---|---|---|
| 5-0 | NORTHAMPTON | SR 0248 | | 2 OF 3 |
| PALMER TOWNSHIP & WILSON BOROUGH | | | | |
| PERMIT NO. 48-212-003 | | SHEET 2 OF 3 | | |
| DATE ISSUED 2-6-61 | | DATE REVISED 8-22-22 | | |

## PROGRAM CHART

| EVENT NO. | DAY OF WEEK | | | | | | | TIME | | | CYCLE | OFFSET (SEC.)* | REMARKS | PROGRAM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | T | W | T | F | S | S | HOUR | MIN. | SEC. | | | | |
| 1 | X | X | X | X | X | | | 07 | 30 | 00 | 100 | 2 | AM PEAK | 1 |
| 2 | X | X | X | X | X | | | 09 | 00 | 00 | | ---- | MAX 1 | FREE |
| 3 | X | X | X | X | X | | | 14 | 30 | 00 | 100 | 2 | PM PEAK | 2 |
| 4 | X | X | X | X | X | X | X | 19 | 00 | 00 | | ---- | MAX 1 | FREE |
| 5 | | | | | | X | X | 10 | 00 | 00 | 80 | 8 | SATURDAY PEAK | 3 |

* OFFSET REFERENCED TO START OF GREEN INTERVAL 12 PHASE 2+6
MASTER CONTROLLER IS LOCATED AT BUTLER STREET/WILLIAM PENN HIGHWAY AND 25TH STREET.




## GENERAL NOTES

Installation, operation and maintenance of this traffic signal to be in accordance with Pennsylvania Department of Transportation Regulations on Official Traffic Control Devices.

No modifications of this installation are permitted unless prior approval is granted, in writing, by the department.

All maintenance necessary for proper visibility of the signals, including trimming trees, is the responsibility of the Permittee.

All signs and pavement markings indicated on this drawing are considered part of the permit and are to be installed and maintained by the Permittee, unless otherwise indicated, except the longitudinal pavement markings on State highways which will be maintained by the department.

Install Traffic Signal Supports in Accordance with Publication 149, Chapter 5.

The bottom of signal heads and signs erected over the roadway are not to be less than 15 feet nor more than 19 feet above the roadway. The bottom of post mounted signal heads are to be not less than 8 feet nor more than 15 feet above the sidewalk or pavement grade.

The minimum horizontal distance between signal heads measured at right angles to the approach is to be 8 feet.

In addition to this signal permit, the Permittee will obtain a Highway Occupancy Permit prior to any openings being made in or under any portion of a State Highway, if applicable.

This drawing cannot be used as a construction drawing unless the Permittee complies with the provisions of Act 287-1974 as amended, Prevention of Damage to Underground Utilities. Prior to construction consult with utility companies to resolve any problems which may be created due to the location of utilities.

Place pavement markings in accordance with the Department of Transportation Pavement Marking TC-8600 Series Standards.

Maintenance and protection of traffic for the installation and maintenance of this traffic signal to be in accordance with Publication 213, Work Zone Traffic Control.

LEGEND

- LUMINAIRE AND ARM
- PHASE NUMBER
- MAST ARM
- STRAIN POLE
- PEDESTAL
- VEHICULAR SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD
- SIGN
- VEHICLE DETECTOR
- LPR CAMERA
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN PUSH BUTTON/SIGN
- C/1" – CONDUIT/SIZE
- 2 – JUNCTION BOX/NUMBER
- CC4 ☒ – CONTROLLER ASSEMBLY
- W/4" – SOLID WHITE LINE/WIDTH
- BW/4" – BROKEN WHITE LINE/WIDTH
- Y/4" – SOLID YELLOW LINE/WIDTH
- BY/4" – BROKEN YELLOW LINE/WIDTH
- DY/4" – DOUBLE SOLID YELLOW LINE/WIDTH
- DW/4" – DASHED WHITE LINE/WIDTH
- DDY/4" – DASHED DOUBLE YELLOW LINE/WIDTH
- EMERGENCY PREEMPTION DETECTOR

County:
NORTHAMPTON

Municipality:
PALMER TOWNSHIP & WILSON BOROUGH

Intersection:
SR 0248 / SR 2012 (25TH STREET) &
SR 0248 / TWP 884 (NORTHAMPTON STREET)

Reviewed: Robert Williams — 11/29/2021
Municipal Official — Date

Reviewed: 8/18/22
District Traffic Signals Div. — Date

Recommended: 8/18/22
District Traffic Engineer — Date

Scale: 25 0 25 50

DocuSign Envelope ID: 6CD9BCDB-F69E-416C-B99F-B0872CFFC567

| DISTRICT | COUNTY | ROUTE | SECTION | SHEET |
|---|---|---|---|---|
| 5-0 | NORTHAMPTON | S.R. 0248 | | 3 OF 3 |
| PALMER TOWNSHIP & WILSON BOROUGH | | | | |
| PERMIT NO. 48-212-003 | | SHEET 3 OF 3 | | |
| DATE ISSUED 2-6-61 | | DATE REVISED 8-22-22 | | |

# EMERGENCY PRE-EMPTION PHASING

| | PHASE 2 | | | PHASE 4 | | | PHASE 6 | | | PHASE 8 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | INTERVALS | | | INTERVALS | | | INTERVALS | | | INTERVALS | | |
| SIGNALS | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
| 1 | R | R | R | R | R | R | G/<-Y | Y ⓐ | R ⓑ | R | R | R |
| 2 | R | R | R | R | R | R | G | Y ⓐ | R ⓑ | R | R | R |
| 3 | G/<-Y | Y ⓐ | R ⓑ | R | R | R | R | R | R | R | R | R |
| 4 | G | Y ⓐ | R ⓑ | R | R | R | R | R | R | R | R | R |
| 5,12 | R | R | R | R | R | R | R | R | R | G | Y | R |
| 6 | R | R | R | R | R | R | R | R | R | G | Y | R |
| 7 | R | R | R | G | Y | R | R | R | R | R | R | R |
| 8,9 | R | R | R | G | Y | R | R | R | R | R | R | R |
| 10,13 | H | H | H | H | H | H | H | H | H | H | H | H |
| 11,14,15,16 | H | H | H | H | H | H | H | H | H | H | H | H |
| FIXED TIME | * | 4 | 2 | * | 4 | 2 | * | 4 | 2 | * | 4 | 2 |

SELECTIVE CLEARANCES

* FOR DURATION OF PRE-EMPTION

ⓐ TO BE G/<-Y- IF FOLLOWED BY NORMAL OPERATION
ⓑ TO REMAIN G IF FOLLOWED BY NORMAL OPERATION

## EMERGENCY PRE-EMPTION NOTES:

CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE EASTBOUND AND WESTBOUND APPROACHES OF NORTHAMPTON STREET (S.R. 0248) AND THE NORTHBOUND AND SOUTHBOUND APPROACHES OF 25TH STREET (S.R. 0248/S.R. 2012) WITH A FLASHING FAIL SAFE DEVICE FOR EACH DIRECTION.

THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TERMINATE ALL GREEN INDICATIONS, EXCEPT THE GREEN INDICATIONS FOR THE PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE PRE-EMPTION OCCURS. THE GREEN INDICATIONS FOR THE PRE-EMPTED PHASE SHALL REMAIN GREEN FOR THE DURATION OF SIGNAL PRE-EMPTION AND RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.

THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE ACTUATION OF THE APPROACHING EMERGENCY VEHICLE.

IF THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, ARE FLASHING ALL SIGNALS SHALL REMAIN FLASHING.

UPON COMPLETION OF PRE-EMPTION PHASE 2 OR 6, IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 11 SHALL FOLLOW.

UPON COMPLETION OF PRE-EMPTION PHASE 4 OR 8, IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 11 SHALL FOLLOW.

IF THE PRE-EMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR VEHICLE IDENTIFICATION AND THERE IS THE NEED TO ALLOW PRE-EMPTION BY EMERGENCY VEHICLES FROM NEARBY MUNICIPALITIES WITH DIFFERENT EMITTERS, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON TO GIVE UNCODED EMMITTERS THE ABILITY TO ACTIVE THE EMERGENCY PRE-EMPTION.

IF THE SIGNALS HAVE BEEN ACTUATED BY A PEDESTRIAN PUSHBUTTON, AND THE SIGNAL IS SUBSEQUENTLY PRE-EMPTED BY AN APPROACHING EMERGENCY VEHICLE, THE PEDSTRIAN WALK (WALKING PERSON) INTERVAL SHALL TERMINATE IMMEDIATELY, FOLLOWED BY THE PEDESTRIAN CLEARANCE INTERVAL. THIS INTERVAL SHALL TIME OUT, FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE GOING INTO EMERGENCY PRE-EMPTION.

PHASING, TIMING AND COLOR SEQUENCE CHART

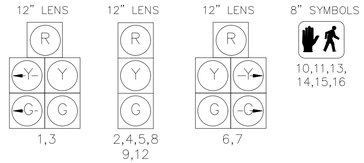
| | PHASE 1+5 | | | PHASE 2+5 | | | | PHASE 1+6 | | | | PHASE 2+6 | | | | PHASE 4+8 | | | | EMERGENCY FLASHING OPERATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | INTERVALS | | | INTERVALS | | | | INTERVALS | | | | INTERVALS | | | | INTERVALS | | | | |
| SIGNALS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | |
| 1 | R/<-G | R/<-Y | R ① | R | R | R | R | G/<-G | G/<-G | Y ⑥ | R ⑤ | G | G | Y | R | R | R | R | Y | |
| 2 | R | R | R | R | R | R | R | G | G | Y ⑤ | R ⑤ | G | G | Y | R | R | R | R | Y | |
| 3 | R/<-G | R/<-Y | R ① | G/<-G | G/<-G | Y ⑥ | R ⑥ | R | R | R | R | G | G | Y | R | R | R | R | Y | |
| 4 | R | R | R | G | G | Y ⑥ | R ⑥ | R | R | R | R | G | G | Y | R | R | R | R | Y | |
| 5,12 | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | G | G | Y | R | R |
| 6 | R/<-G | R/<-Y | R ② | R | R | R | R | R/<-G | R/<-G | R/<-Y | R ④ | R | R | R | R | G | G | Y | R | R |
| 7 | R/<-G | R/<-Y | R ③ | R/<-G | R/<-G | R/<-Y | R | R | R | R | R | R | R | R | R | G | G | Y | R | R |
| 8,9 | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | G | G | Y | R | R |
| 10,13 | R | R | R | H | H | H | H | H | H | H | H | H | H | H | H | M* | FH* | H | H | OFF |
| 11,14 | H | H | H | H | H | H | H | M* | FH* ⑧ | H ⑧ | H ⑧ | M* | FH* | H | H | H | H | H | H | OFF |
| 15,16 | H | H | H | M* | FH* ⑧ | H ⑧ | H ⑧ | H | H | H | H | M* | FH* | H | H | H | H | H | H | OFF |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FIXED | | 4.0 | 2.0 | | | 4.0 | 2.0 | | | 4.0 | 2.0 | | | 4.0 | 2.0 | | | 4.0 | 2.0 | |
| MIN. GREEN | 3 | | | | 3 | | | | 3 | | | | | | | | 7 | | | |
| PASSAGE | 3 | | | | 3 | | | | 3 | | | | | | | | 3 | | | |
| MAXIMUM 1 | 10 | | | | 10 | | | | 10 | | | | 40 | | | | 26 | | | |
| MAXIMUM 2 | | | | | | | | | | | | | | | | | | | | |
| PEDESTRIAN* | | | | | ⑦ | | | | ⑦ | | | | 14 | 17 | | | 15 | 20 | | |
| MEMORY | NON-LOCKING | | | | NON-LOCKING | | | | NON-LOCKING | | | | MAX RECALL | | | | NON-LOCKING | | | |
| PROGRAM 1 | 13 | 4.0 | 2.0 | | 13 | 4.0 | 2.0 | | 13 | 4.0 | 2.0 | | 45 | 4.0 | 2.0 | | 24 | 4.0 | 2.0 | 100 SECONDS |
| PROGRAM 2 | 16 | 4.0 | 2.0 | | 16 | 4.0 | 2.0 | | 16 | 4.0 | 2.0 | | 31 | 4.0 | 2.0 | | 35 | 4.0 | 2.0 | 100 SECONDS |
| PROGRAM 3 | 12 | 4.0 | 2.0 | | 12 | 4.0 | 2.0 | | 12 | 4.0 | 2.0 | | 31 | 4.0 | 2.0 | | 19 | 4.0 | 2.0 | 80 SECONDS |

* UPON PEDESTRIAN ACTUATION ONLY, OTHERWISE H

① R/<-G IF FOLLOWED BY 2+5
② R/<-G IF FOLLOWED BY 1+6
③ R/<-G IF FOLLOWED BY 2+5
④ R/<-G IF FOLLOWED BY 1+6
⑤ G IF FOLLOWED BY 2+6
⑥ G/<-Y IF FOLLOWED BY 2+6
⑦ TIMING WILL BE AS SHOWN IN PHASE 2+6. INTERVALS MAY TIME OUT IN THIS PHASE OR MAY BE COMPLETED IN PHASE 2+6.
⑧ M IF FOLLOWED BY PHASE 2+6

## SIGNAL INDICATIONS




SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS AND BACKPLATES 1,2,3,4,5,6,7,8,9,12

ALL VEHICULAR SIGNAL HEADS SHALL HAVE RED, YELLOW AND GREEN LED'S

ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE LUNAR WHITE AND PORTLAND ORANGE LED'S

County:
NORTHAMPTON
Municipality:
PALMER TOWNSHIP & WILSON BOROUGH
Intersection:
SR 0248 / SR 2012 (25TH STREET) &
SR 0248 / TWP 884 (NORTHAMPTON STREET)

Reviewed: _____ 11/29/2021
Municipal Official — Date

Reviewed: _____ 8/18/22
District Traffic Signals Div. — Date

Recommended: _____ 8/18/22
District Traffic Engineer — Date

Scale: 25 0 25 50

TE-964 (11-14)

pennsylvania
DEPARTMENT OF TRANSPORTATION
www.dot.state.pa.us

# TRAFFIC SIGNAL PERMIT

Permit No. 48-212-004

Sheet 1 of 2

In accordance with the Vehicle Code, the Secretary of Transportation hereby approves the installation and operation of a traffic signal at the intersection of:

SR 248 (25th Street)

and Sales Street/SR 2040 (SR 22 Ramp)

in the Township of Palmer, County of Northampton

This permit is issued to, and accepted by the Township of Palmer hereinafter known as the Permittee, as follows:

This installation shall be in accordance with the Vehicle Code and the Regulations for traffic signs, signals and markings of the Department of Transportation, and shall conform to the following requirements and those contained on the attached sheets.

Type of Controller Semi-Actuated

Type of Signal Mounting Overhead

Hours of Operation as "Stop" and "Go" As indicated on the attached diagram.

Hours of Operation as "Flashing" As indicated on the attached diagram.

Controller Operation Controller to provide the phasing, timing and signal display as indicated on the attached diagram.

Controller to be interconnected with adjacent signal controllers along 25th Street to provide a progressive movement of traffic. Master controller located at 25th St & William Penn Highway/Butler Street.

Preemption for emergency vehicles (fire apparatus) to provide the operation indicated on the attached diagram.

All work performed by the Permittee in the erection of the traffic signal shall be under and subject to the direction of the Secretary of Transportation or her authorized representatives. The said Permittee shall use due diligence in the execution of the work authorized under this permit and shall not obstruct or endanger travel along the said road. All operations must be conducted so as to permit safe and reasonable free travel at all times over the road within the limits of the work herein permitted.

The Permittee covenants and agrees to fully indemnify and save harmless the Department of Transportation and assume all liability for damages or injury, occurring to any person, persons or property through or in consequence of any act or omission of anyone working on the construction, or from faulty maintenance or operation of such traffic signal.

The Secretary of Transportation, by law, reserves the right to revoke and annul this permit if the Permittee shall at any time willfully or negligently fail to comply with the conditions contained in this permit, or, upon changes in the traffic conditions, fail to make any changes in the construction or operation of this signal, or to remove it, when so ordered by the Secretary of Transportation; or if this installation is not in operation within twenty-four (24) months of the receipt of this permit. The Permittee shall maintain the signal in a safe condition at all times. The Permittee shall not make any change in the construction or operation of this traffic signal without prior written approval of the Secretary of Transportation.

This permit cancels and supersedes all previous permits issued for this location upon completion of the installation specified herein.

INITIAL DATE: July 13, 1962
REVISION DATE: January 10, 1963
August 22, 1974
August 6, 1990
August 13, 2003
September 2, 2004
March 5, 2013
September 9, 2016

APPROVED Leslie S. Richards
Secretary of Transportation

BY Jill Krouse for
District Executive

| DISTRICT | COUNTY | ROUTE | SECTION | SHEET |
|---|---|---|---|---|
| 5-0 | NORTHAMPTON | S.R. 0248 | | 2 OF 2 |
| | PALMER TOWNSHIP & WILSON BOROUGH | | | |
| PERMIT NO. 48-212-004 | | SHEET 2 OF 2 | | |
| DATE ISSUED 7-13-62 | | DATE REVISED 9-9-16 | | |

PHASING, TIMING AND COLOR SEQUENCE CHART

| | PHASE 1+6 | | | | PHASE 2+6 | | | | PHASE 4+8 | | | | EMERGENCY FLASHING OPERATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | INTERVALS | | | | INTERVALS | | | | INTERVALS | | | | |
| | 1 | 2 | 3 | 4 | 4 | 5 | 6 | | 7 | 8 | 9 | | |
| 1,2 | R | R | R | | G | Y | R | | R | R | R | | Y |
| 3 | ~~G~~ | Y① | R② | | G | Y | R | | R | R | R | | Y |
| 4 | G | Y② | R② | | G | Y | R | | R | R | R | | Y |
| 5,6 | R | R | R | | R | R | R | | G | Y | R | | R |
| 7,8 | R | R | R | | R | R | R | | G | Y | R | | R |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FIXED | 7.0 | 4.0 | 2.0 | | | 4.0 | 2.0 | | 1 | 4.0 | 2.0 | | |
| MIN. GREEN | | | | | | | | | 7 | | | | |
| PASSAGE | | | | | | | | | 3 | | | | |
| MAXIMUM 1 | 7 | | | | 36 | | | | 34 | | | | |
| | | | | | | | | | | | | | |
| PEDESTRIAN* | | | | | | | | | 15 | | | | |
| MEMORY | MAX RECALL | | | | MAX RECALL | | | | NON-LOCKING | | | | |
| NOTES | | | | | | | | | | | | | |
| PROGRAM 1 | 7 | 4.0 | 2.0 | | 40 | 4.0 | 2.0 | | 35 | 4.0 | 2.0 | | 100 SECONDS |
| PROGRAM 2 | 9 | 4.0 | 2.0 | | 39 | 4.0 | 2.0 | | 36 | 4.0 | 2.0 | | 100 SECONDS |
| PROGRAM 3 | 11 | 4.0 | 2.0 | | 25 | 4.0 | 2.0 | | 26 | 4.0 | 2.0 | | 80 SECONDS |

* UPON PEDESTRIAN ACTUATION ONLY

① ~~G~~ IF FOLLOWED BY PHASE 2+6.

② G IF FOLLOWED BY PHASE 2+6.

EMERGENCY PRE-EMPTION PHASING

| | PHASE 2 | PHASE 4 | PHASE 6 | PHASE 8 |
|---|---|---|---|---|
| | INTERVALS | INTERVALS | INTERVALS | INTERVALS |

| SIGNALS | SELECTIVE CLEARANCES | 10 | 11 | 12 | SELECTIVE CLEARANCES | 13 | 14 | 15 | SELECTIVE CLEARANCES | 16 | 17 | 18 | SELECTIVE CLEARANCES | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2 | | G | Y⓪ | R⓪ | | R | R | R | | R | R | R | | R | R | R |
| 3 | | R | R | R | | R | R | R | | G ~~G~~ | Y⓪ | R⓪ | | R | R | R |
| 4 | | R | R | R | | R | R | R | | G | Y⓪ | R⓪ | | R | R | R |
| 5,6 | | R | R | R | | R | R | R | | R | R | R | | G | Y | R |
| 7,8 | | R | R | R | | G | Y | R | | R | R | R | | R | R | R |
| FIXED TIME | | * | 4 | 2 | | * | 4 | 2 | | * | 4 | 2 | | * | 4 | 2 |

* FOR DURATION OF PRE-EMPTION

ⓐ TO BE G/<-Y- IF FOLLOWED BY NORMAL OPERATION

ⓑ TO REMAIN G IF FOLLOWED BY NORMAL OPERATION

EMERGENCY PRE-EMPTION NOTES:

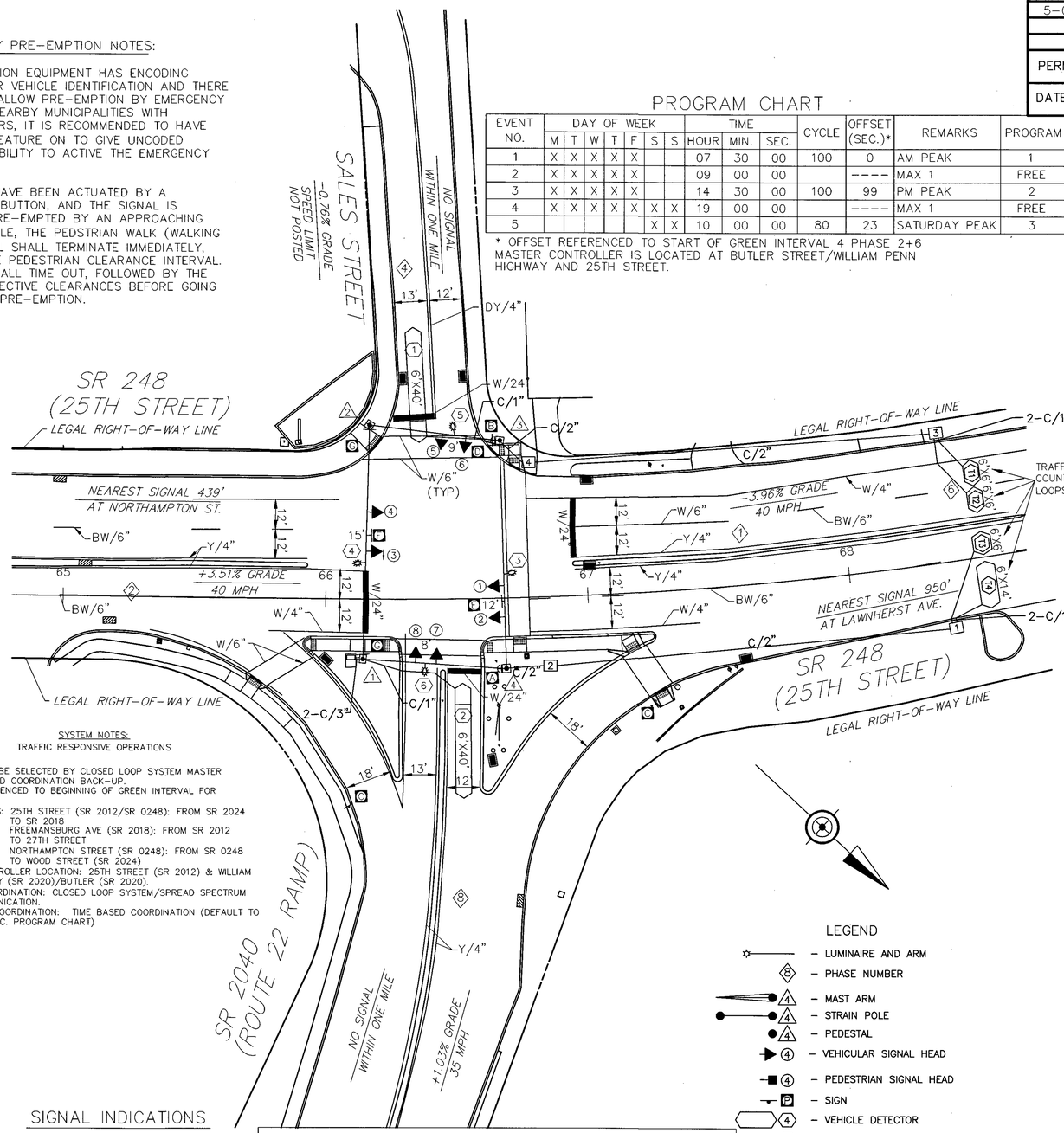
IF THE PRE-EMPTION EQUIPMENT HAS ENCODING CAPABILTIES FOR VEHICLE IDENTIFICATION AND THERE IS THE NEED TO ALLOW PRE-EMPTION BY EMERGENCY VEHICLES FROM NEARBY MUNICIPALITIES WITH DIFFERENT EMITTERS, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON TO GIVE UNCODED EMMITTERS THE ABILITY TO ACTIVE THE EMERGENCY PRE-EMPTION.

IF THE SIGNALS HAVE BEEN ACTUATED BY A PEDESTRIAN PUSHBUTTON, AND THE SIGNAL IS SUBSEQUENTLY PRE-EMPTED BY AN APPROACHING EMERGENCY VEHICLE, THE PEDSTRIAN WALK (WALKING PERSON) INTERVAL SHALL TERMINATE IMMEDIATELY, FOLLOWED BY THE PEDESTRIAN CLEARANCE INTERVAL. THIS INTERVAL SHALL TIME OUT, FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE GOING INTO EMERGENCY PRE-EMPTION.

PROGRAM CHART

| EVENT NO. | DAY OF WEEK | | | | | | | TIME | | | CYCLE | OFFSET (SEC.)* | REMARKS | PROGRAM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | T | W | T | F | S | S | HOUR | MIN. | SEC. | | | | |
| 1 | X | X | X | X | X | | | 07 | 30 | 00 | 100 | 0 | AM PEAK | 1 |
| 2 | X | X | X | X | X | | | 09 | 00 | 00 | | ---- | MAX 1 | FREE |
| 3 | X | X | X | X | X | | | 14 | 30 | 00 | 100 | 99 | PM PEAK | 2 |
| 4 | X | X | X | X | X | X | X | 19 | 00 | 00 | | ---- | MAX 1 | FREE |
| 5 | | | | | | X | X | 10 | 00 | 00 | 80 | 23 | SATURDAY PEAK | 3 |

* OFFSET REFERENCED TO START OF GREEN INTERVAL 4 PHASE 2+6
MASTER CONTROLLER IS LOCATED AT BUTLER STREET/WILLIAM PENN HIGHWAY AND 25TH STREET.




SYSTEM NOTES:
TRAFFIC RESPONSIVE OPERATIONS

1. PROGRAM TO BE SELECTED BY CLOSED LOOP SYSTEM MASTER OR TIME BASED COORDINATION BACK-UP.
2. OFFSET REFERENCED TO BEGINNING OF GREEN INTERVAL FOR PHASE 2+6.
3. SYSTEM LIMITS: 25TH STREET (SR 2012/SR 0248): FROM SR 2024 TO SR 2018
   FREEMANSBURG AVE (SR 2018): FROM SR 2012 TO 27TH STREET
   NORTHAMPTON STREET (SR 0248): FROM SR 0248 TO WOOD STREET (SR 2024)
4. MASTER CONTROLLER LOCATION: 25TH STREET (SR 2012) & WILLIAM PENN HIGHWAY (SR 2020)/BUTLER (SR 2020).
5. PRIMARY COORDINATION: CLOSED LOOP SYSTEM/SPREAD SPECTRUM RADIO COMMUNICATION.
6. SECONDARY COORDINATION: TIME BASED COORDINATION (DEFAULT TO BACK-UP T.B.C. PROGRAM CHART)

EMERGENCY PRE-EMPTION NOTES:

CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE EASTBOUND AND WESTBOUND APPROACHES OF SALES STREET AND ROUTE 22 RAMP (S.R. 2040) AND THE NORTHBOUND AND SOUTHBOUND APPROACHES OF 25th STREET (S.R. 0248) WITH A FLASHING FAIL SAFE DEVICE FOR EACH DIRECTION.

THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TERMINATE ALL GREEN INDICATIONS, EXCEPT THE GREEN INDICATIONS FOR THE PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE PRE-EMPTION OCCURS. THE GREEN INDICATIONS FOR THE PRE-EMPTED PHASE SHALL REMAIN GREEN FOR THE DURATION OF SIGNAL PRE-EMPTION AND RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.

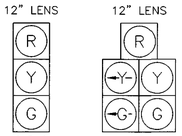
THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE ACTUATION OF THE APPROACHING EMERGENCY VEHICLE.

IF THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, ARE FLASHING ALL SIGNALS SHALL REMAIN FLASHING.

UPON COMPLETION OF PRE-EMPTION PHASE 2 OR 6, IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 4 SHALL FOLLOW.

UPON COMPLETION OF PRE-EMPTION PHASE 4 OR 8, IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 4 SHALL FOLLOW.

SIGNAL INDICATIONS




ALL SIGNAL HEADS SHALL HAVE RED, YELLOW AND GREEN LED'S AND BACK PLATES

SIGN TABULATION

| PLAN SYMBOL | SERIES NUMBER | SIZE | QTY. | MESSAGE |
|---|---|---|---|---|
| A | R10-3L | 9"x12" | 1 | PUSH BUTTON FOR GREEN LIGHT ← |
| B | R10-3R | 9"x12" | 1 | PUSH BUTTON FOR GREEN LIGHT → |
| C | R1-2 | 36"x36" | 1 | YIELD |
| D | R3-2 | 24"x24" | 1 | NO LEFT TURN |
| E | R3-2 | 30"x30" | 1 | NO LEFT TURN |
| F | R10-R | 30"x36" | 1 | LEFT TURN YIELD ON GREEN ◦ |
| G | R9-3 | 18"x18" | 2 | NO PEDESTRIAN CROSSING |

✳ Overhead street name signs to be structure mounted flat sheet aluminum with stiffeners. Overhead street name signs to consist of white legend and border on green background.

✳✳ All signs to utilize retroreflectorized Type III, IV, VI, VII, VIII, IX, or X sheeting for legend, border, and background.

LEGEND

- LUMINAIRE AND ARM
- (8) – PHASE NUMBER
- (4) – MAST ARM
- (4) – STRAIN POLE
- (4) – PEDESTAL
- (4) – VEHICULAR SIGNAL HEAD
- (4) – PEDESTRIAN SIGNAL HEAD
- (P) – SIGN
- (4) – VEHICLE DETECTOR
- (4) – PEDESTRIAN PUSH BUTTON
- (4) – PEDESTRIAN PUSH BUTTON/SIGN
- C/1" – CONDUIT/SIZE
- [2] – JUNCTION BOX/NUMBER
- CC4 ⊠ – CONTROLLER ASSEMBLY
- W/4" – SOLID WHITE LINE/WIDTH
- BW/4" – BROKEN WHITE LINE/WIDTH
- Y/4" – SOLID YELLOW LINE/WIDTH
- BY/4" – BROKEN YELLOW LINE/WIDTH
- DY/4" – DOUBLE SOLID YELLOW LINE/WIDTH
- DW/4" – DASHED WHITE LINE/WIDTH
- DDY/4" – DASHED DOUBLE YELLOW LINE/WIDTH
- – EMERGENCY PREEMPTION DETECTOR

GENERAL NOTES

Installation, operation and maintenance of this traffic signal to be in accordance with Pennsylvania Department of Transportation Regulations on Official Traffic Control Devices.

No modifications of this installation are permitted unless prior approval is granted, in writing, by the department.

All maintenance necessary for proper visibility of the signals, including trimming trees, is the responsibility of the Permittee.

All signs and pavement markings indicated on this drawing are considered part of the permit and are to be installed and maintained by the Permittee, unless otherwise indicated, except the longitudinal pavement markings on State highways which will be maintained by the department.

Install post mounted signals with the signal heads a minimum of 2 feet behind the face of the curb or edge of the shoulder. Support poles for overhead signals will have a minimum horizontal clearance of 2 feet.

The bottom of signal heads and signs erected over the roadway are not to be less than 15 feet nor more than 19 feet above the roadway. The bottom of post mounted signal heads are to be not less than 8 feet nor more than 15 feet above the sidewalk or pavement grade.

The minimum horizontal distance between signal heads measured at right angles to the approach is to be 8 feet.

In addition to this signal permit, the Permittee will obtain a Highway Occupancy Permit prior to any openings being made in or under any portion of a State Highway, if applicable.

This drawing cannot be used as a construction drawing unless the Permittee complies with the provisions of Act 287-1974 amended by Act 121-2008, Prevention of Damage to Underground Utilities. Prior to construction consult with utility companies to resolve any problems which may be created due to the location of utilities.

Place pavement markings in accordance with the Department of Transportation Pavement Marking TC-8600 Series Standards.

Maintenance and protection of traffic for the installation and maintenance of this traffic signal to be in accordance with Publication 213, Work Zone Traffic Control.

County: NORTHAMPTON

Municipality: PALMER TOWNSHIP

Intersection: SR 0248 (25TH STREET) & SR 2040 (ROUTE 22 RAMP) / SALES STREET

Reviewed: _____ Municipal Official — Date 4/20/16

Reviewed: _____ District Traffic Signals Div. — Date 9/6/16

Recommended: _____ District Traffic Engineer — Date 9/6/16

Scale: 25 0 25 50

TE 964 (5-80)

# TRAFFIC SIGNAL PERMIT

Permit No. 48-212-16

Sheet 1 of 2

In accordance with the Vehicle Code, the Secretary of Transportation hereby approves the installation and operation of a traffic signal at the intersection of S.R.2017 (Tatamy Road and Hackett Avenue), Park Avenue and Mall Entrance

in the Township of Palmer, County of Northampton

This permit is issued to, and accepted by the Township of Palmer

hereinafter known as the Permittee, as follows:

This installation shall be in accordance with the Vehicle Code and the Regulations for traffic signs, signals and markings of the Department of Transportation, and shall conform to the following requirements and those contained on the attached sheets.

Type of Controller Volume Density

Type of Signal Mounting Overhead

Hours of Operation as "Stop" and "Go" As indicated on the attached diagram.

Hours of Operation as "Flashing" As indicated on the attached diagram.

Controller Operation Controller to provide the phasing, timing and signal display as indicated on the attached diagram.

Preemption for emergency vehicles to provide the operation as indicated on the attached diagram.

All work performed by the Permittee in the erection of the traffic signal shall be under and subject to the direction of the Secretary of Transportation or his authorized representatives. The said Permittee shall use due diligence in the execution of the work authorized under this permit and shall not obstruct or endanger travel along the said road. All operations must be conducted so as to permit safe and reasonable free travel at all times over the road within the limits of the work herein permitted.

The Permittee covenants and agrees to fully indemnify and save harmless the Department of Transportation and assume all liability for damages or injury, occurring to any person, persons or property through or in consequence of any act or omission of anyone working on the construction, or from faulty maintenance or operation of such traffic signal.

The Secretary of Transportation, by law, reserves the right to revoke and annul this permit if the Permittee shall at any time willfully or negligently fail to comply with the conditions contained in this permit, or, upon changes in the traffic conditions, fail to make any changes in the construction or operation of this signal, or to remove it, when so ordered by the Secretary of Transportation: or if this installation is not in operation within twenty-four (24) months of the receipt of this permit. The Permittee shall maintain the signal in a safe condition at all times. The Permittee shall not make any change in the construction or operation of this traffic signal without prior written approval of the Secretary of Transportation.

This permit cancels and supersedes all previous permits issued for this location upon completion of the installation specified herein.

DATE: July 25, 1984
REVISED: May 21, 1999

APPROVED Bradley L. Mallory
SECRETARY OF TRANSPORTATION

BY Walter E Bybee

☐ CHIEF, TRAFFIC ENGINEERING & OPERATIONS DIVISION
BUREAU OF MAINTENANCE AND OPERATIONS

☒ DISTRICT ENGINEER

| DISTRICT | COUNTY | ROUTE | SECTION | SHEET |
|---|---|---|---|---|
| 5-0 | NORTHAMPTON | 2017 | | 2 |
| | PALMER TOWNSHIP | | | |
| PERMIT NO. | 48-212-16 | SHEET 2 OF 2 | | |
| DATE ISSUED | 07-25-04 | DATE REVISED | 12-8-05 | |

✳ CONDITION DIAGRAM ONLY

## PHASING, TIMING and COLOR SEQUENCE CHART

| | PHASE 2+6 | | | | PHASE 4+8 | | | | EMERGENCY FLASHING OPERATION |
|---|---|---|---|---|---|---|---|---|---|
| | INTERVALS | | | | INTERVALS | | | | |
| SIGNALS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| 1-2-3-4 | G | G | Y | R | R | R | R | R | Y |
| 5-6-7-8 | R | R | R | R | G | G | Y | R | R |
| 9-10 | H | H | H | H | M | FH | H | H | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| FIXED | | | 3 | 2 | | | 3 | 1 | |
| MIN INIT | 8 | | | | 5 | | | | |
| ADDED INIT | 3.5 | | | | | | | | |
| MAX INIT | 18 | | | | | | | | |
| PASSAGE | 5 | | | | 4 | | | | |
| MAX EXT | 38 | | | | 13 | | | | |
| PEDESTRIAN* | | | | | 7 | 9 | | | |
| MEMORY | | | | | | | | | |

* UPON PEDESTRIAN ACTUATION ONLY.

## SIGNAL INDICATIONS



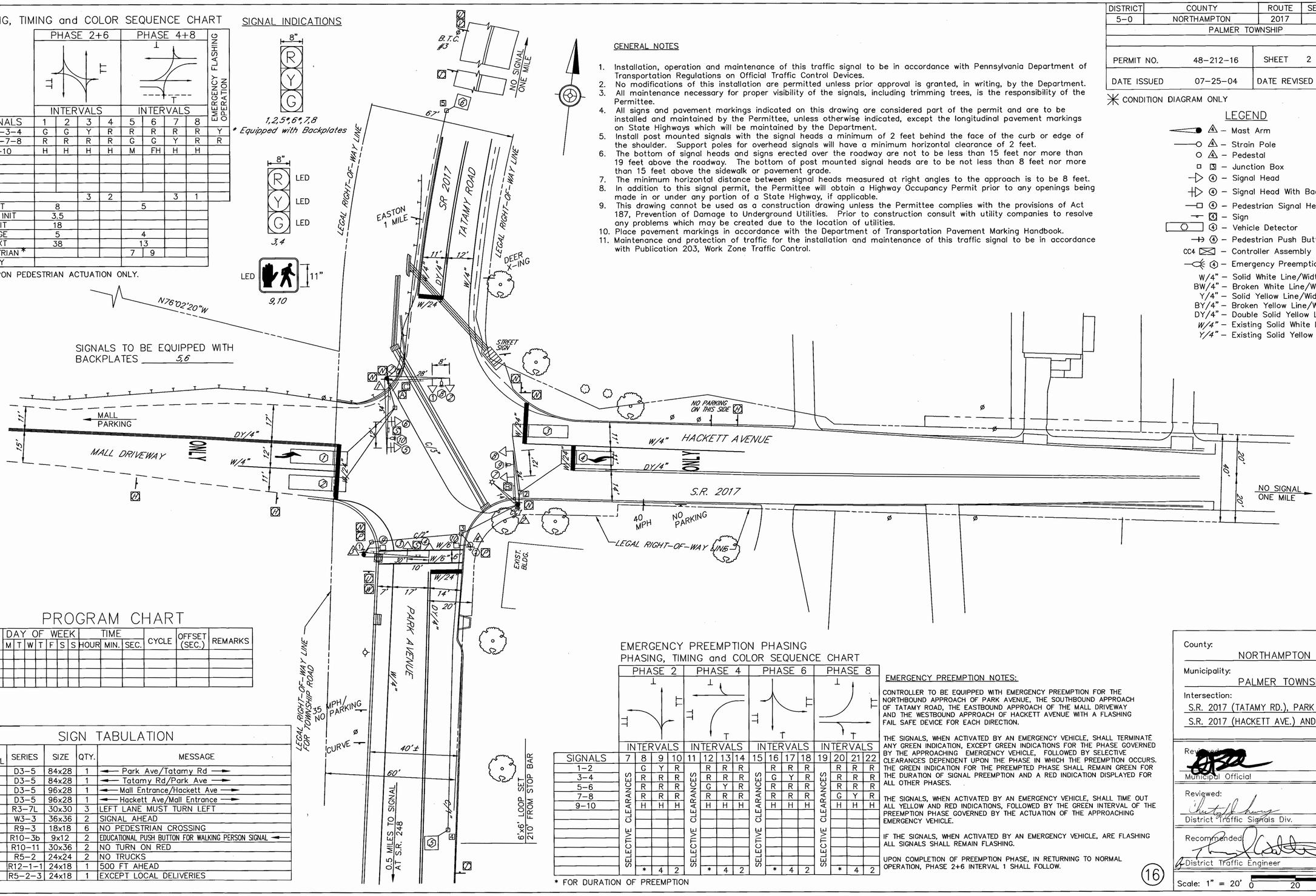

## GENERAL NOTES

1. Installation, operation and maintenance of this traffic signal to be in accordance with Pennsylvania Department of Transportation Regulations on Official Traffic Control Devices.
2. No modifications of this installation are permitted unless prior approval is granted, in writing, by the Department.
3. All maintenance necessary for proper visibility of the signals, including trimming trees, is the responsibility of the Permittee.
4. All signs and pavement markings indicated on this drawing are considered part of the permit and are to be installed and maintained by the Permittee, unless otherwise indicated, except the longitudinal pavement markings on State Highways which will be maintained by the Department.
5. Install post mounted signals with the signal heads a minimum of 2 feet behind the face of the curb or edge of the shoulder. Support poles for overhead signals will have a minimum horizontal clearance of 2 feet.
6. The bottom of signal heads and signs erected over the roadway are not to be less than 15 feet nor more than 19 feet above the roadway. The bottom of post mounted signal heads are to be not less than 8 feet nor more than 15 feet above the sidewalk or pavement grade.
7. The minimum horizontal distance between signal heads measured at right angles to the approach is to be 8 feet.
8. In addition to this signal permit, the Permittee will obtain a Highway Occupancy Permit prior to any openings being made in or under any portion of a State Highway, if applicable.
9. This drawing cannot be used as a construction drawing unless the Permittee complies with the provisions of Act 187, Prevention of Damage to Underground Utilities. Prior to construction consult with utility companies to resolve any problems which may be created due to the location of utilities.
10. Place pavement markings in accordance with the Department of Transportation Pavement Marking Handbook.
11. Maintenance and protection of traffic for the installation and maintenance of this traffic signal to be in accordance with Publication 203, Work Zone Traffic Control.

## LEGEND

- Mast Arm
- Strain Pole
- Pedestal
- Junction Box
- Signal Head
- Signal Head With Backplate
- Pedestrian Signal Head
- Sign
- Vehicle Detector
- Pedestrian Push Button
- CC4 Controller Assembly
- Emergency Preemption Device

W/4" – Solid White Line/Width
BW/4" – Broken White Line/Width
Y/4" – Solid Yellow Line/Width
BY/4" – Broken Yellow Line/Width
DY/4" – Double Solid Yellow Line/Width
W/4" – Existing Solid White Line/Width
Y/4" – Existing Solid Yellow Line/Width




## PROGRAM CHART

| EVENT NO. | DAY OF WEEK | | | | | | | TIME | | | CYCLE | OFFSET (SEC.) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | T | W | T | F | S | S | HOUR | MIN. | SEC. | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

## SIGN TABULATION

| PLAN SYMBOL | SERIES | SIZE | QTY. | MESSAGE |
|---|---|---|---|---|
| A | D3-5 | 84x28 | 1 | ← Park Ave/Tatamy Rd → |
| B | D3-5 | 84x28 | 1 | ← Tatamy Rd/Park Ave → |
| C | D3-5 | 96x28 | 1 | ← Mall Entrance/Hackett Ave → |
| D | D3-5 | 96x28 | 1 | ← Hackett Ave/Mall Entrance → |
| H | R3-7L | 30x30 | 3 | LEFT LANE MUST TURN LEFT |
| T | W3-3 | 36x36 | 2 | SIGNAL AHEAD |
| N | R9-3 | 18x18 | 6 | NO PEDESTRIAN CROSSING |
| P | R10-3b | 9x12 | 2 | EDUCATIONAL PUSH BUTTON FOR WALKING PERSON SIGNAL ← |
| S | R10-11 | 30x36 | 2 | NO TURN ON RED |
| U | R5-2 | 24x24 | 2 | NO TRUCKS |
| V | R12-1-1 | 24x18 | 1 | 500 FT AHEAD |
| W | R5-2-3 | 24x18 | 1 | EXCEPT LOCAL DELIVERIES |

## EMERGENCY PREEMPTION PHASING
## PHASING, TIMING and COLOR SEQUENCE CHART

| | PHASE 2 | | | | PHASE 4 | | | | PHASE 6 | | | | PHASE 8 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | INTERVALS | | | | INTERVALS | | | | INTERVALS | | | | INTERVALS | | | |
| SIGNALS | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 1-2 | SELECTIVE CLEARANCES | G | Y | R | SELECTIVE CLEARANCES | R | R | R | SELECTIVE CLEARANCES | R | R | R | SELECTIVE CLEARANCES | R | R | R |
| 3-4 | | R | R | R | | R | R | R | | G | Y | R | | R | R | R |
| 5-6 | | R | R | R | | G | Y | R | | R | R | R | | R | R | R |
| 7-8 | | R | R | R | | R | R | R | | R | R | R | | G | Y | R |
| 9-10 | | H | H | H | | H | H | H | | H | H | H | | H | H | H |
| | | * | 4 | 2 | | * | 4 | 2 | | * | 4 | 2 | | * | 4 | 2 |

* FOR DURATION OF PREEMPTION

### EMERGENCY PREEMPTION NOTES:

CONTROLLER TO BE EQUIPPED WITH EMERGENCY PREEMPTION FOR THE NORTHBOUND APPROACH OF PARK AVENUE, THE SOUTHBOUND APPROACH OF TATAMY ROAD, THE EASTBOUND APPROACH OF THE MALL DRIVEWAY AND THE WESTBOUND APPROACH OF HACKETT AVENUE WITH A FLASHING FAIL SAFE DEVICE FOR EACH DIRECTION.

THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TERMINATE ANY GREEN INDICATION, EXCEPT GREEN INDICATIONS FOR THE PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE PREEMPTION OCCURS. THE GREEN INDICATION FOR THE PREEMPTED PHASE SHALL REMAIN GREEN FOR THE DURATION OF SIGNAL PREEMPTION AND A RED INDICATION DISPLAYED FOR ALL OTHER PHASES.

THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PREEMPTION PHASE GOVERNED BY THE ACTUATION OF THE APPROACHING EMERGENCY VEHICLE.

IF THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, ARE FLASHING ALL SIGNALS SHALL REMAIN FLASHING.

UPON COMPLETION OF PREEMPTION PHASE, IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 1 SHALL FOLLOW.

16

County: NORTHAMPTON

Municipality: PALMER TOWNSHIP

Intersection: S.R. 2017 (TATAMY RD.), PARK AVENUE, S.R. 2017 (HACKETT AVE.) AND MALL ENTRANCE

Revised: [signature] Municipal Official — 6-03-05 Date

Reviewed: [signature] District Traffic Signals Div. — 6-22-05 Date

Recommended: [signature] District Traffic Engineer — 6/22/05 Date

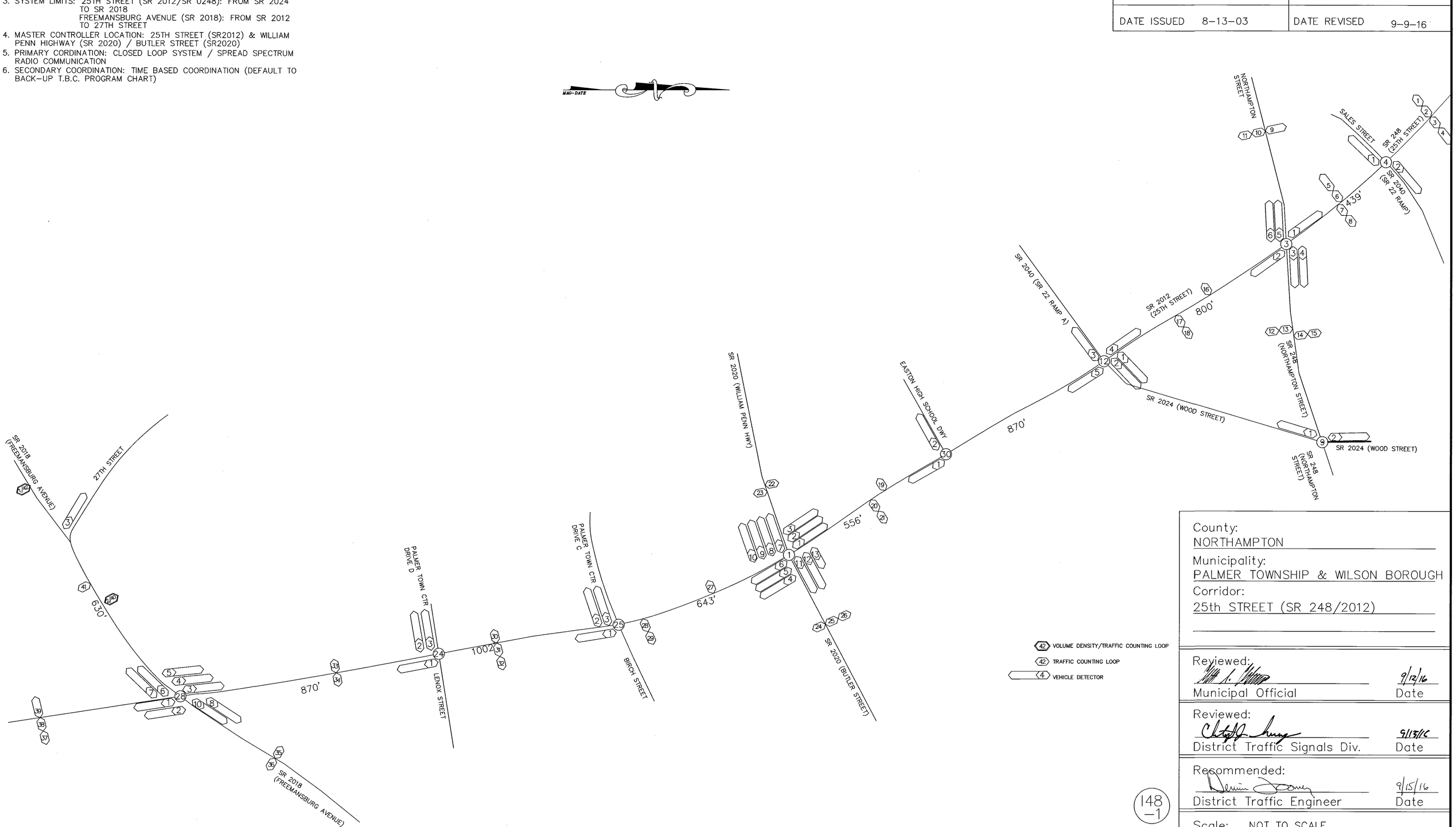
Scale: 1" = 20' 0 20 40 60

| DISTRICT | COUNTY | ROUTE | SECTION | SHEET |
|---|---|---|---|---|
| 5-0 | NORTHAMPTON | S.R. 2018 | | 2 OF 2 |
| PALMER TOWNSHIP & WILSON BOROUGH | | | | |
| PERMIT NO. 148-001 | | SHEET 1 OF 2 | | |
| DATE ISSUED 8-13-03 | | DATE REVISED 9-9-16 | | |

## SYSTEM NOTES
TRAFFIC RESPONSIVE OPERATIONS

1. PROGRAM TO BE SELECTED BY CLOSED LOOP SYESTEM MASTER OR TIME BASED COORDINATION BACK-UP.
2. OFFSET REFERENCED TO BEGINNING OF GREEN INTERVAL FOR PHASE 2+6.
3. SYSTEM LIMITS: 25TH STREET (SR 2012/SR 0248): FROM SR 2024 TO SR 2018
   FREEMANSBURG AVENUE (SR 2018): FROM SR 2012 TO 27TH STREET
4. MASTER CONTROLLER LOCATION: 25TH STREET (SR2012) & WILLIAM PENN HIGHWAY (SR 2020) / BUTLER STREET (SR2020)
5. PRIMARY CORDINATION: CLOSED LOOP SYSTEM / SPREAD SPECTRUM RADIO COMMUNICATION
6. SECONDARY COORDINATION: TIME BASED COORDINATION (DEFAULT TO BACK-UP T.B.C. PROGRAM CHART)

MAG-DATE




148-1

County:
NORTHAMPTON

Municipality:
PALMER TOWNSHIP & WILSON BOROUGH

Corridor:
25th STREET (SR 248/2012)

Reviewed:
Municipal Official — Date 9/12/16

Reviewed:
District Traffic Signals Div. — Date 9/13/16

Recommended:
District Traffic Engineer — Date 9/15/16

Scale: NOT TO SCALE

| Event | PHASE 1+5 | PHASE 2+5 | PHASE 1+6 | PHASE 2+6 | PHASE 3+7 | PHASE 3+8 | PHASE 4+7 | PHASE 4+8 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| INTERSECTION Design Program No. | Max | Max | Max | Max | Max | Max | Max | Max | Cycle | Offset |
| 4. SR 248 (25th St) SR 2040 (Route 22 Ramp) 48-212-004 Y+AR | | | 4+2 | 4+2 | | | | 4+2 | | |
| Min Gr | | | | | | | | 7 | | |
| Passage | | | | | | | | 3 | | |
| Max 1 | | | 7 | 36 | | | | 34 | | |
| Prog 1 | | | 7 | 40 | | | | 35 | 100 | 23 |
| Prog 2 | | | 9 | 39 | | | | 36 | 100 | 0 |
| Prog 3 | | | 11 | 25 | | | | 26 | 80 | 23 |

| Event | PHASE 1+5 | PHASE 2+5 | PHASE 1+6 | PHASE 2+6 | PHASE 3+7 | PHASE 3+8 | PHASE 4+7 | PHASE 4+8 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| INTERSECTION Design Program No. | Max | Max | Max | Max | Max | Max | Max | Max | Cycle | Offset |
| 3. SR 248/2012 (25th St) SR 2461 (Lehigh St/Easton-Nazareth Hwy) 48-212-003 Y+AR | 4+2 | 4+2 | 4+2 | 4+2 | | | | 4+2 | | |
| Min Gr | 3 | 3 | 3 | | | | | 7 | | |
| Passage | 3 | 3 | 3 | | | | | 3 | | |
| Max 1 | 10 | 10 | 10 | 40 | | | | 26 | | |
| Prog 1 | 13 | 13 | 13 | 45 | | | | 24 | 100 | 8 |
| Prog 2 | 16 | 16 | 16 | 31 | | | | 35 | 100 | 0 |
| Prog 3 | 12 | 12 | 12 | 31 | | | | 19 | 80 | 8 |

| Event | PHASE 1+5 | PHASE 2+5 | PHASE 1+6 | PHASE 2+6 | PHASE 3+7 | PHASE 3+8 | PHASE 4+7 | PHASE 4+8 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| INTERSECTION Design Program No. | Max | Max | Max | Max | Max | Max | Max | Max | Cycle | Offset |
| 12. SR 2012 (25th St) SR 2040 (Route 22 Ramp A)/ SR 2024 (Wood St) 48-212-012 Y+AR | 4+2 | 4+2 | 4+2 | 4+2 | | 4+2 | | 4+2 | | |
| Min Gr | 3 | 3 | 3 | | | 3 | | 3 | | |
| Passage | 3 | 3 | 3 | | | 3 | | 3 | | |
| Max 1 | 10 | 10 | 10 | 30 | | 7 | | 12 | | |
| Max 2 | 12 | 12 | 12 | 30 | | 7 | | 11 | | |
| Prog 1 | 7 | 7 | 7 | 36 | | 18 | | 17 | 100 | 15 |
| Prog 2 | 5 | 5 | 5 | 42 | | 10 | | 23 | 100 | 96 |
| Prog 3 | 7 | 7 | 7 | 33 | | 23 | | 15 | 80 | 15 |

| Event | PHASE 1+5 | PHASE 2+5 | PHASE 1+6 | PHASE 2+6 | PHASE 3+7 | PHASE 3+8 | PHASE 4+7 | PHASE 4+8 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| INTERSECTION Design Program No. | Max | Max | Max | Max | Max | Max | Max | Max | Cycle | Offset |
| 30. SR 2012 (25th St) Easton Hts. (Town Sch. Dwy 48-212-030 Y+AR | | 4+2 | | 4+2 | | | | 4+2 | | |
| Min Gr | | 3 | | 10 | | | | 3 | | |
| Passage | | 3 | | | | | | 3 | | |
| Max 1 | | 6 | | 38 | | | | 28 | | |
| Max 2 | | | | | | | | | | |
| Prog 1 | | 7 | | 46 | | | | 29 | 100 | 80 |
| Prog 2 | | 6 | | 48 | | | | 28 | 100 | 48 |
| Prog 3 | | 6 | | 28 | | | | 28 | 80 | 76 |

| Event | PHASE 1+5 | PHASE 2+5 | PHASE 1+6 | PHASE 2+6 | PHASE 3+7 | PHASE 3+8 | PHASE 4+7 | PHASE 4+8 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| INTERSECTION Design Program No. | Max | Max | Max | Max | Max | Max | Max | Max | Cycle | Offset |
| 9. SR 248 (Northampton St) SR 2024 (Wood Avenue) 48-4187-009 Y+AR | | | | 4+2 | | | | 4+2 | | |
| Min Gr | | | | | | | | 3 | | |
| Passage | | | | | | | | 3 | | |
| Max 1 | | | | | | | | | | |
| Max 2 | | | | | | | | | | |
| Ped | | | | | | | | | | |
| Prog 1 | | | | 52 | | | | 36 | 100 | 16 |
| Prog 2 | | | | 50 | | | | 38 | 100 | 66 |
| Prog 3 | | | | 36 | | | | 32 | 80 | 77 |

| Event | PHASE 1+5 | PHASE 2+5 | PHASE 1+6 | PHASE 2+6 | PHASE 3+7 | PHASE 3+8 | PHASE 4+7 | PHASE 4+8 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| INTERSECTION Design Program No. | Max | Max | Max | Max | Max | Max | Max | Max | Cycle | Offset |
| 1. SR 2012 (25th St) SR 2020 (William Penn Hwy/ Butler St) 48-212-001 Y+AR | 4+2.5 | 4+2.5 | 4+2.5 | 4+2.5 | 4+2.5 | 4+2.5 | 4+2.5 | 4+2.5 | | |
| Min Gr | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 10 | | |
| Passage | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| Max 1 | 13 | 13 | 13 | 36 | 13 | 13 | 13 | 16 | | |
| Max 2 | | | | | | | | | | |
| Ped | | | | | | | | | | |
| Prog 1 | 7 | 7 | 7 | 37 | 14 | 14 | 14 | 16 | 100 | 65 |
| Prog 2 | 8 | 8 | 8 | 35 | 15 | 15 | 15 | 16 | 100 | 56 |
| Prog 3 | 6 | 6 | 6 | 28 | 8 | 8 | 8 | 12 | 80 | 65 |

| Event | PHASE 1+5 | PHASE 2+5 | PHASE 1+6 | PHASE 2+6 | PHASE 3+7 | PHASE 3+8 | PHASE 4 | PHASE 8 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| INTERSECTION Design Program No. | Max | Max | Max | Max | Max | Max | Max | Max | Cycle | Offset |
| 25. SR 2012 25th Street Birch St/Penn Ave 48-212-025 Y+AR | | 4+2 | | 4+2 | | | 3+2.5 | 3+2.5 | | |
| Min Gr | | 3 | | 21 | | | 3 | 3 | | |
| Passage | | 3 | | | | | 3 | 3 | | |
| Max 1 | | 10 | | 39 | | | 15 | 15 | | |
| Prog 1 | | 9 | | 39 | | | 13 | 16 | 100 | 87 |
| Prog 2 | | 7 | | 50 | | | 11 | 9 | 100 | 82 |
| Prog 3 | | 5 | | 28 | | | 9 | 15 | 80 | 60 |

| Event | PHASE 1+5 | PHASE 2+5 | PHASE 1+6 | PHASE 2+6 | PHASE 3+7 | PHASE 3+8 | PHASE 4+7 | PHASE 4+8 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| INTERSECTION Design Program No. | Max | Max | Max | Max | Max | Max | Max | Max | Cycle | Offset |
| 24. SR 2012 25th Street Palmer Twp. Office D 48-212-024 Y+AR | | 4+2 | | 4+2 | | | 4+2 | | | |
| Min Gr | | 3 | | 21 | | | 3 | | | |
| Passage | | 3 | | | | | 3 | | | |
| Max 1 | | 10 | | 39 | | | 15 | | | |
| Prog 1 | | 8 | | 46 | | | 28 | | 100 | 0 |
| Prog 2 | | 12 | | 54 | | | 16 | | 100 | 0 |
| Prog 3 | | 11 | | 36 | | | 15 | | 80 | 0 |

| Event | PHASE 1+5 | PHASE 2+5 | PHASE 1+6 | PHASE 2+6 | PHASE 3+7 | PHASE 3+8 | PHASE 4+7 | PHASE 4+8 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| INTERSECTION Design Program No. | Max | Max | Max | Max | Max | Max | Max | Max | Cycle | Offset |
| 28. SR 2012 25th Street SR 2018 (Freemansburg Ave.) 48-212-028 Y+AR | 4+2.5 | 4+2.5 | 4+2.5 | 4+2.5 | | | | 4+3.5 | | |
| Min Gr | 3 | 3 | 3 | 10 | | | | 3 | | |
| Passage | 3 | 3 | 3 | 3 | | | | 3 | | |
| Max 1 | 10 | 10 | 10 | 40 | | | | 26 | | |
| Prog 1 | 11 | 11 | 11 | 41.5 | | | | 28 | 100 | 14 |
| Prog 2 | 11 | 11 | 11 | 36.5 | | | | 33 | 100 | 20 |
| Prog 3 | 7 | 7 | 7 | 28.5 | | | | 25 | 80 | 14 |

| Event | PHASE 1+5 | PHASE 2+5 | PHASE 1+6 | PHASE 2+6 | PHASE 3+7 | PHASE 3+8 | PHASE 4+7 | PHASE 4+8 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| INTERSECTION Design Program No. | Max | Max | Max | Max | Max | Max | Max | Max | Cycle | Offset |
| 23. SR 2018 (Freemansburg Ave.) 27th St./Penn Drive 48-212-023 Y+AR | | | | 4.5+2 | | | | 3+2.5 | | |
| Min Gr | | | | 10 | | | | 3 | | |
| SEC/ACT | | | | 2.5 | | | | | | |
| MAX INT | | | | 25 | | | | | | |
| Passage | | | | 5 | | | | 3 | | |
| TBR | | | | 25 | | | | | | |
| TIR | | | | 12 | | | | | | |
| MIN GAP | | | | 2.2 | | | | | | |
| Max 1 | | | | 58 | | | | 10 | | |
| Prog 1 | | | | 66 | | | | 22 | 100 | 0 |
| Prog 2 | | | | 71 | | | | 17 | 100 | 0 |
| Prog 3 | | | | 55 | | | | 13 | 80 | 0 |

| DISTRICT | COUNTY | ROUTE | SECTION | SHEET |
|---|---|---|---|---|
| 5-0 | NORTHAMPTON | S.R. 2018 | | 2 OF 2 |
| PALMER TOWNSHIP & WILSON BOROUGH | | | | |
| PERMIT NO. 148-001 | | SHEET 2 OF 2 | | |
| DATE ISSUED 8-13-03 | | DATE REVISED 9-9-16 | | |

## PROGRAM CHART

| EVENT NO. | DAY OF WEEK M | T | W | T | F | S | S | TIME HOUR | MIN. | SEC. | CYCLE | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * | * | * | * | * | | | 07 | 30 | 00 | 100 | AM PEAK |
| 2 | * | * | * | * | * | | | 09 | 00 | | --- | MAX 1 |
| 3 | * | * | * | * | * | | | 14 | 30 | 00 | 100 | PM PEAK |
| 4 | * | * | * | * | * | * | * | 19 | 00 | 00 | --- | MAX 1 |
| 5 | | | | | | * | * | 10 | 00 | 00 | 80 | SAT PEAK |

County:
NORTHAMPTON

Municipality:
PALMER TOWNSHIP & WILSON BOROUGH

Corridor:
25th STREET (SR 248/2012)

Reviewed:
Municipal Official — Date 9/12/16

Reviewed:
District Traffic Signals Div. — Date 9/15/16

Recommended:
District Traffic Engineer — Date 9/15/16

Scale: NOT TO SCALE

148
-1

# APPENDIX E

*Warrants*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue

# Auxiliary Turn Lane Warrants

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue

| Turn Lane Warrants | | |
|---|---|---|
| Int 1 | EBL | WBR |
| AM | N/A | N/A |
| PM | N/A | N/A |
| MAX | N/A | N/A |

| 95th Queues | | |
|---|---|---|
| Int 1 | EBL | WBR |
| AM | 1 | 0 |
| PM | 0 | 0 |
| MAX | 1 | 0 |

| Existing | | |
|---|---|---|
| Int 1 | EBL | WBR |
| | *N/A* | *N/A* |

| Design | | |
|---|---|---|
| Int 1 | EBL | WBR |
| | N/A | N/A |

| Turn Lane Warrants | | |
|---|---|---|
| Int 2 | EBL | WBR |
| AM | 75 | 100 |
| PM | 100 | 175 |
| MAX | 100 | 175 |

| 95th Queues | | |
|---|---|---|
| Int 2 | EBL | WBR |
| AM | 4 | 0 |
| PM | 5 | 0 |
| MAX | 5 | 0 |

| Existing | | |
|---|---|---|
| Int 2 | EBL | WBR |
| | *N/A* | *N/A* |

| Design | | |
|---|---|---|
| Int 2 | EBL | WBR |
| | N/A | N/A |

| Turn Lane Warrants | | |
|---|---|---|
| Int 3 | EBL | WBR |
| AM | 75 | N/A |
| PM | 75 | N/A |
| MAX | 75 | N/A |

| 95th Queues | | |
|---|---|---|
| Int 3 | EBL | WBR |
| AM | 2 | 0 |
| PM | 1 | 0 |
| MAX | 2 | 0 |

| Existing | | |
|---|---|---|
| Int 3 | EBL | WBR |
| | *N/A* | *N/A* |

| Design | | |
|---|---|---|
| Int 3 | EBL | WBR |
| | N/A | N/A |

| Turn Lane Warrants | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Int 5 | NBL | NBR | SBL | SBR | EBL | EBR | WBL | WBR |
| AM | 175 | N/A | N/A | 625 | 375 | 150 | N/A | N/A |
| PM | 175 | N/A | 100 | 450 | 400 | 175 | N/A | N/A |
| MAX | 175 | N/A | 100 | 625 | 400 | 175 | N/A | N/A |

*dual left turn lanes

| 95th Queues | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Int 5 | NBL | NBR | SBL | SBR | EBL | EBR | WBL | WBR |
| AM | 210 | 104 | 73 | 370 | 288 | 36 | 170 | 169 |
| PM | 145 | 155 | 75 | 709 | 263 | 34 | 128 | 131 |
| MAX | 210 | 155 | 75 | 709 | 288 | 36 | 170 | 169 |

| Existing | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Int 5 | NBL | NBR | SBL | SBR | EBL | EBR | WBL | WBR |
| | *230'* | *N/A* | *105'* | *285'* | *115'* | *110'* | *N/A* | *75'* |

| Design | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Int 5 | NBL | NBR | SBL | SBR | EBL | EBR | WBL | WBR |
| | *230'* | *N/A* | *105'* | **285'*** | **115'*** | *110'* | *N/A* | *75'* |

* Restricted by geometry

| Turn Lane Warrants | |
|---|---|
| Int 11 | EBL |
| AM | 100 |
| PM | 100 |
| MAX | 100 |

| 95th Queues | |
|---|---|
| Int 11 | EBL |
| AM | 6 |
| PM | 4 |
| MAX | 6 |

| Existing | |
|---|---|
| Int 11 | EBL |
| | *75'* |

| Design | |
|---|---|
| Int 11 | EBL |
| | *75'* |

# Auxiliary Turn Lane Warrants

*Hackett Ave (SR 2017) & Proposed Site Driveway*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue

# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** Hackett Avenue (SR 2017) & Proposed Site Access Driveway - EB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 40 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 14 | 0.0% | 14 |
| | Through | - | 181 | 3.0% | 190 |
| | Right | | | | 0 |
| Opposing | Left | | | | 0 |
| | Through | - | 181 | 1.0% | 184 |
| | Right | Yes | 27 | 7.0% | 30 |

| | |
|---|---|
| **Advancing Volume:** | 204 |
| **Opposing Volume:** | 214 |
| **Left Turn Volume:** | 14 |
| **% Left Turns in Advancing Volume:** | 6.86% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 2

**Warrant Met?:** No

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 14 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

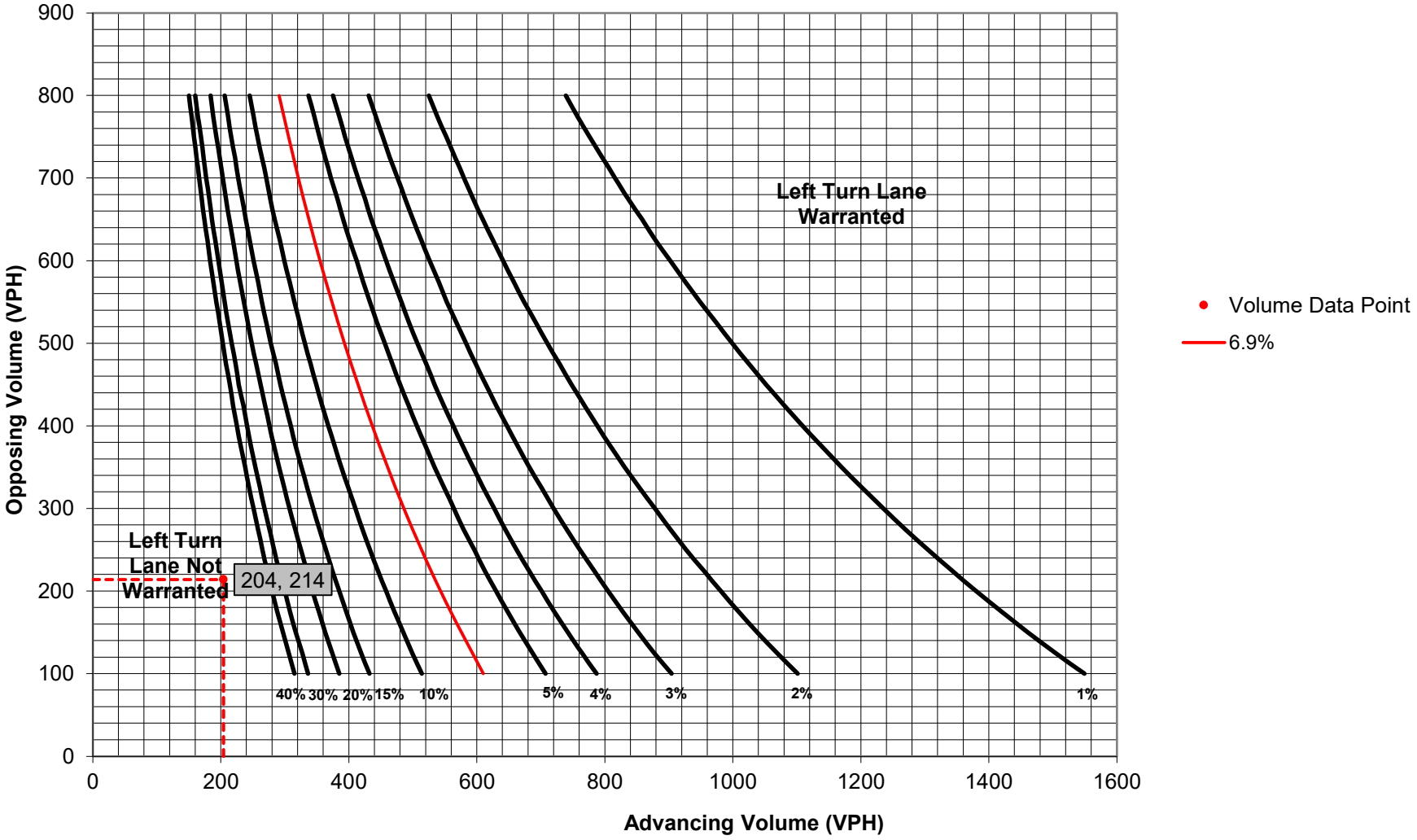
| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 2. Warrant for left turn lanes on two-lane highways (40 mph speed, unsignalized and signalized intersections)**

(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** Hackett Avenue (SR 2017) & Proposed Site Access Driveway - WB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 40 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |
| Opposing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | 0 |
| | Through | - | 181 | 1.0% | 184 |
| | Right | - | 27 | 7.0% | 30 |

| | |
|---|---|
| **Advancing Volume:** | 214 |
| **Right Turn Volume:** | 30 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 9

**Warrant Met?:** No

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 30 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

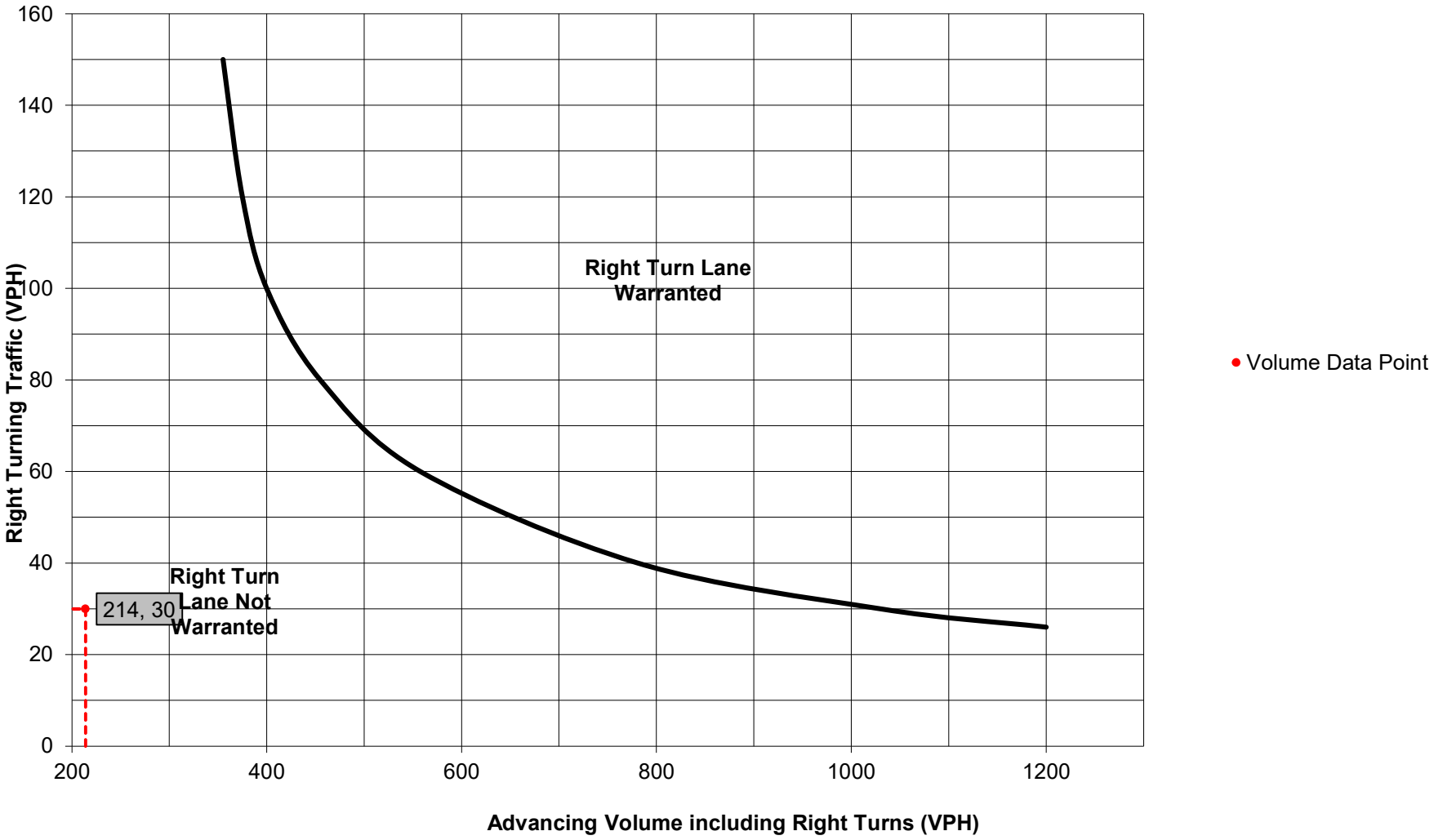
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Right Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** Hackett Avenue (SR 2017) & Proposed Site Access Driveway - EB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 40 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 7 | 0.0% | 7 |
| | Through | - | 211 | 2.0% | 218 |
| | Right | | | | 0 |
| Opposing | Left | | | | 0 |
| | Through | - | 341 | 2.0% | 352 |
| | Right | Yes | 14 | 7.0% | 16 |

| | |
|---|---|
| **Advancing Volume:** | 225 |
| **Opposing Volume:** | 368 |
| **Left Turn Volume:** | 7 |
| **% Left Turns in Advancing Volume:** | 3.11% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 2

**Warrant Met?:** No

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 7 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** Hackett Avenue (SR 2017) & Proposed Site Access Driveway - WB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 40 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |
| Opposing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | 0 |
| | Through | - | 341 | 2.0% | 352 |
| | Right | - | 14 | 7.0% | 16 |

| | |
|---|---|
| **Advancing Volume:** | 368 |
| **Right Turn Volume:** | 16 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 9

**Warrant Met?:** No

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 16 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

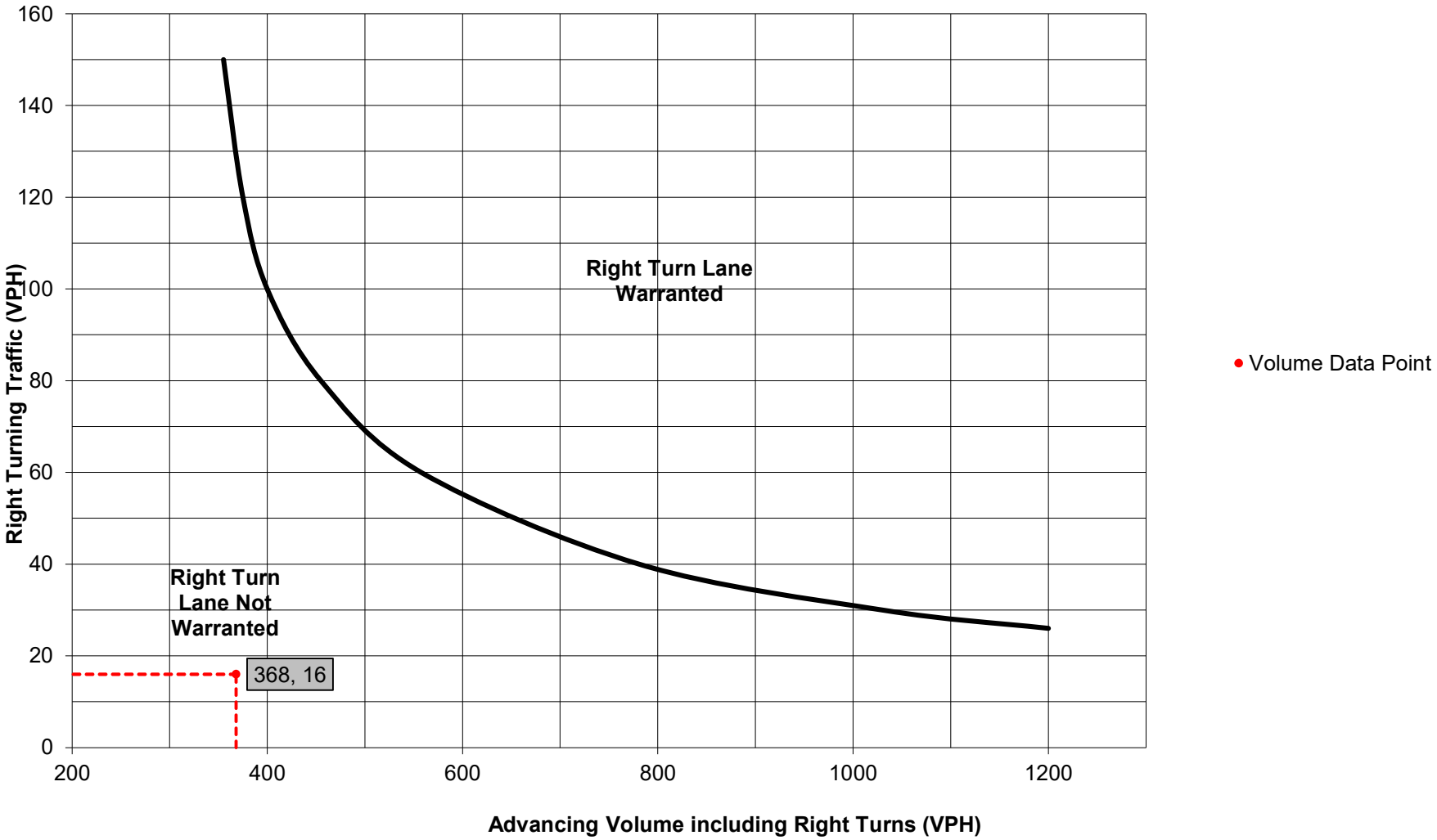
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Right Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Auxiliary Turn Lane Warrants

*Hackett Ave (SR 2017) & Wood Ave (SR 2017)/(SR 2024)*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue

# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** Hackett Avenue (SR 2017) & Wood Avenue (SR 2017)/(SR 2024) - EB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 81 | 6.0% | 89 |
| | Through | - | 209 | 5.0% | 225 |
| | Right | | | | 0 |
| Opposing | Left | | | | 0 |
| | Through | - | 253 | 7.0% | 280 |
| | Right | Yes | 128 | 2.0% | 132 |

| | |
|---|---|
| **Advancing Volume:** | 314 |
| **Opposing Volume:** | 412 |
| **Left Turn Volume:** | 89 |
| **% Left Turns in Advancing Volume:** | 28.34% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 1

**Warrant Met?:** Yes

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 89 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** 1.0

**PennDOT Publication 46, Exhibit 11-6**

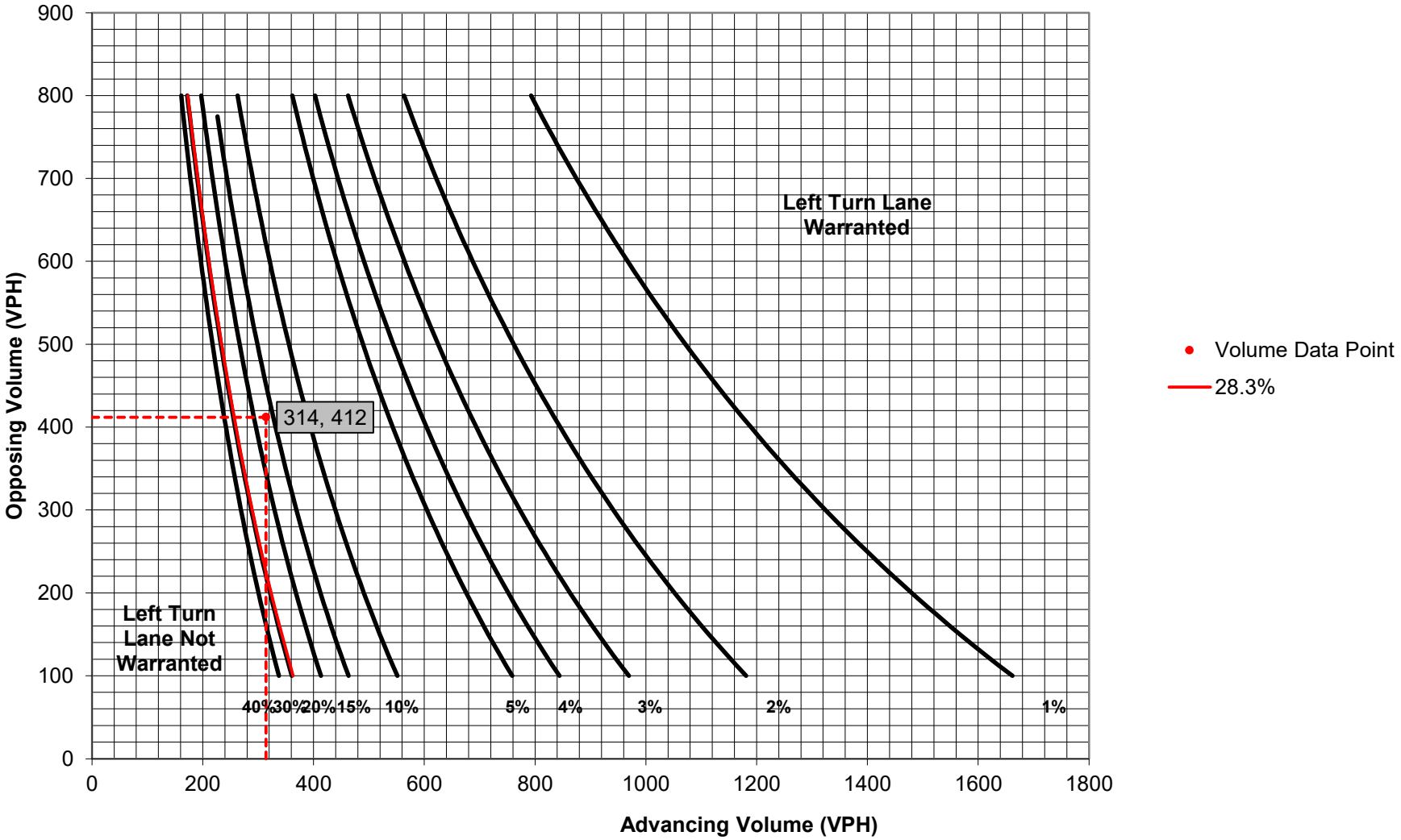
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | 75 | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | 75 | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 1. Warrant for left turn lanes on two-lane roadways**
**(speeds to 35 mph, unsignalized and signalized intersections)**
(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** Hackett Avenue (SR 2017) & Wood Avenue (SR 2017)/(SR 2024) - WB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |
| Opposing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | 0 |
| | Through | - | 253 | 7.0% | 280 |
| | Right | - | 128 | 2.0% | 132 |

| | |
|---|---|
| **Advancing Volume:** | 412 |
| **Right Turn Volume:** | 132 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 9

**Warrant Met?:** Yes

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 132 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** 2.0

**PennDOT Publication 46, Exhibit 11-6**

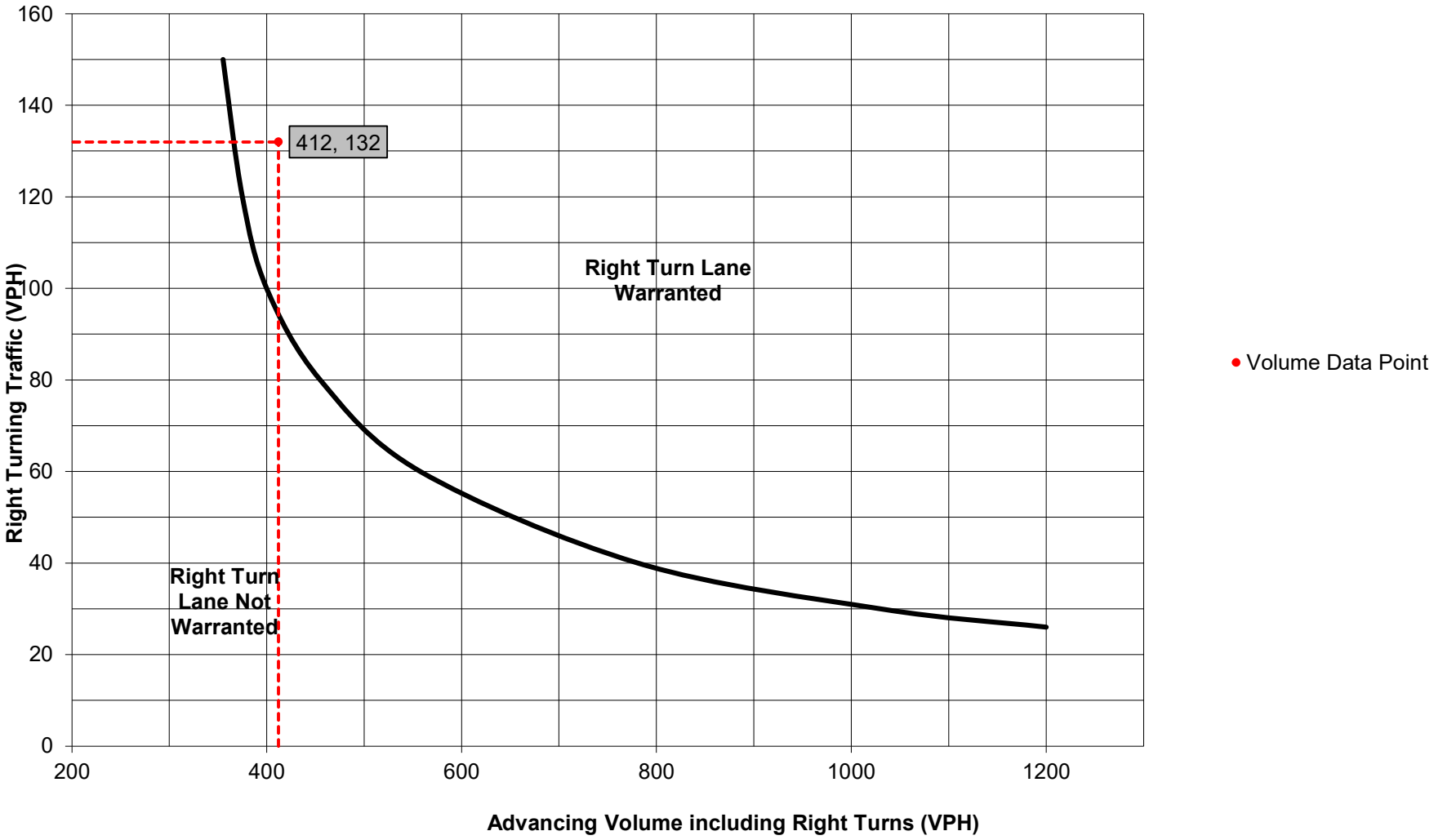
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | 100 | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Right Turn Lane Storage Length:** | 100 | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** Hackett Avenue (SR 2017) & Wood Avenue (SR 2017)/(SR 2024) - EB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 111 | 3.0% | 116 |
| | Through | - | 236 | 3.0% | 247 |
| | Right | | | | 0 |
| Opposing | Left | | | | 0 |
| | Through | - | 295 | 3.0% | 309 |
| | Right | Yes | 244 | 2.0% | 252 |

| | |
|---|---|
| **Advancing Volume:** | 363 |
| **Opposing Volume:** | 561 |
| **Left Turn Volume:** | 116 |
| **% Left Turns in Advancing Volume:** | 31.96% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 1

**Warrant Met?:** Yes

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 116 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** 2.0

**PennDOT Publication 46, Exhibit 11-6**

| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

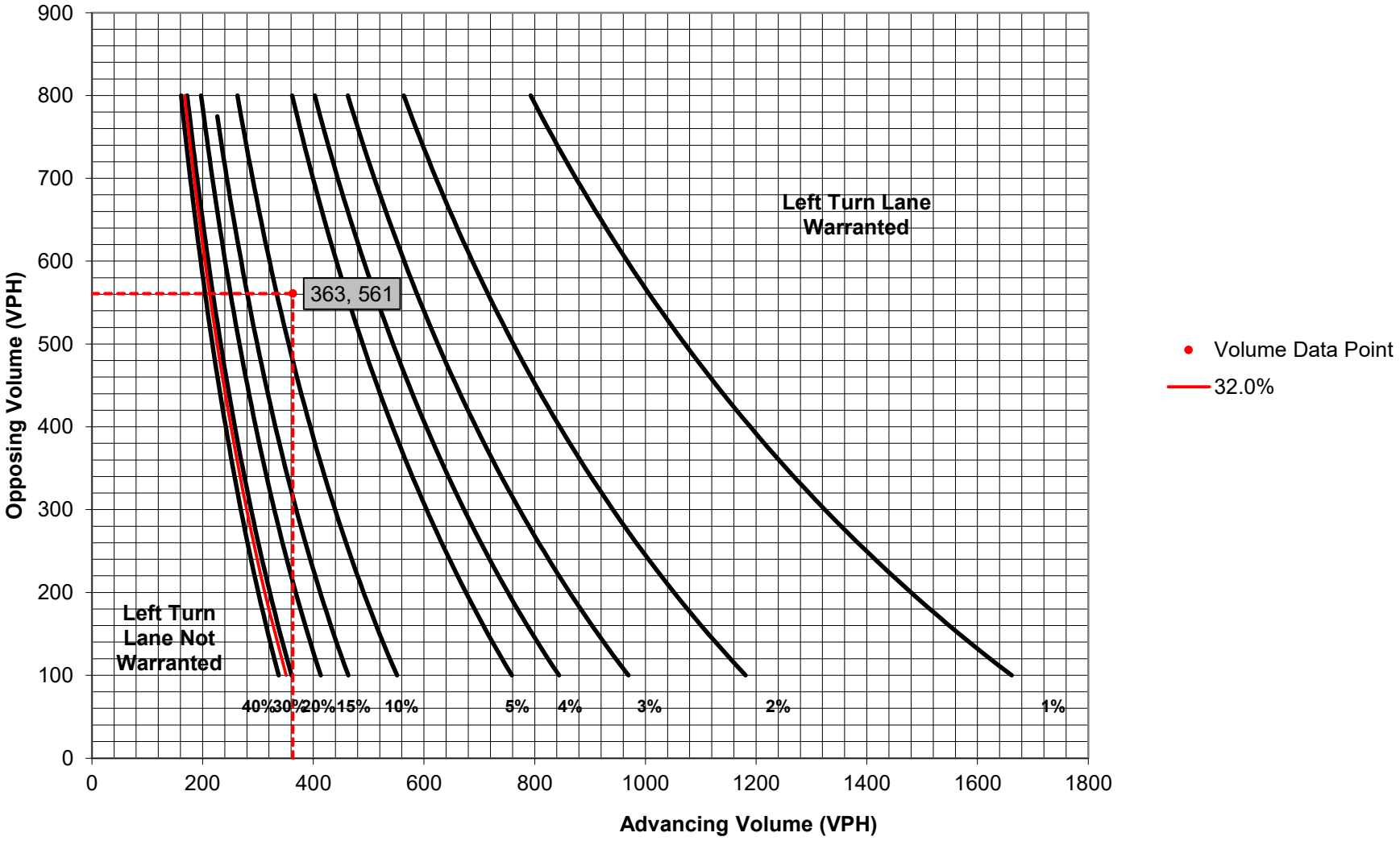
| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | 100 | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | 100 | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)**

(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** Hackett Avenue (SR 2017) & Wood Avenue (SR 2017)/(SR 2024) - WB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |
| Opposing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | 0 |
| | Through | - | 295 | 3.0% | 309 |
| | Right | - | 244 | 2.0% | 252 |

| | |
|---|---|
| **Advancing Volume:** | 561 |
| **Right Turn Volume:** | 252 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 9

**Warrant Met?:** Yes

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 252 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** 4.0

**PennDOT Publication 46, Exhibit 11-6**

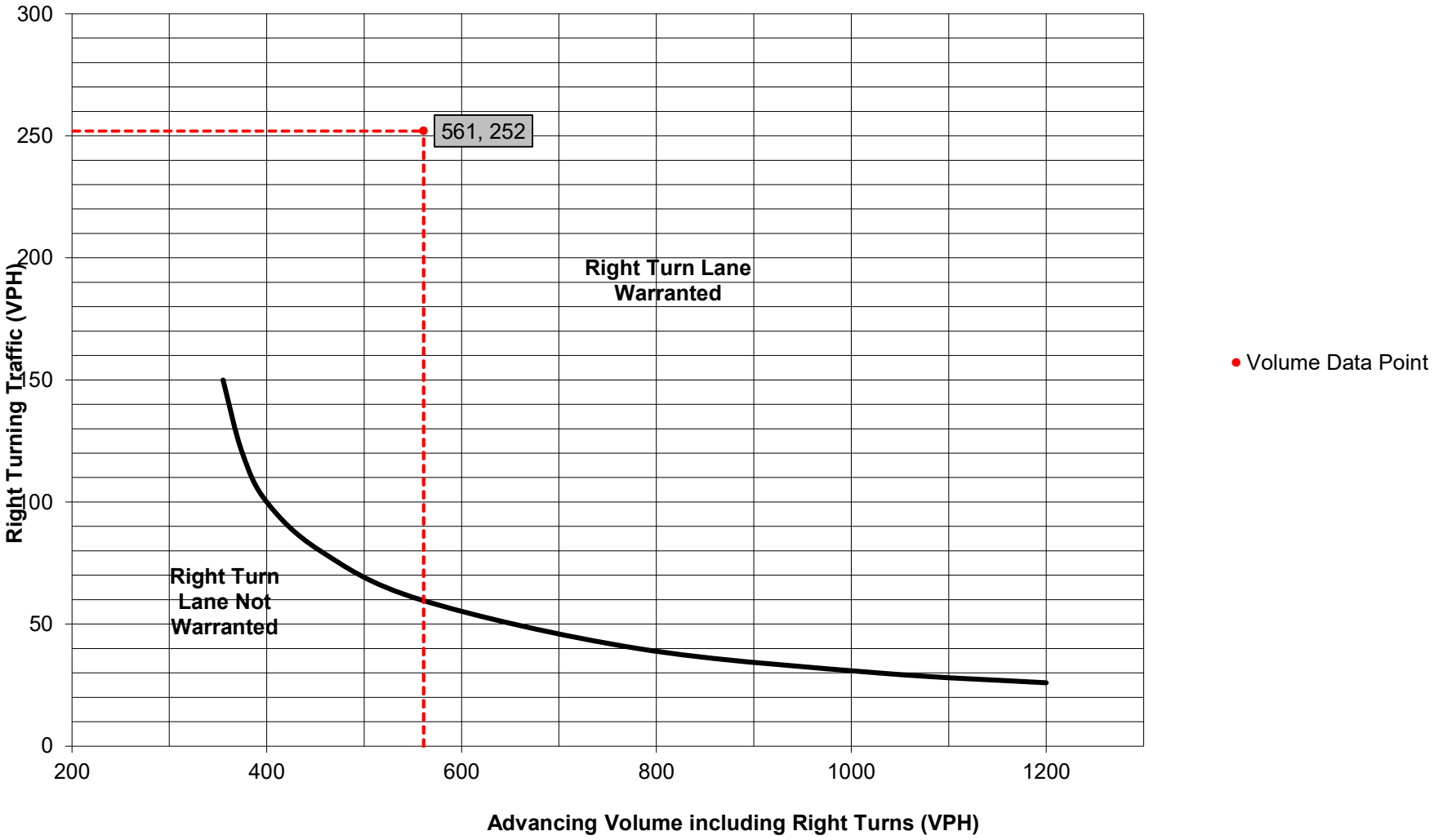
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | 175 | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Right Turn Lane Storage Length:** | 175 | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Auxiliary Turn Lane Warrants

## *Wood Ave (SR 2017) & Proposed Site Driveway*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue

# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** Wood Avenue (SR 2017) & Proposed Site Access Driveway - EB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 51 | 6.0% | 56 |
| | Through | - | 293 | 3.0% | 307 |
| | Right | | | | 0 |
| Opposing | Left | | | | 0 |
| | Through | - | 316 | 2.0% | 326 |
| | Right | Yes | 29 | 17.0% | 37 |

| | |
|---|---|
| **Advancing Volume:** | 363 |
| **Opposing Volume:** | 363 |
| **Left Turn Volume:** | 56 |
| **% Left Turns in Advancing Volume:** | 15.43% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 1

**Warrant Met?:** Yes

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 56 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** 1.0

**PennDOT Publication 46, Exhibit 11-6**

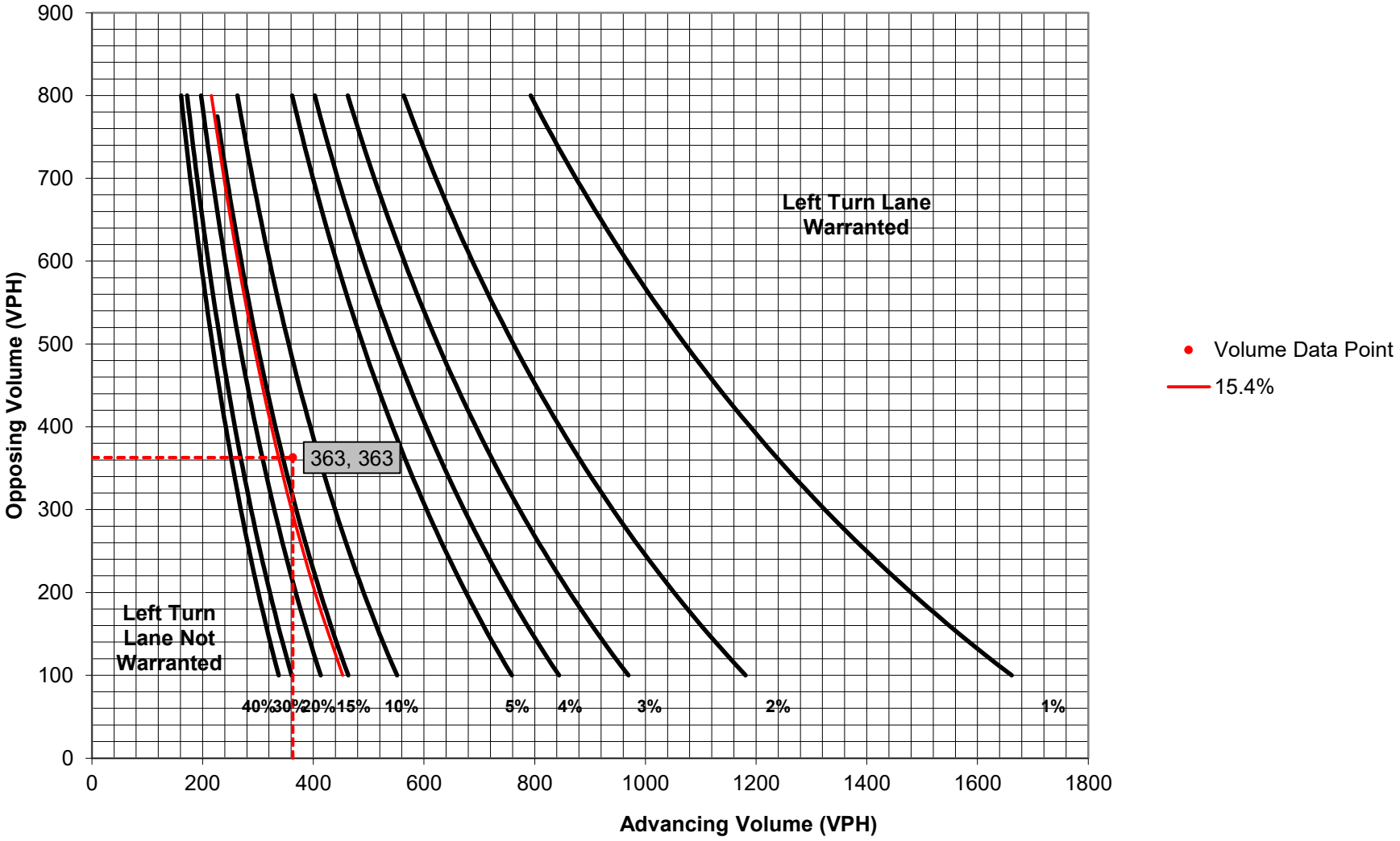
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | 75 | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | 75 | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 1. Warrant for left turn lanes on two-lane roadways**
**(speeds to 35 mph, unsignalized and signalized intersections)**
(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** Wood Avenue (SR 2017) & Proposed Site Access Driveway

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |
| Opposing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | 0 |
| | Through | - | 316 | 2.0% | 326 |
| | Right | - | 29 | 17.0% | 37 |

| | |
|---|---|
| **Advancing Volume:** | 363 |
| **Right Turn Volume:** | 37 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 9

**Warrant Met?:** No

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 37 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

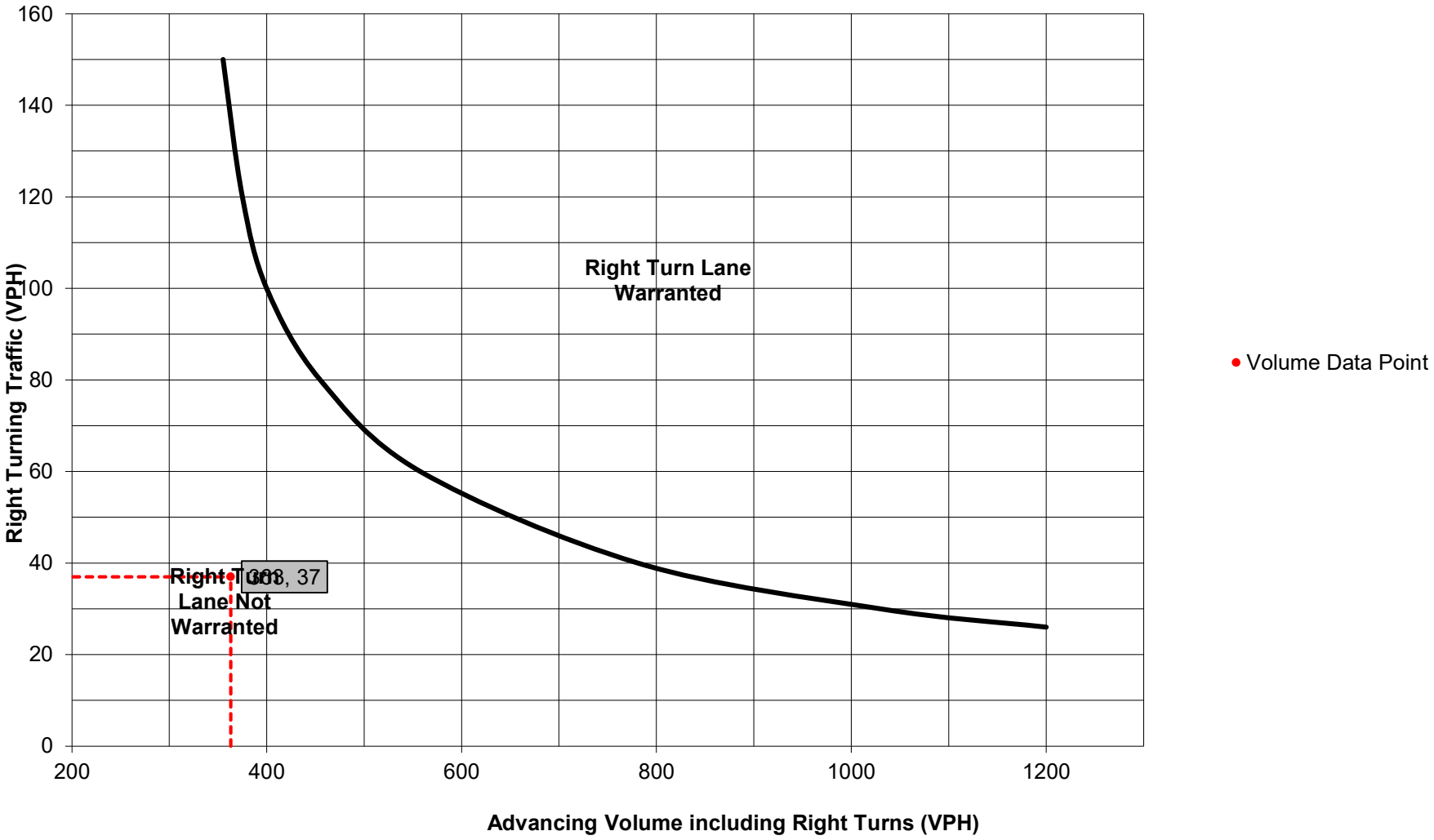
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Right Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** Wood Avenue (SR 2017) & Proposed Site Access Driveway - EB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 26 | 8.0% | 30 |
| | Through | - | 374 | 2.0% | 386 |
| | Right | | | | 0 |
| Opposing | Left | | | | 0 |
| | Through | - | 502 | 2.0% | 518 |
| | Right | Yes | 16 | 19.0% | 21 |

| | |
|---|---|
| **Advancing Volume:** | 416 |
| **Opposing Volume:** | 539 |
| **Left Turn Volume:** | 30 |
| **% Left Turns in Advancing Volume:** | 7.21% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 1

**Warrant Met?:** Yes

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 30 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** 1.0

**PennDOT Publication 46, Exhibit 11-6**

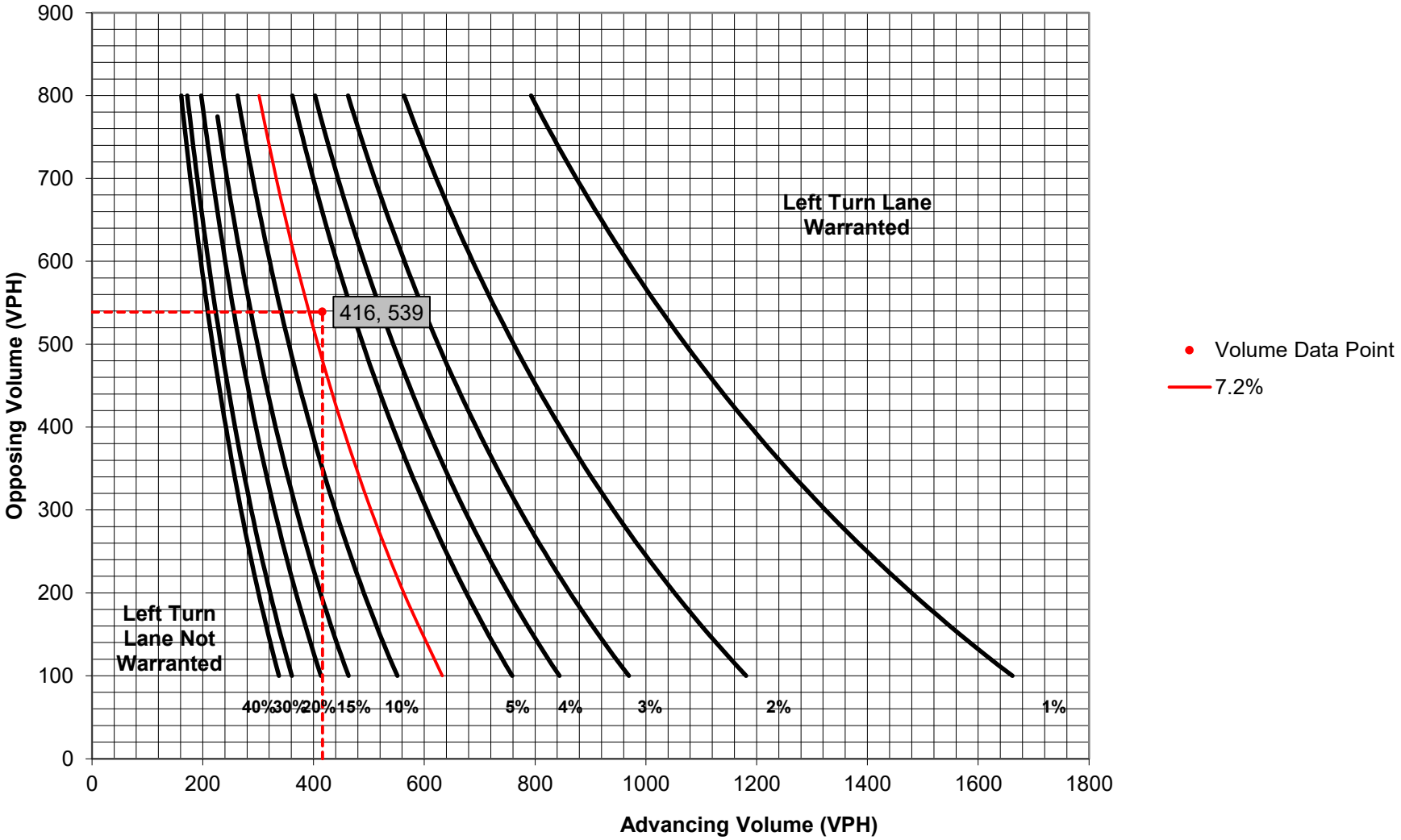
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | 75 | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | 75 | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 1. Warrant for left turn lanes on two-lane roadways**
**(speeds to 35 mph, unsignalized and signalized intersections)**
(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** Wood Avenue (SR 2017) & Proposed Site Access Driveway

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |
| Opposing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | 0 |
| | Through | - | 502 | 2.0% | 518 |
| | Right | - | 16 | 19.0% | 21 |

| | |
|---|---|
| **Advancing Volume:** | 539 |
| **Right Turn Volume:** | 21 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 9

**Warrant Met?:** No

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 21 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

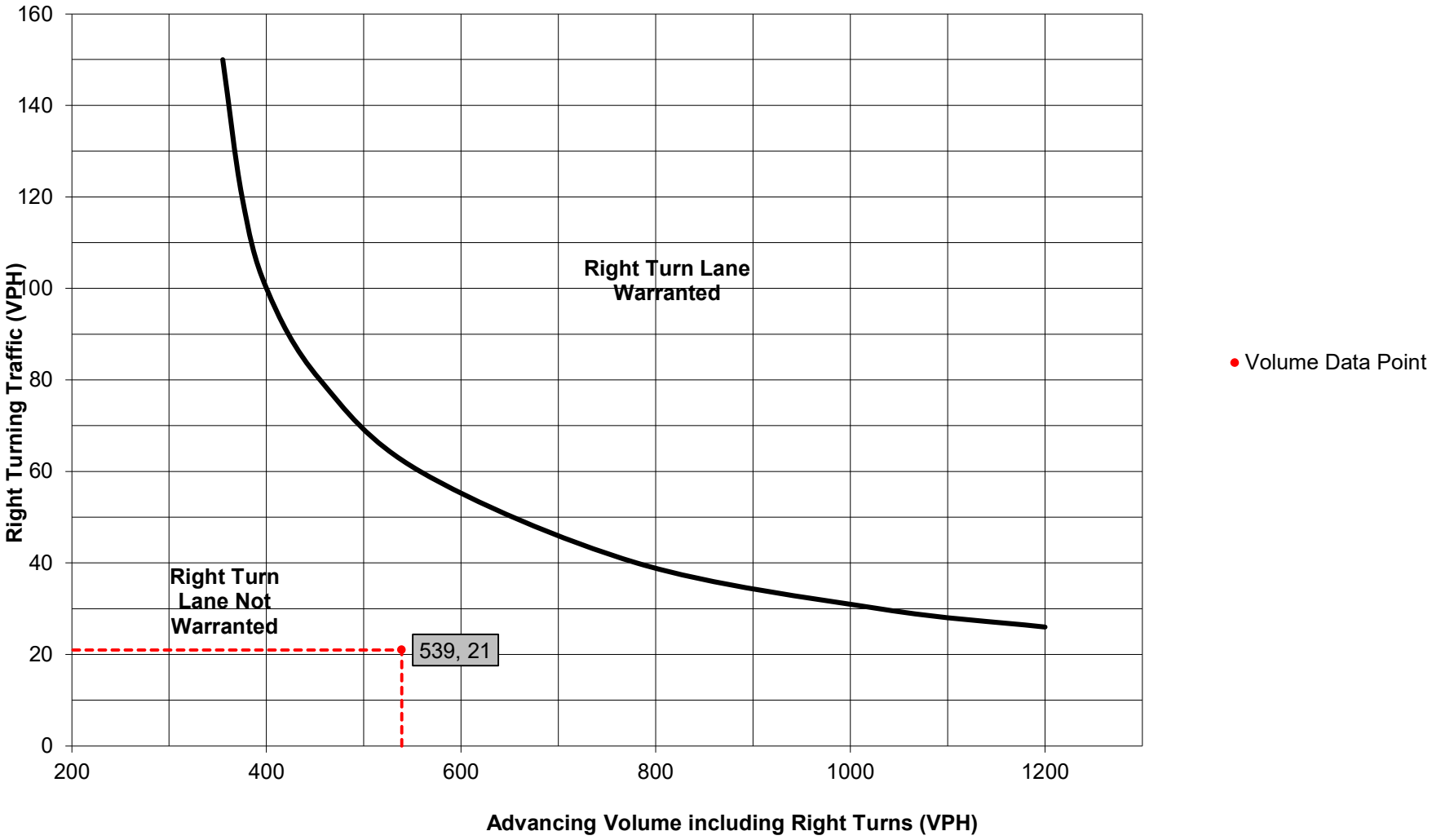
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Right Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Auxiliary Turn Lane Warrants

*Wood Avenue (SR 2017) & N. 13th Street (SR 2019)*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/11/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** N 13th Street (SR 2019) & Wood Avenue (SR 2017) - NB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Signalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 163 | 2.0% | 168 |
| | Through | - | 129 | 3.0% | 135 |
| | Right | No | 5 | 0.0% | N/A |
| Opposing | Left | Yes | 59 | 3.0% | 62 |
| | Through | - | 141 | 7.0% | 156 |
| | Right | No | 646 | 3.0% | N/A |

| | |
|---|---|
| **Advancing Volume:** | 303 |
| **Opposing Volume:** | 218 |
| **Left Turn Volume:** | 168 |
| **% Left Turns in Advancing Volume:** | 55.45% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 1

**Warrant Met?:** Yes

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Signalized |
| **Design Hour Volume of Turning Lane:** | 168 |
| **Cycles Per Hour (Assumed):** | Known |
| **Cycles Per Hour (If Known):** | 38.3 |

**Average # of Vehicles/Cycle:** 4.0

**PennDOT Publication 46, Exhibit 11-6**

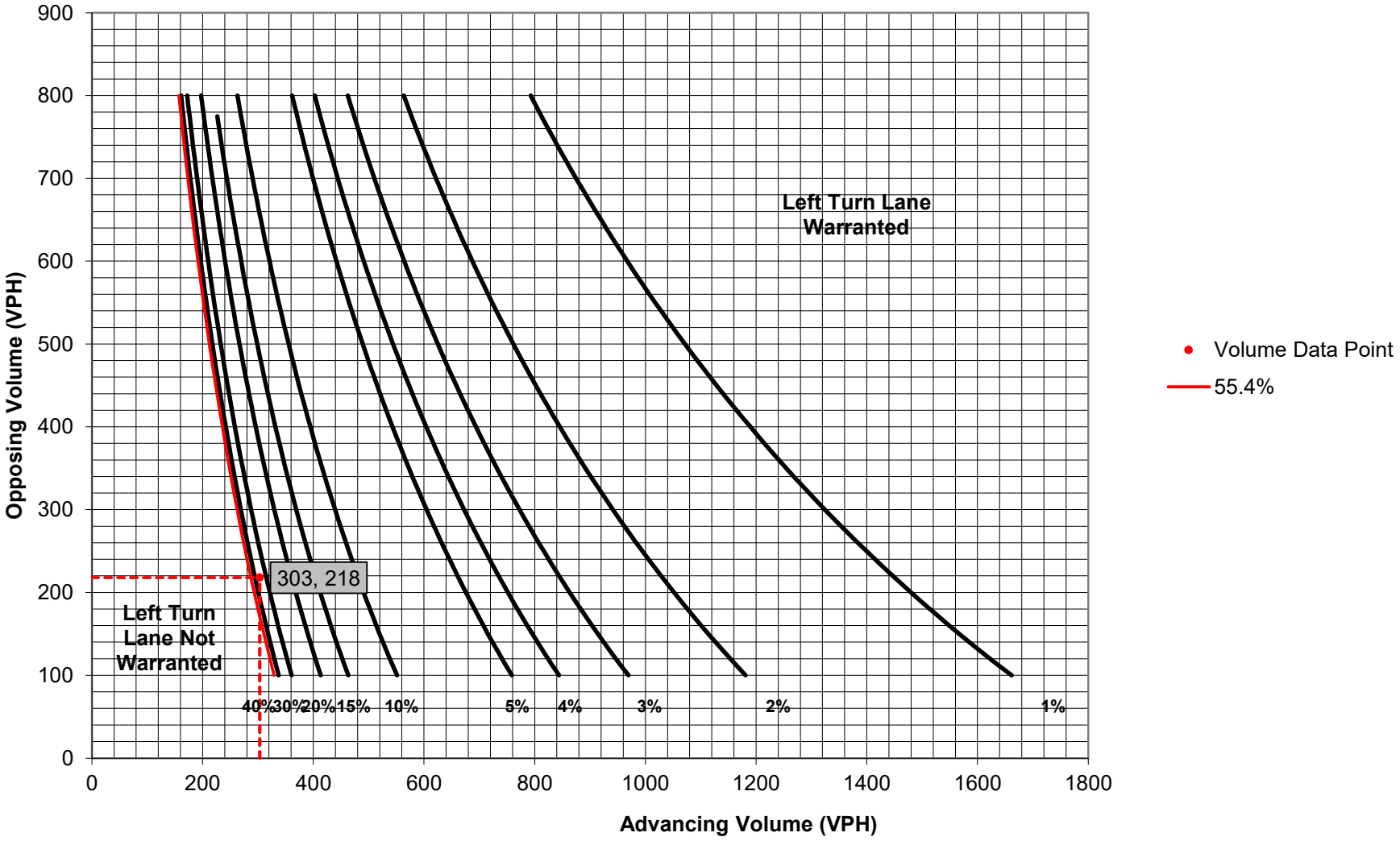
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | 175 | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | 175 | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 1. Warrant for left turn lanes on two-lane roadways**
**(speeds to 35 mph, unsignalized and signalized intersections)**
(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** N 13th Street (SR 2019) & Wood Avenue (SR 2017) - NB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Signalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |
| Opposing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | No | 163 | 2.0% | N/A |
| | Through | - | 129 | 3.0% | 135 |
| | Right | - | 5 | 0.0% | 5 |

| | |
|---|---|
| **Advancing Volume:** | 140 |
| **Right Turn Volume:** | 5 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 9

**Warrant Met?:** No

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Signalized |
| **Design Hour Volume of Turning Lane:** | 5 |
| **Cycles Per Hour (Assumed):** | Known |
| **Cycles Per Hour (If Known):** | 38.3 |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

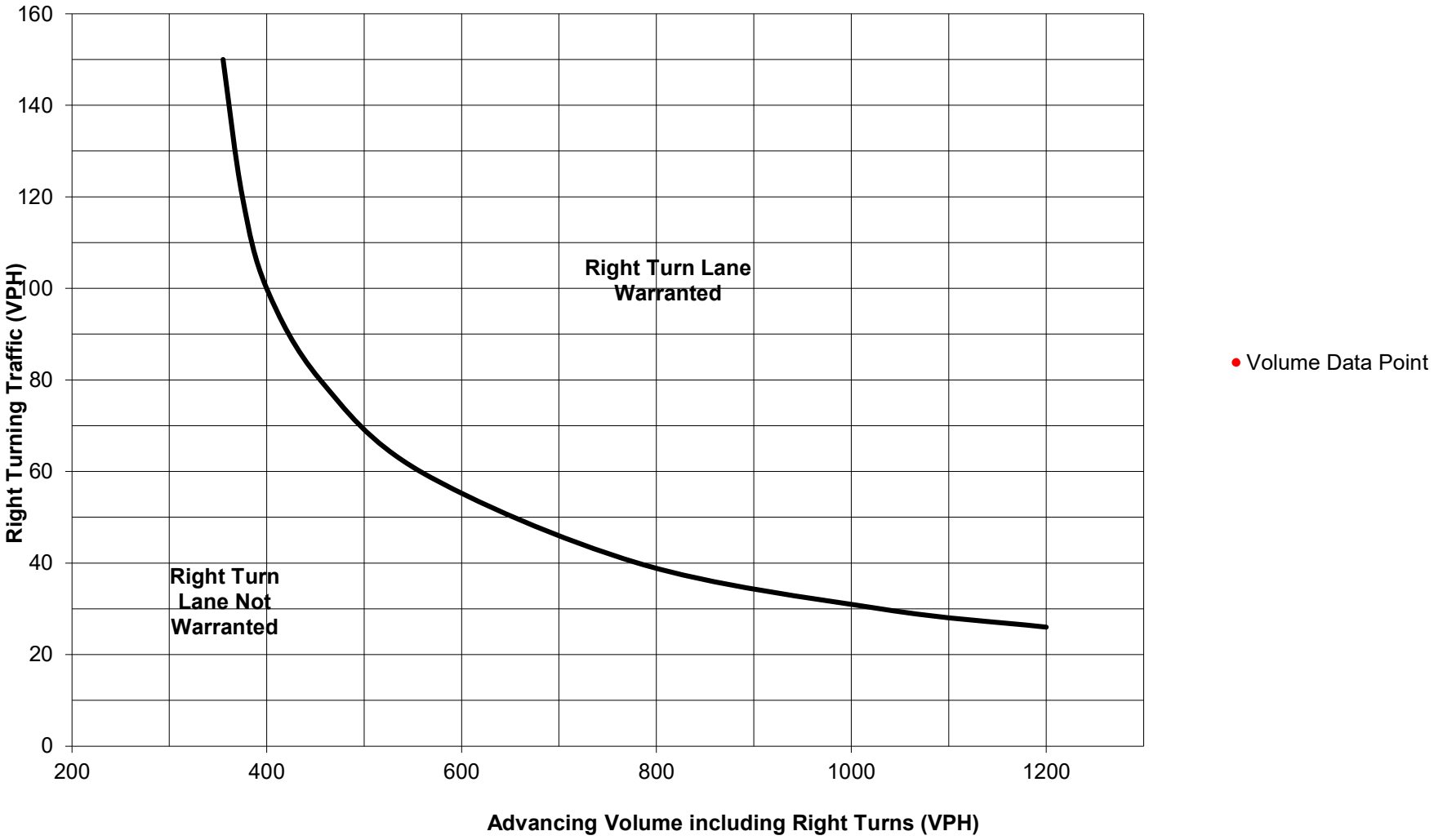
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Right Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** N 13th Street (SR 2019) & Wood Avenue (SR 2017) - SB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Signalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 59 | 3.0% | 62 |
| | Through | - | 141 | 7.0% | 156 |
| | Right | No | 646 | 3.0% | N/A |
| Opposing | Left | Yes | 163 | 4.0% | 173 |
| | Through | - | 129 | 2.0% | 133 |
| | Right | Yes | 5 | 1.0% | 6 |

| | |
|---|---|
| **Advancing Volume:** | 218 |
| **Opposing Volume:** | 312 |
| **Left Turn Volume:** | 62 |
| **% Left Turns in Advancing Volume:** | 28.44% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** **Figure 1**

**Warrant Met?:** **No**

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** **N/A**

**Warrant Met?:** **N/A**

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Signalized |
| **Design Hour Volume of Turning Lane:** | 62 |
| **Cycles Per Hour (Assumed):** | Known |
| **Cycles Per Hour (If Known):** | 38.3 |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

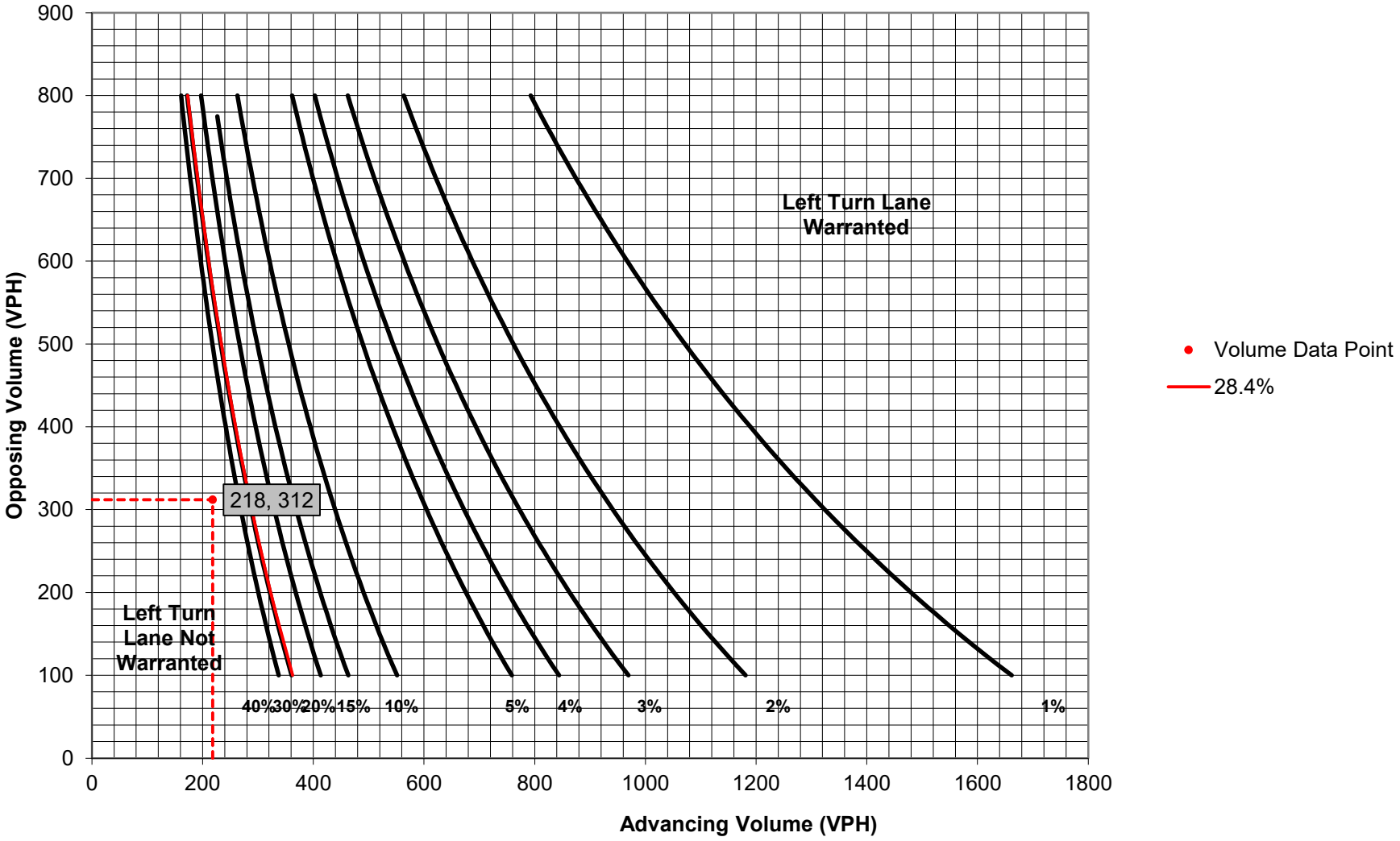
| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | **N/A** | **Feet** |
| **Condition B:** | **N/A** | **Feet** |
| **Condition C:** | **N/A** | **Feet** |
| **Required Left Turn Lane Storage Length:** | **N/A** | **Feet** |

**Additional Findings:**

**N/A**

**Additional Comments / Justifications:**

**Figure 1. Warrant for left turn lanes on two-lane roadways**
**(speeds to 35 mph, unsignalized and signalized intersections)**
(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** N 13th Street (SR 2019) & Wood Avenue (SR 2017) - SB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Signalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |
| Opposing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | No | 59 | 3.0% | N/A |
| | Through | - | 141 | 7.0% | 156 |
| | Right | - | 646 | 3.0% | 676 |

| | |
|---|---|
| **Advancing Volume:** | 832 |
| **Right Turn Volume:** | 676 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** **N/A**

**Warrant Met?:** **N/A**

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** **Figure 9**

**Warrant Met?:** **Yes**

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Signalized |
| **Design Hour Volume of Turning Lane:** | 676 |
| **Cycles Per Hour (Assumed):** | Known |
| **Cycles Per Hour (If Known):** | 38.3 |

**Average # of Vehicles/Cycle:** 18.0

**PennDOT Publication 46, Exhibit 11-6**

| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

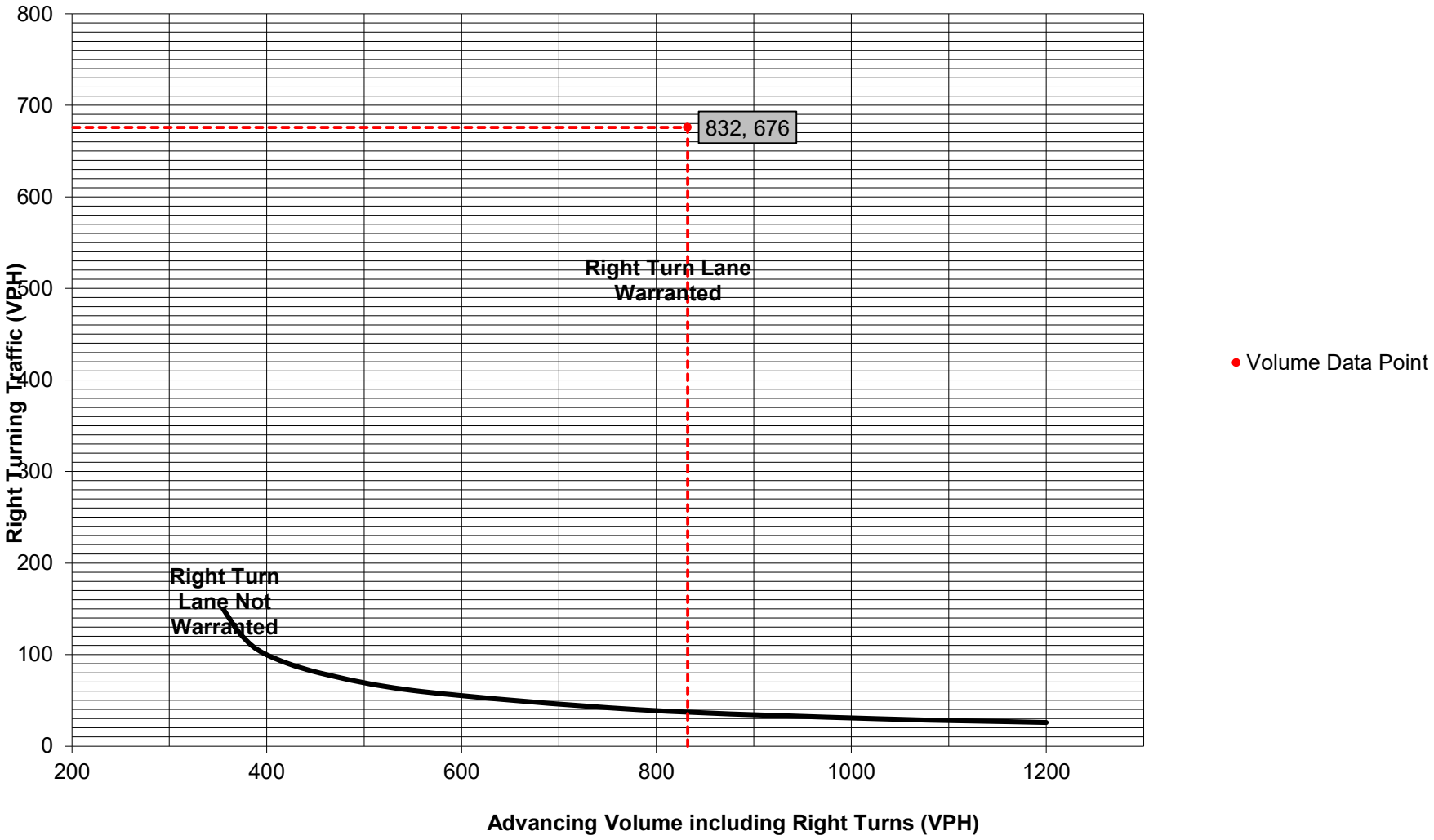
| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | **625** | **Feet** |
| **Condition B:** | **N/A** | **Feet** |
| **Condition C:** | **N/A** | **Feet** |
| **Required Right Turn Lane Storage Length:** | **625** | **Feet** |

**Additional Findings:**

**N/A**

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** N 13th Street (SR 2019) & Wood Avenue (SR 2017) - EB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Signalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 376 | 4.0% | 399 |
| | Through | - | 169 | 2.0% | 175 |
| | Right | Yes | 128 | 1.0% | 130 |
| Opposing | Left | Yes | 6 | 0.0% | 6 |
| | Through | - | 237 | 1.0% | 241 |
| | Right | No | 67 | 9.0% | N/A |

| | |
|---|---|
| **Advancing Volume:** | 704 |
| **Opposing Volume:** | 247 |
| **Left Turn Volume:** | 399 |
| **% Left Turns in Advancing Volume:** | 56.68% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** **Figure 1**

**Warrant Met?:** **Yes**

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** **N/A**

**Warrant Met?:** **N/A**

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Signalized |
| **Design Hour Volume of Turning Lane:** | 399 |
| **Cycles Per Hour (Assumed):** | Known |
| **Cycles Per Hour (If Known):** | 38.3 |

**Average # of Vehicles/Cycle:** 10.0

**PennDOT Publication 46, Exhibit 11-6**

| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | **375** | **Feet** |
| **Condition B:** | **N/A** | **Feet** |
| **Condition C:** | **N/A** | **Feet** |
| **Required Left Turn Lane Storage Length:** | **375** | **Feet** |

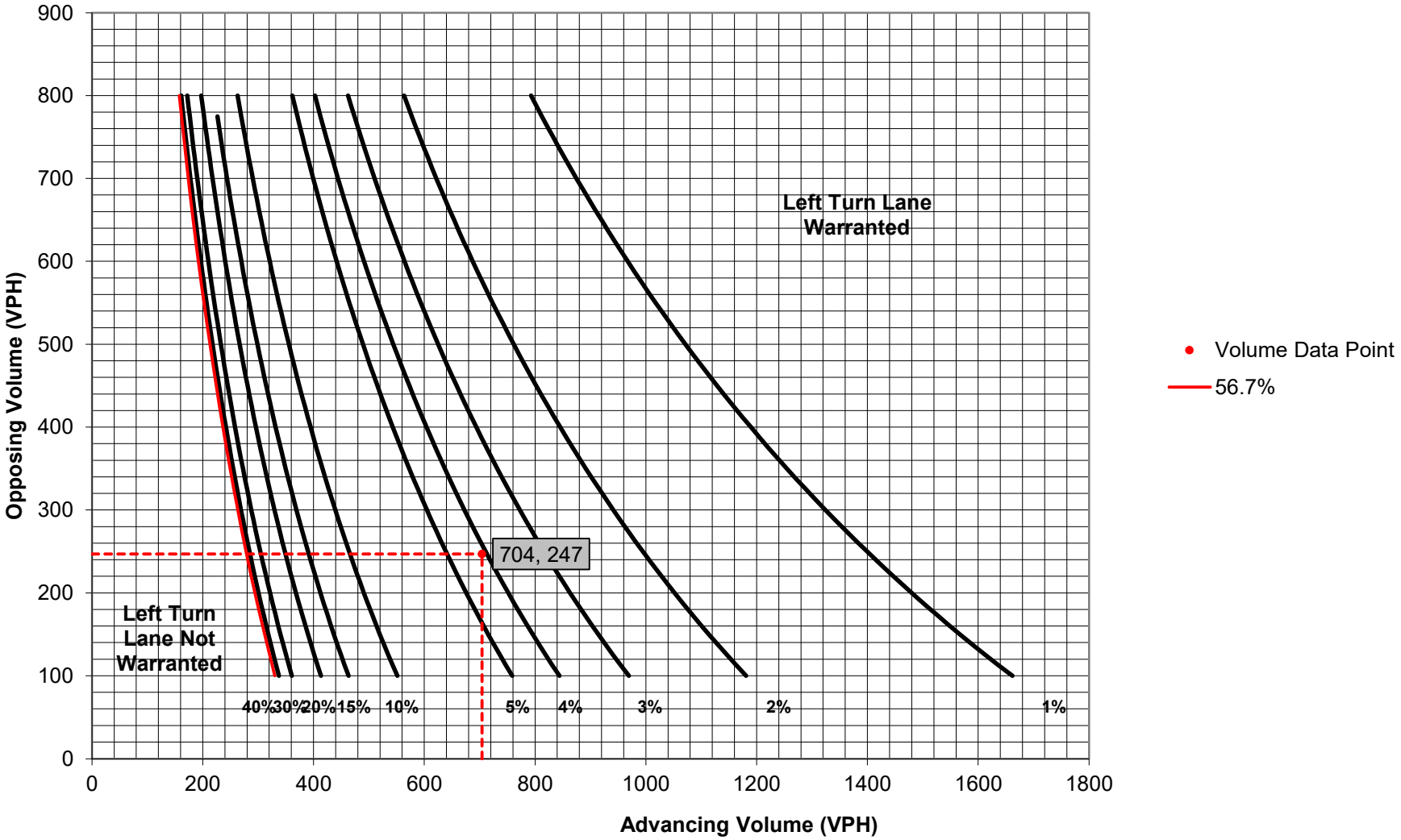
**Additional Findings:**

**Consider Dual Left Turn Lanes and Operational Analyses**

**Additional Comments / Justifications:**

**Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)**

(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** N 13th Street (SR 2019) & Wood Avenue (SR 2017) - EB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Signalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |
| Opposing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 376 | 4.0% | 399 |
| | Through | - | 169 | 2.0% | 175 |
| | Right | - | 128 | 1.0% | 130 |

| | |
|---|---|
| **Advancing Volume:** | 704 |
| **Right Turn Volume:** | 130 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** **N/A**

**Warrant Met?:** **N/A**

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** **Figure 9**

**Warrant Met?:** **Yes**

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Signalized |
| **Design Hour Volume of Turning Lane:** | 130 |
| **Cycles Per Hour (Assumed):** | Known |
| **Cycles Per Hour (If Known):** | 38.3 |

**Average # of Vehicles/Cycle:** 3.0

**PennDOT Publication 46, Exhibit 11-6**

| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

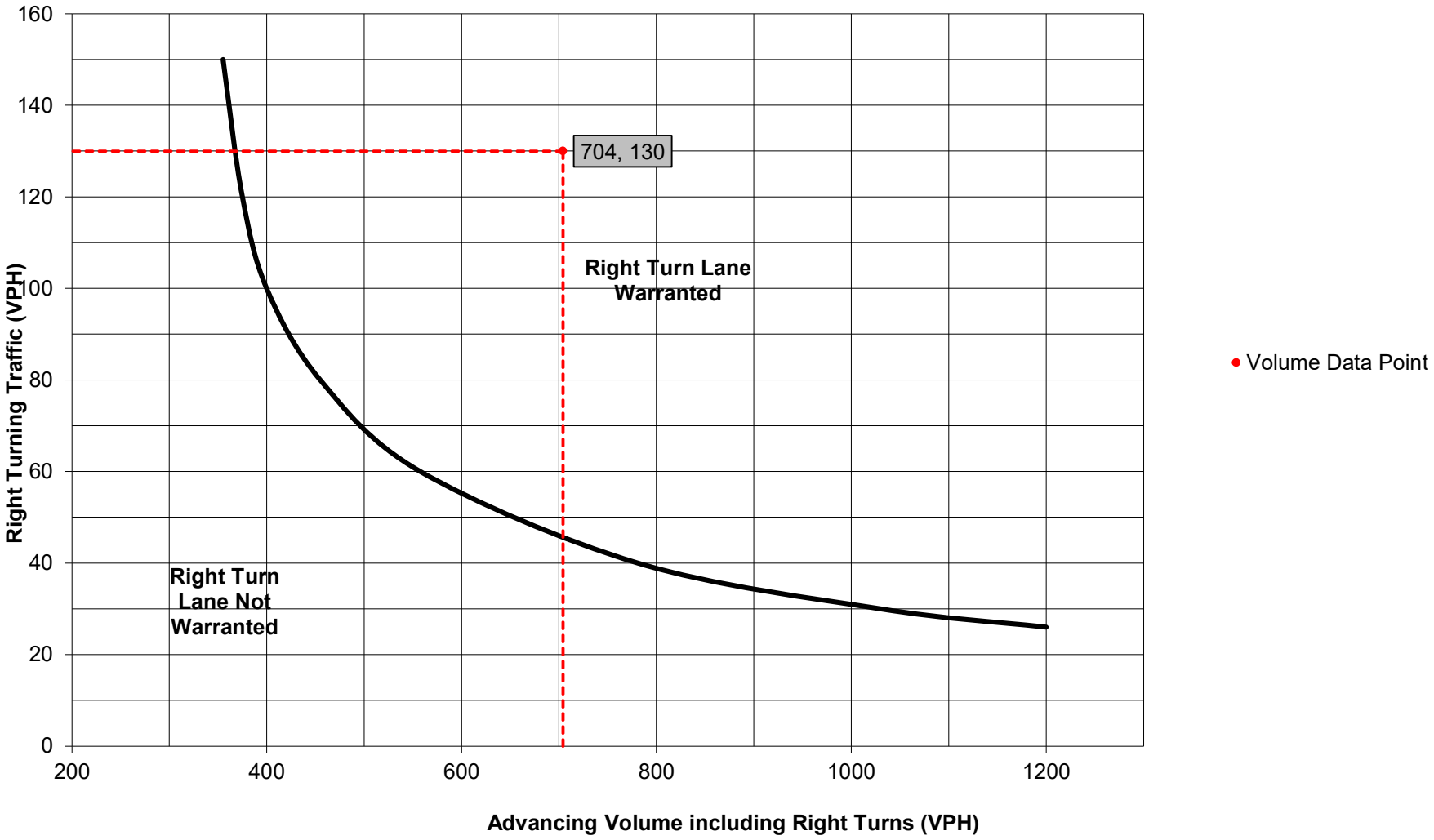
| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | **150** | **Feet** |
| **Condition B:** | **N/A** | **Feet** |
| **Condition C:** | **N/A** | **Feet** |
| **Required Right Turn Lane Storage Length:** | **150** | **Feet** |

**Additional Findings:**

**N/A**

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** N 13th Street (SR 2019) & Wood Avenue (SR 2017) - WB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Signalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 6 | 0.0% | 6 |
| | Through | - | 237 | 1.0% | 241 |
| | Right | Yes | 67 | 9.0% | 77 |
| Opposing | Left | Yes | 376 | 4.0% | 399 |
| | Through | - | 169 | 2.0% | 175 |
| | Right | No | 128 | 1.0% | N/A |

| | |
|---|---|
| **Advancing Volume:** | 324 |
| **Opposing Volume:** | 574 |
| **Left Turn Volume:** | 6 |
| **% Left Turns in Advancing Volume:** | 1.85% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 1

**Warrant Met?:** No

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Signalized |
| **Design Hour Volume of Turning Lane:** | 6 |
| **Cycles Per Hour (Assumed):** | Known |
| **Cycles Per Hour (If Known):** | 38.3 |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

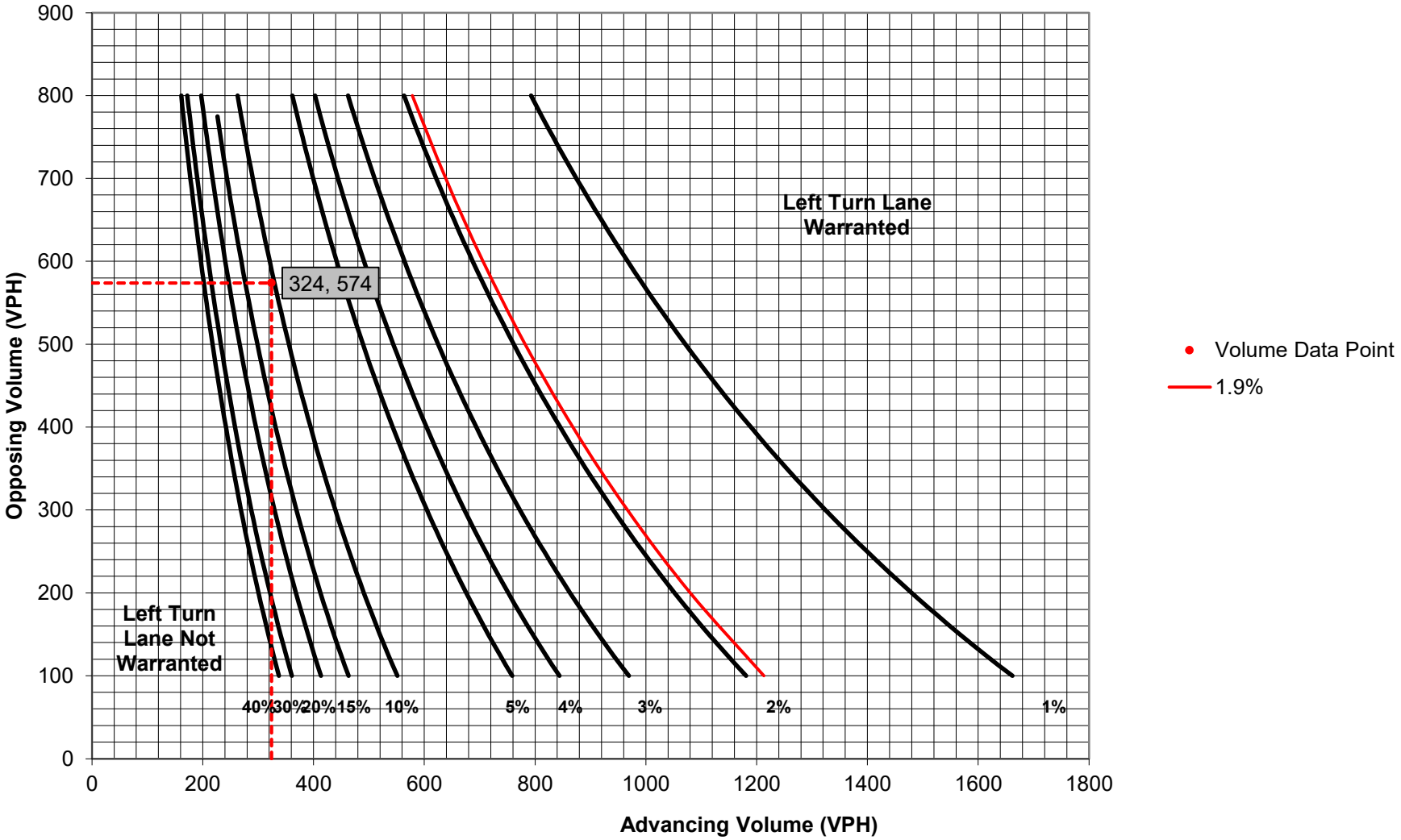
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)**
(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** N 13th Street (SR 2019) & Wood Avenue (SR 2017) - WB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Signalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |
| Opposing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 6 | 0.0% | 6 |
| | Through | - | 237 | 1.0% | 241 |
| | Right | - | 67 | 9.0% | 77 |

| | |
|---|---|
| **Advancing Volume:** | 324 |
| **Right Turn Volume:** | 77 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 9

**Warrant Met?:** No

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Signalized |
| **Design Hour Volume of Turning Lane:** | 77 |
| **Cycles Per Hour (Assumed):** | Known |
| **Cycles Per Hour (If Known):** | 38.3 |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

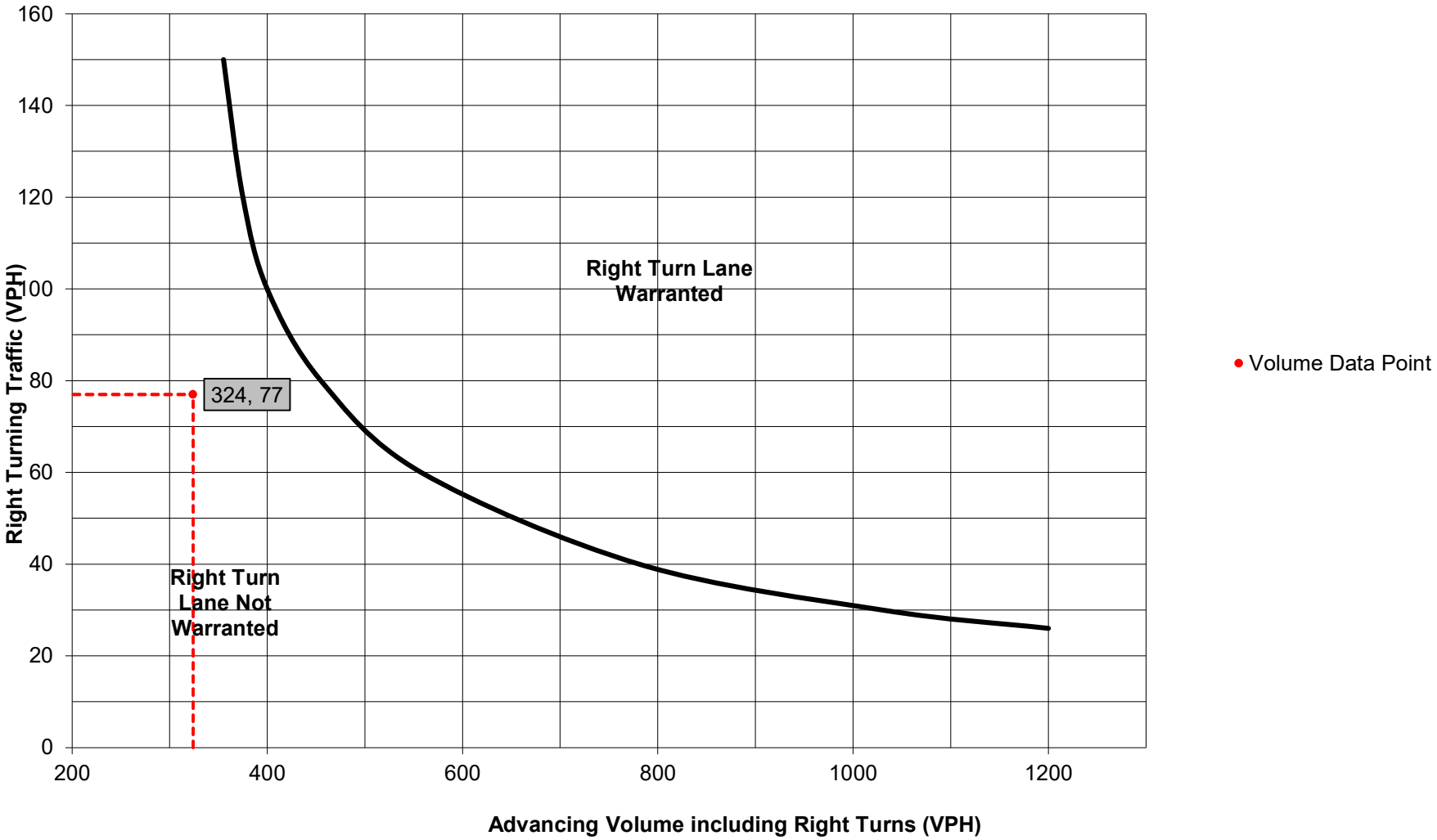
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Right Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/11/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** N 13th Street (SR 2019) & Wood Avenue (SR 2017) - NB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Signalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 161 | 4.0% | 171 |
| | Through | - | 159 | 5.0% | 171 |
| | Right | No | 18 | 12.0% | N/A |
| Opposing | Left | Yes | 76 | 7.0% | 84 |
| | Through | - | 176 | 2.0% | 182 |
| | Right | No | 500 | 5.0% | N/A |

| | |
|---|---|
| **Advancing Volume:** | 342 |
| **Opposing Volume:** | 266 |
| **Left Turn Volume:** | 171 |
| **% Left Turns in Advancing Volume:** | 50.00% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 1

**Warrant Met?:** Yes

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Signalized |
| **Design Hour Volume of Turning Lane:** | 171 |
| **Cycles Per Hour (Assumed):** | Known |
| **Cycles Per Hour (If Known):** | 45.57 |

**Average # of Vehicles/Cycle:** 4.0

**PennDOT Publication 46, Exhibit 11-6**

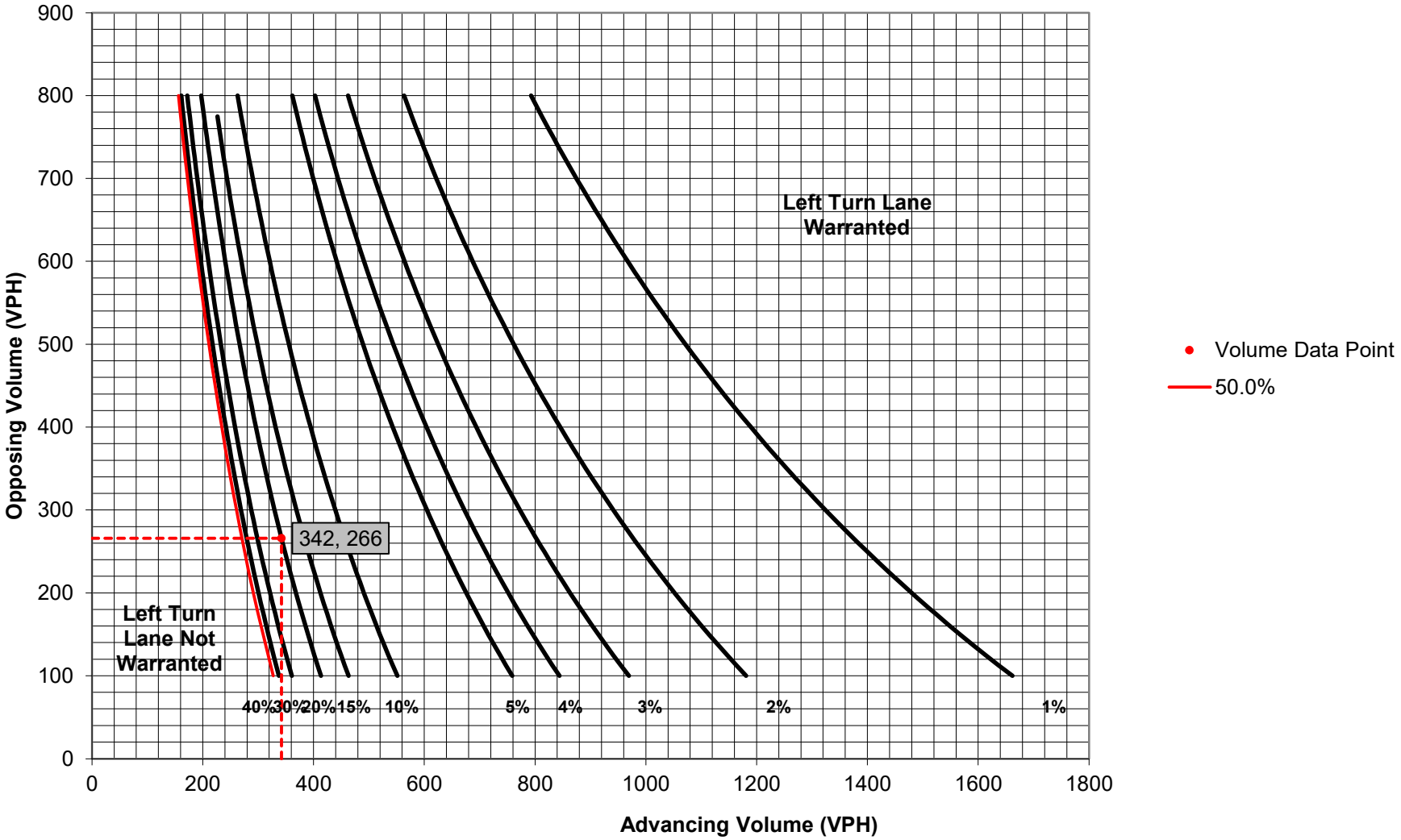
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | 175 | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | 175 | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 1. Warrant for left turn lanes on two-lane roadways**
**(speeds to 35 mph, unsignalized and signalized intersections)**
(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** N 13th Street (SR 2019) & Wood Avenue (SR 2017) - NB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Signalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |
| Opposing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | No | 161 | 4.0% | N/A |
| | Through | - | 159 | 5.0% | 171 |
| | Right | - | 18 | 12.0% | 22 |

| | |
|---|---|
| **Advancing Volume:** | 193 |
| **Right Turn Volume:** | 22 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 9

**Warrant Met?:** No

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Signalized |
| **Design Hour Volume of Turning Lane:** | 22 |
| **Cycles Per Hour (Assumed):** | Known |
| **Cycles Per Hour (If Known):** | 45.57 |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

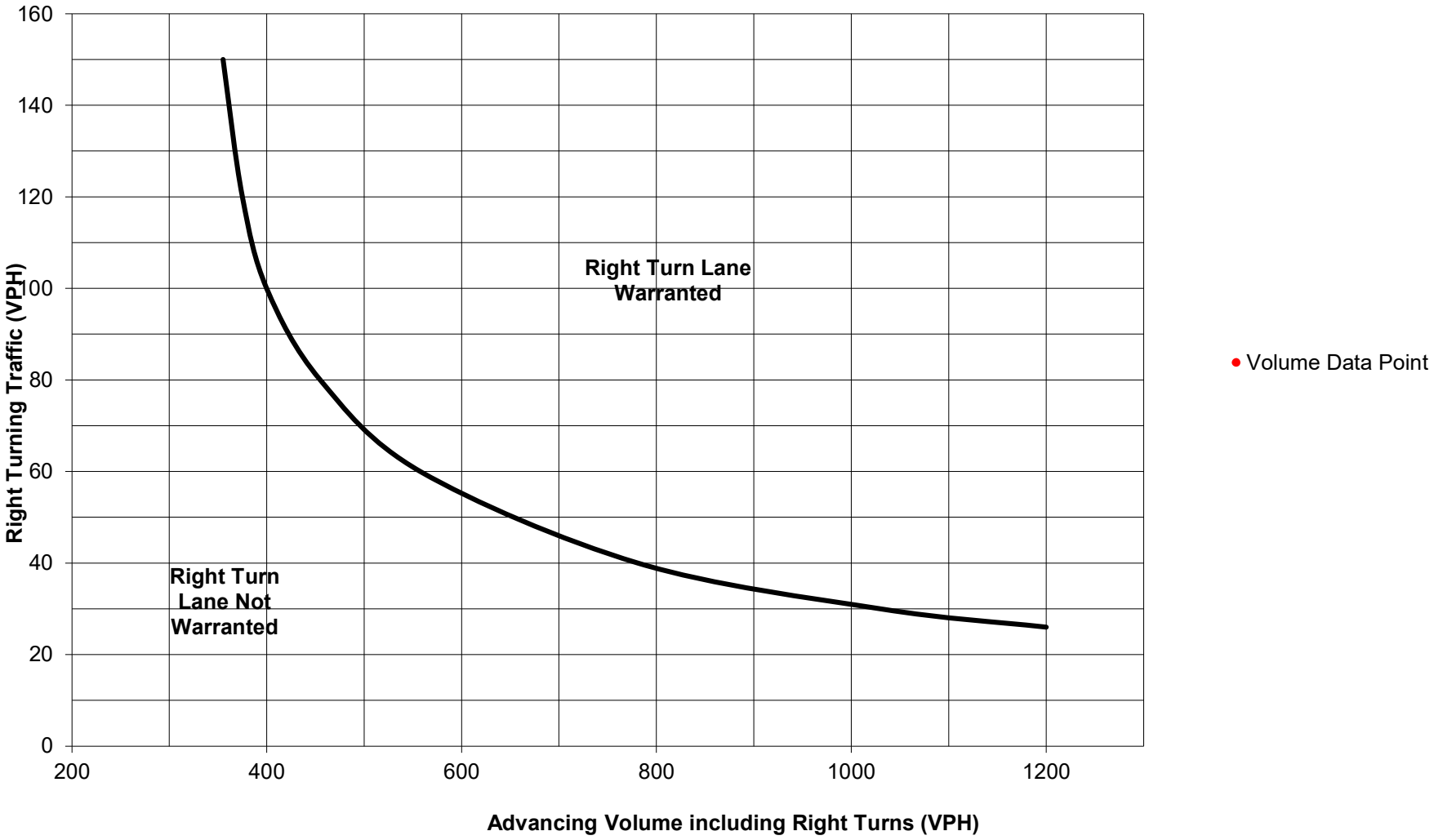
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Right Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** N 13th Street (SR 2019) & Wood Avenue (SR 2017) - SB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Signalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 76 | 7.0% | 84 |
| | Through | - | 176 | 2.0% | 182 |
| | Right | No | 500 | 5.0% | N/A |
| Opposing | Left | Yes | 161 | 4.0% | 171 |
| | Through | - | 159 | 5.0% | 171 |
| | Right | Yes | 18 | 12.0% | 22 |

| | |
|---|---|
| **Advancing Volume:** | 266 |
| **Opposing Volume:** | 364 |
| **Left Turn Volume:** | 84 |
| **% Left Turns in Advancing Volume:** | 31.58% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** **Figure 1**

**Warrant Met?:** **Yes**

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** **N/A**

**Warrant Met?:** **N/A**

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Signalized |
| **Design Hour Volume of Turning Lane:** | 84 |
| **Cycles Per Hour (Assumed):** | Known |
| **Cycles Per Hour (If Known):** | 45.57 |

**Average # of Vehicles/Cycle:** 2.0

**PennDOT Publication 46, Exhibit 11-6**

| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

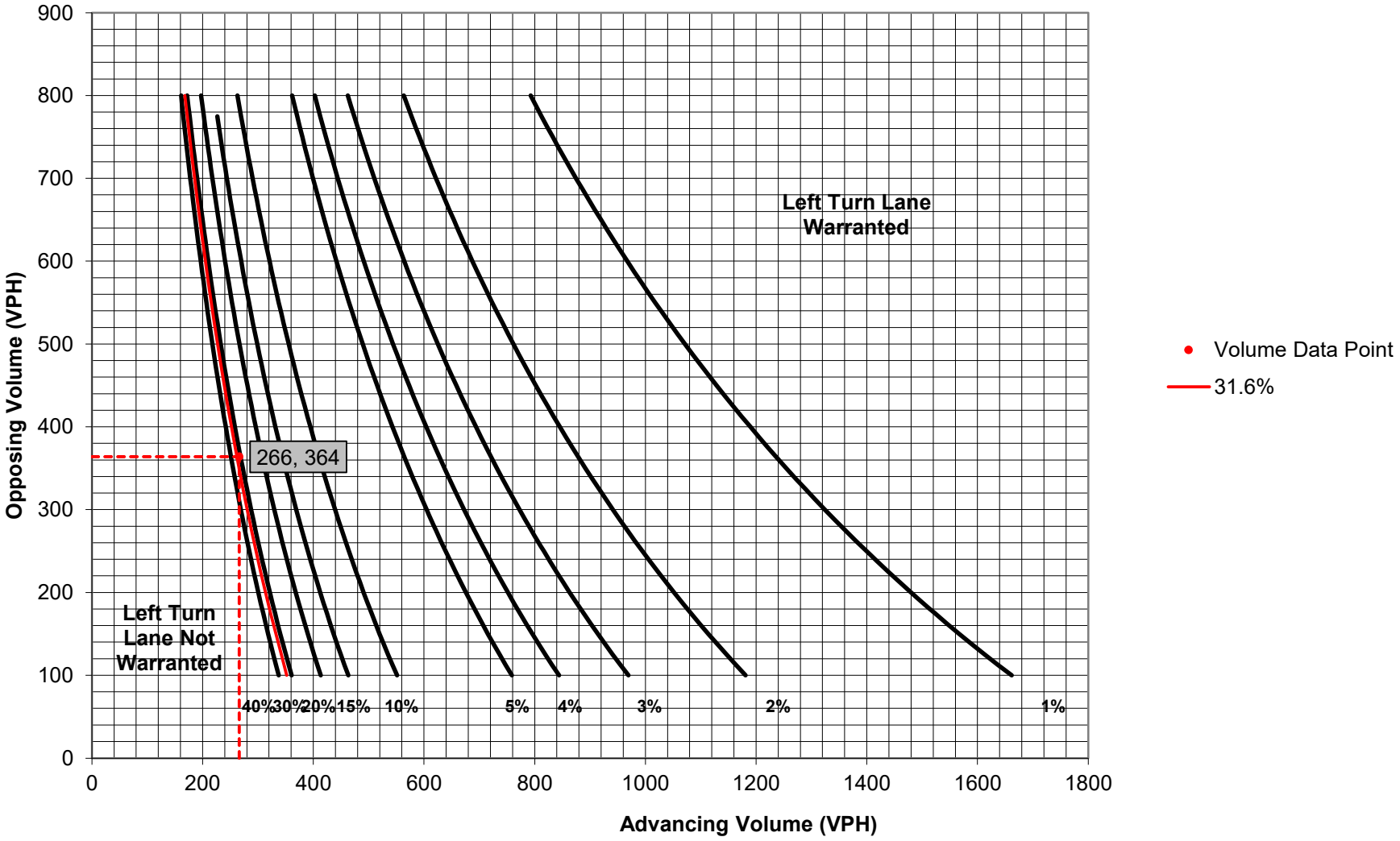
| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | **100** | **Feet** |
| **Condition B:** | **N/A** | **Feet** |
| **Condition C:** | **N/A** | **Feet** |
| **Required Left Turn Lane Storage Length:** | **100** | **Feet** |

**Additional Findings:**

**N/A**

**Additional Comments / Justifications:**

**Figure 1. Warrant for left turn lanes on two-lane roadways**
**(speeds to 35 mph, unsignalized and signalized intersections)**
(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** N 13th Street (SR 2019) & Wood Avenue (SR 2017) - SB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Signalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |
| Opposing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | No | 76 | 7.0% | N/A |
| | Through | - | 176 | 2.0% | 182 |
| | Right | - | 500 | 5.0% | 538 |

| | |
|---|---|
| **Advancing Volume:** | 720 |
| **Right Turn Volume:** | 538 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** **N/A**

**Warrant Met?:** **N/A**

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** **Figure 9**

**Warrant Met?:** **Yes**

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Signalized |
| **Design Hour Volume of Turning Lane:** | 538 |
| **Cycles Per Hour (Assumed):** | Known |
| **Cycles Per Hour (If Known):** | 45.57 |

**Average # of Vehicles/Cycle:** 12.0

**PennDOT Publication 46, Exhibit 11-6**

| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

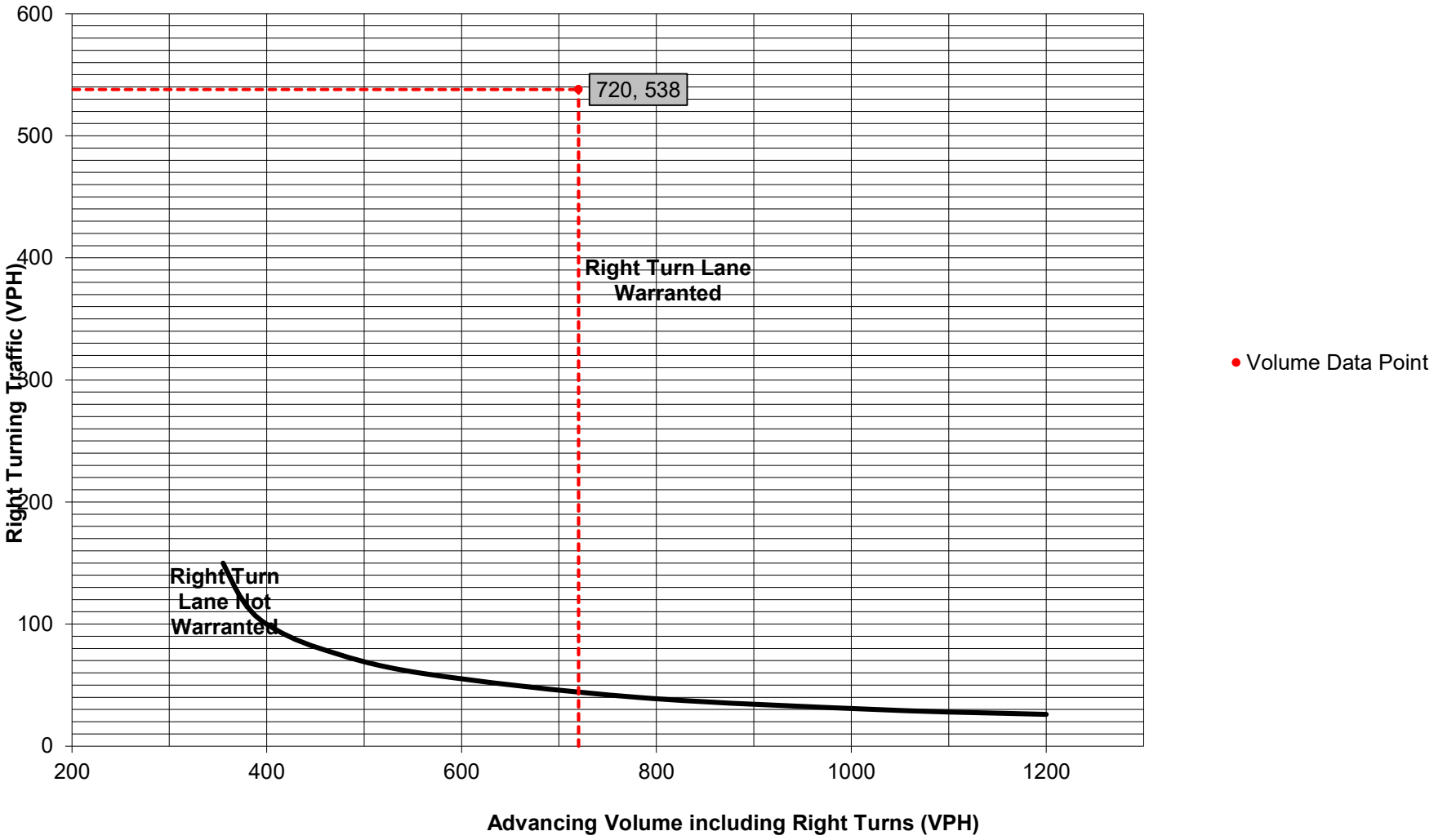
| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | **450** | **Feet** |
| **Condition B:** | **N/A** | **Feet** |
| **Condition C:** | **N/A** | **Feet** |
| **Required Right Turn Lane Storage Length:** | **450** | **Feet** |

**Additional Findings:**

**N/A**

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** N 13th Street (SR 2019) & Wood Avenue (SR 2017) - EB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Signalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 483 | 2.0% | 498 |
| | Through | - | 205 | 2.0% | 212 |
| | Right | Yes | 158 | 3.0% | 166 |
| Opposing | Left | Yes | 6 | 0.0% | 6 |
| | Through | - | 240 | 1.0% | 244 |
| | Right | No | 59 | 14.0% | N/A |

| | |
|---|---|
| **Advancing Volume:** | 876 |
| **Opposing Volume:** | 250 |
| **Left Turn Volume:** | 498 |
| **% Left Turns in Advancing Volume:** | 56.85% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** **Figure 1**

**Warrant Met?:** **Yes**

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** **N/A**

**Warrant Met?:** **N/A**

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Signalized |
| **Design Hour Volume of Turning Lane:** | 498 |
| **Cycles Per Hour (Assumed):** | Known |
| **Cycles Per Hour (If Known):** | 45.57 |

**Average # of Vehicles/Cycle:** 11.0

**PennDOT Publication 46, Exhibit 11-6**

| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

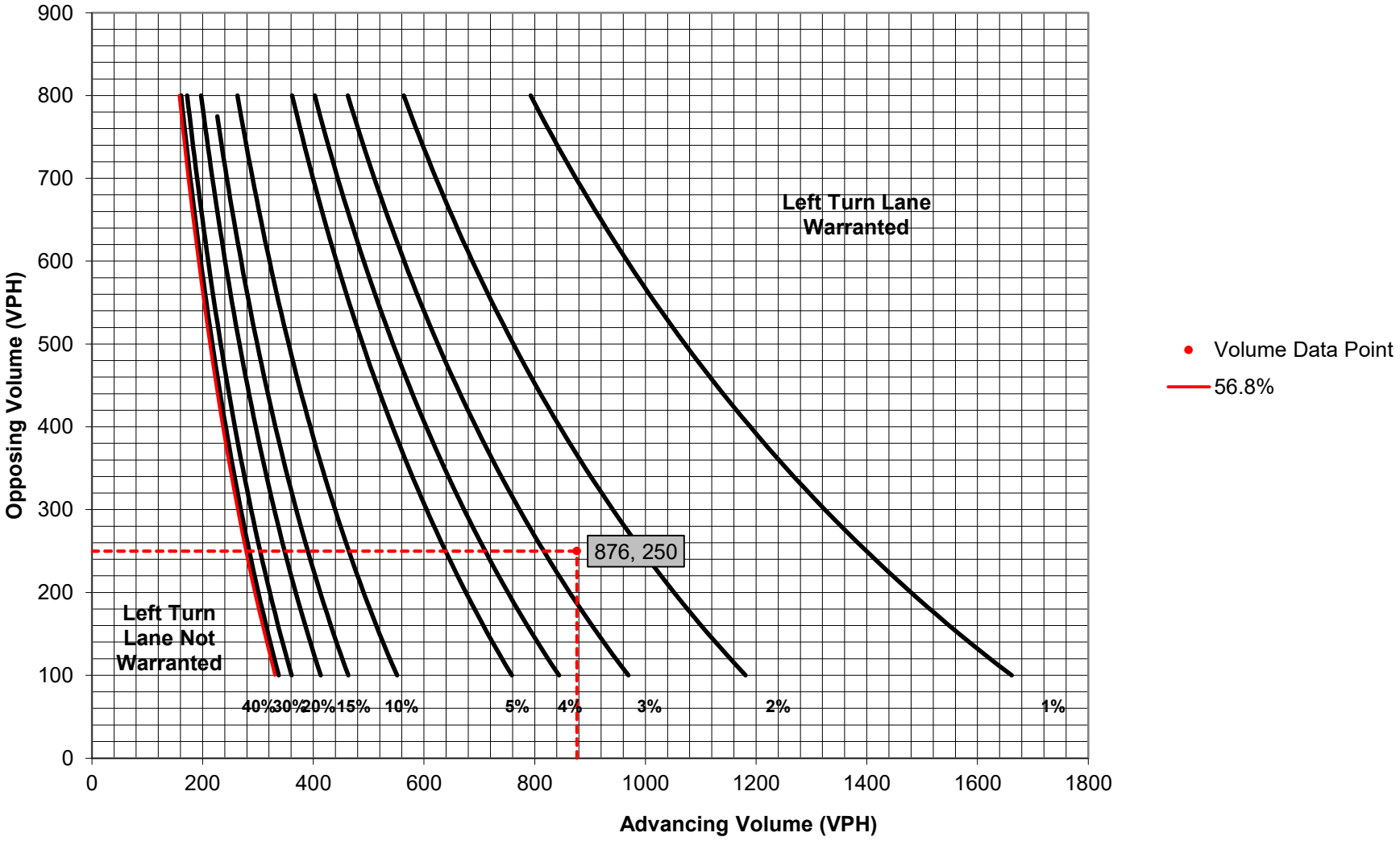
| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | **400** | **Feet** |
| **Condition B:** | **N/A** | **Feet** |
| **Condition C:** | **N/A** | **Feet** |
| **Required Left Turn Lane Storage Length:** | **400** | **Feet** |

**Additional Findings:**

**Consider Dual Left Turn Lanes and Operational Analyses**

**Additional Comments / Justifications:**

**Figure 1. Warrant for left turn lanes on two-lane roadways**
**(speeds to 35 mph, unsignalized and signalized intersections)**
(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** N 13th Street (SR 2019) & Wood Avenue (SR 2017) - EB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Signalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |
| Opposing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 483 | 2.0% | 498 |
| | Through | - | 205 | 2.0% | 212 |
| | Right | - | 158 | 3.0% | 166 |

| | |
|---|---|
| **Advancing Volume:** | 876 |
| **Right Turn Volume:** | 166 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** **N/A**

**Warrant Met?:** **N/A**

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** **Figure 9**

**Warrant Met?:** **Yes**

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Signalized |
| **Design Hour Volume of Turning Lane:** | 166 |
| **Cycles Per Hour (Assumed):** | Known |
| **Cycles Per Hour (If Known):** | 45.57 |

**Average # of Vehicles/Cycle:** 4.0

**PennDOT Publication 46, Exhibit 11-6**

| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

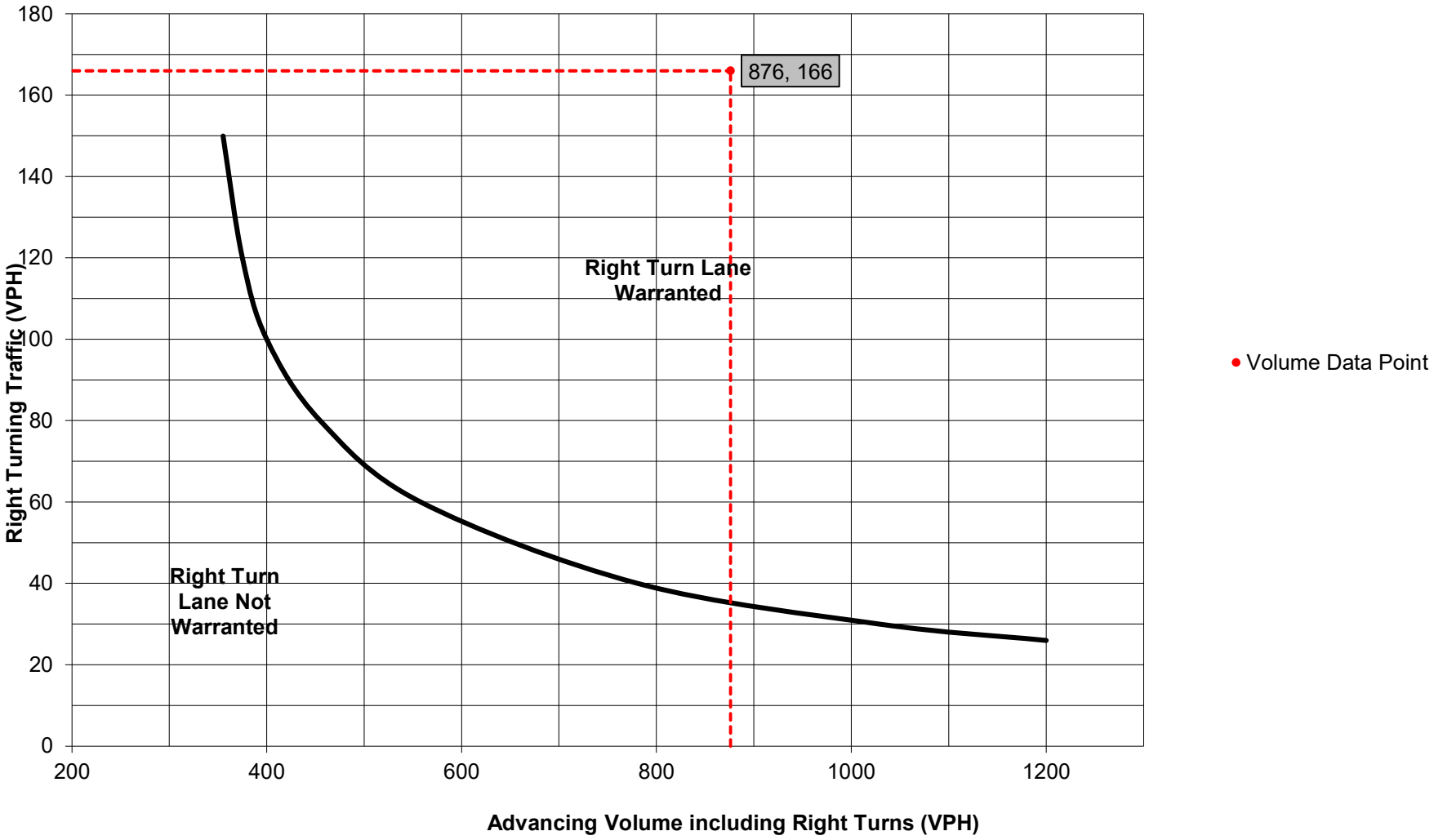
| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | **175** | **Feet** |
| **Condition B:** | **N/A** | **Feet** |
| **Condition C:** | **N/A** | **Feet** |
| **Required Right Turn Lane Storage Length:** | **175** | **Feet** |

**Additional Findings:**

**N/A**

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** N 13th Street (SR 2019) & Wood Avenue (SR 2017) - WB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Signalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 6 | 0.0% | 6 |
| | Through | - | 240 | 1.0% | 244 |
| | Right | Yes | 59 | 14.0% | 72 |
| Opposing | Left | Yes | 483 | 2.0% | 498 |
| | Through | - | 205 | 2.0% | 212 |
| | Right | No | 158 | 3.0% | N/A |

| | |
|---|---|
| **Advancing Volume:** | 322 |
| **Opposing Volume:** | 710 |
| **Left Turn Volume:** | 6 |
| **% Left Turns in Advancing Volume:** | 1.86% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 1

**Warrant Met?:** No

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Signalized |
| **Design Hour Volume of Turning Lane:** | 6 |
| **Cycles Per Hour (Assumed):** | Known |
| **Cycles Per Hour (If Known):** | 45.57 |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

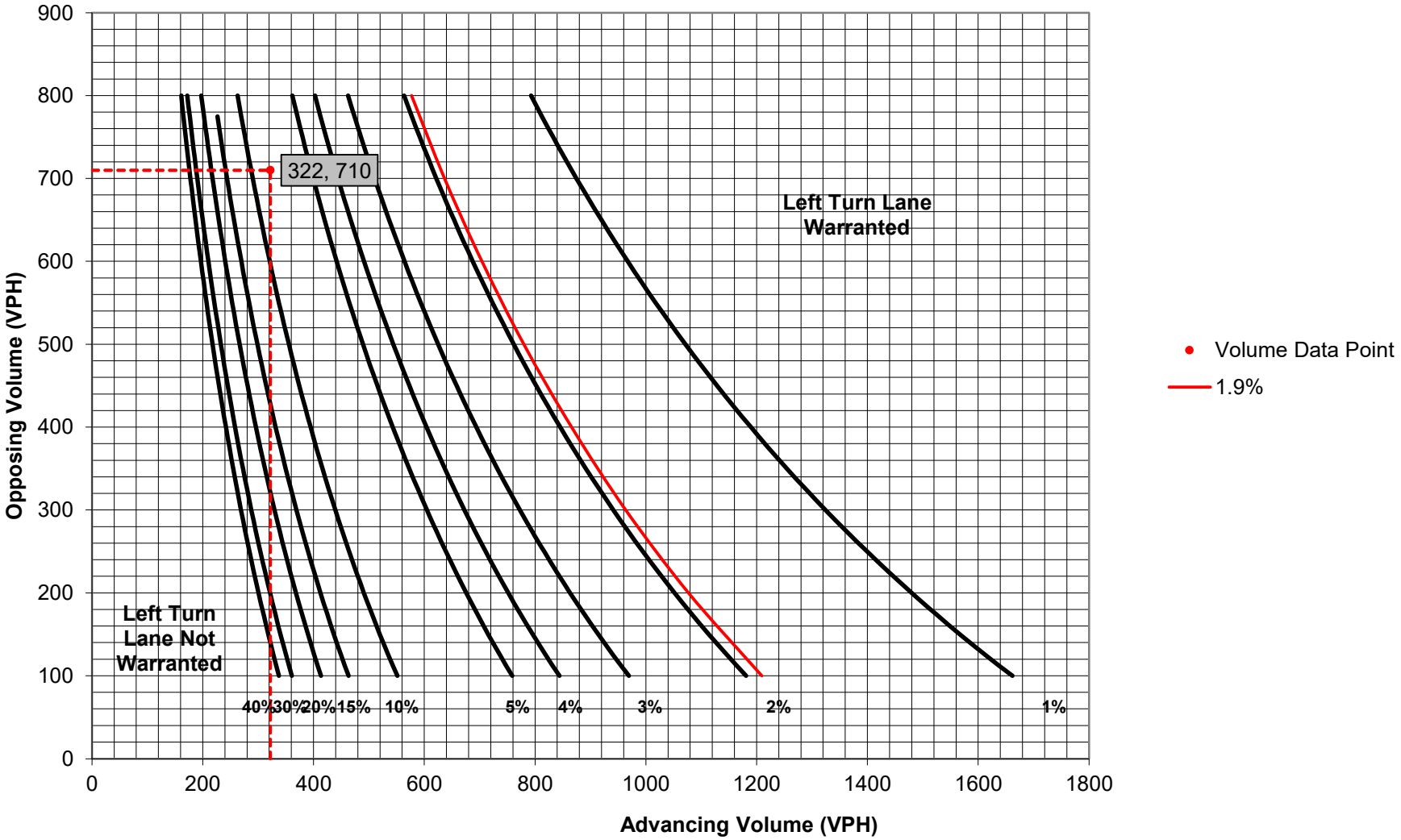
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 1. Warrant for left turn lanes on two-lane roadways**
**(speeds to 35 mph, unsignalized and signalized intersections)**
(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** N 13th Street (SR 2019) & Wood Avenue (SR 2017) - WB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Signalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |
| Opposing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 6 | 0.0% | 6 |
| | Through | - | 240 | 1.0% | 244 |
| | Right | - | 59 | 14.0% | 72 |

| | |
|---|---|
| **Advancing Volume:** | 322 |
| **Right Turn Volume:** | 72 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** **N/A**

**Warrant Met?:** **N/A**

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** **Figure 9**

**Warrant Met?:** **No**

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Signalized |
| **Design Hour Volume of Turning Lane:** | 72 |
| **Cycles Per Hour (Assumed):** | Known |
| **Cycles Per Hour (If Known):** | 45.57 |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

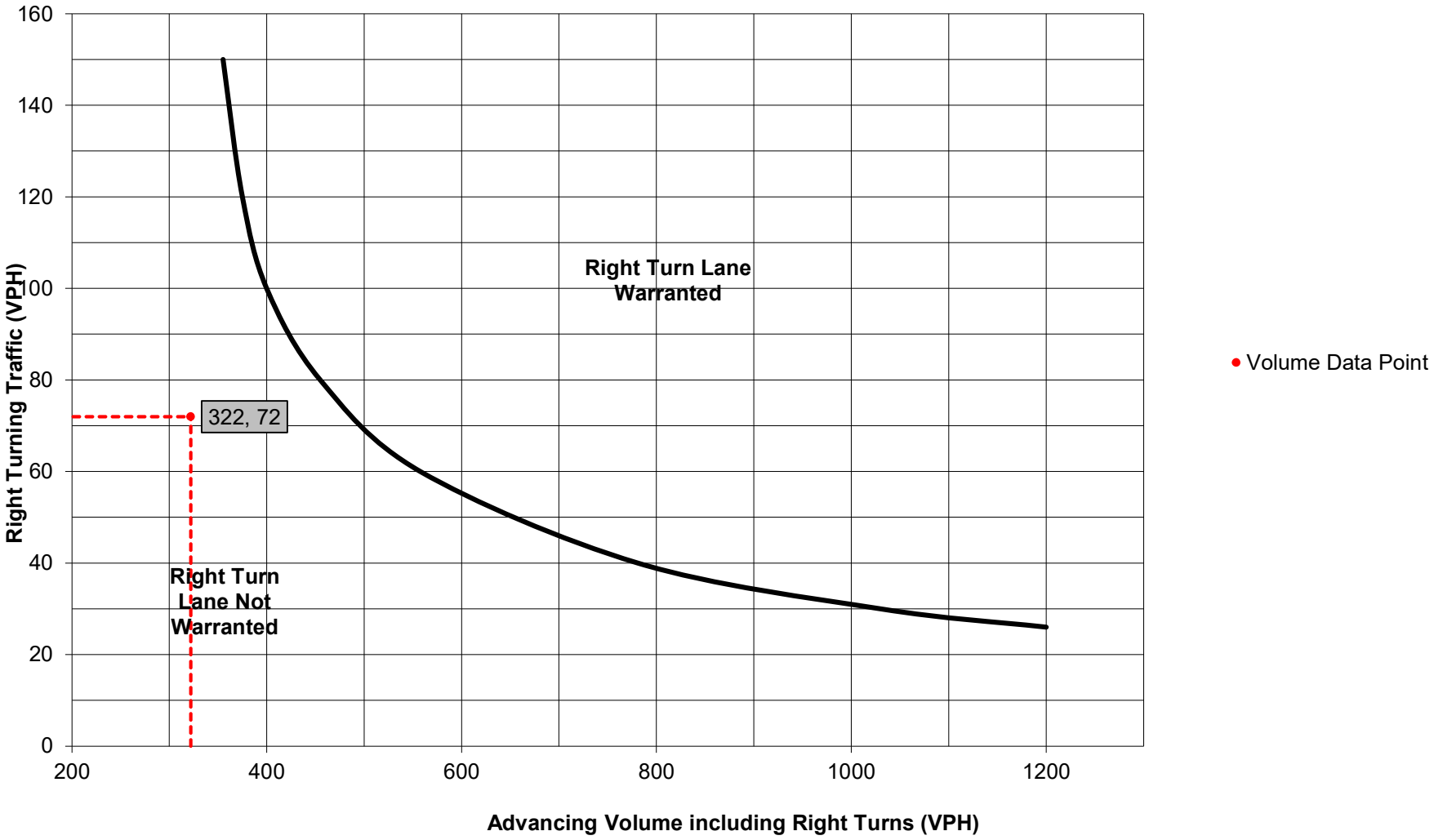
| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | **N/A** | **Feet** |
| **Condition B:** | **N/A** | **Feet** |
| **Condition C:** | **N/A** | **Feet** |
| **Required Right Turn Lane Storage Length:** | **N/A** | **Feet** |

**Additional Findings:**

**N/A**

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Auxiliary Turn Lane Warrants

*Wood Avenue (SR 2017) & US 22 East On-Ramp*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/12/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** Wood Avenue (SR 2017) & US 22 East On-Ramp - EB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 2 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Divided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 123 | 4.0% | 131 |
| | Through | - | 680 | 3.0% | 711 |
| | Right | | | | 0 |
| Opposing | Left | | | | 0 |
| | Through | - | 921 | 1.0% | 935 |
| | Right | No | 197 | 2.0% | N/A |

| | |
|---|---|
| **Advancing Volume:** | 842 |
| **Opposing Volume:** | 935 |
| **Left Turn Volume:** | 131 |
| **% Left Turns in Advancing Volume:** | 15.56% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 8

**Warrant Met?:** Yes

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 131 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** 2.0

**PennDOT Publication 46, Exhibit 11-6**

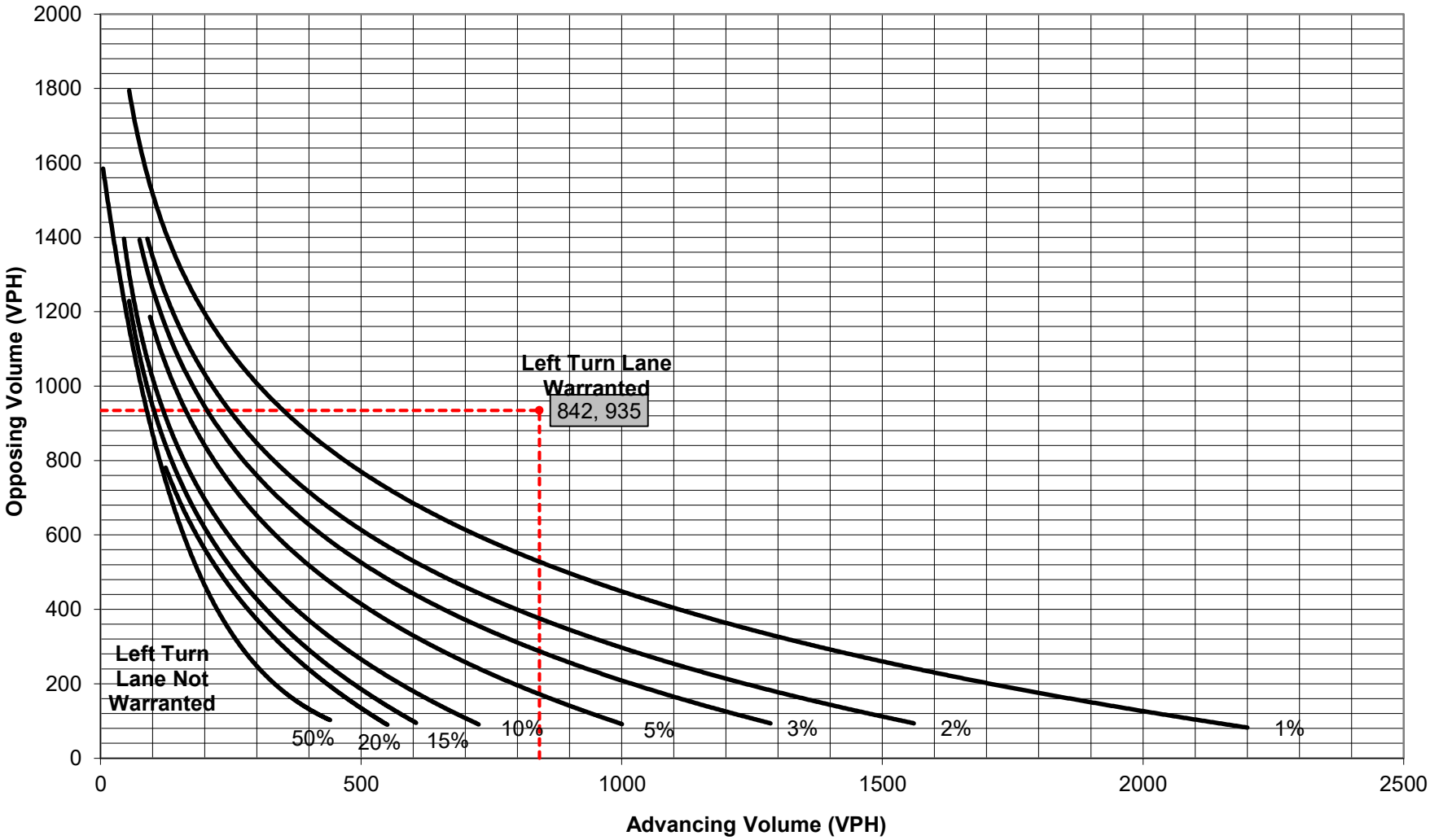
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | 100 | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | 100 | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 8. Warrant for left turn lanes on four-lane, divided highways (unsignalized and signalized intersections)**
(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson, Easton, Palmer | **Analysis Date:** | 6/11/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Checked By:** | ICP |
| | | **Agency/Company Name:** | KCI Technologies |

**Intersection & Approach Description:** Wood Avenue (SR 2017) & US 22 East On-Ramp - EB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2030 Build | **Number of Approach Lanes:** | 2 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Divided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 35 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 90 | 4.0% | 96 |
| | Through | - | 846 | 2.0% | 872 |
| | Right | | | | 0 |
| Opposing | Left | | | | 0 |
| | Through | - | 817 | 2.0% | 842 |
| | Right | Yes | 99 | 0.0% | 99 |

| | |
|---|---|
| **Advancing Volume:** | 968 |
| **Opposing Volume:** | 941 |
| **Left Turn Volume:** | 96 |
| **% Left Turns in Advancing Volume:** | 9.92% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 8

**Warrant Met?:** Yes

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 96 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** 2.0

**PennDOT Publication 46, Exhibit 11-6**

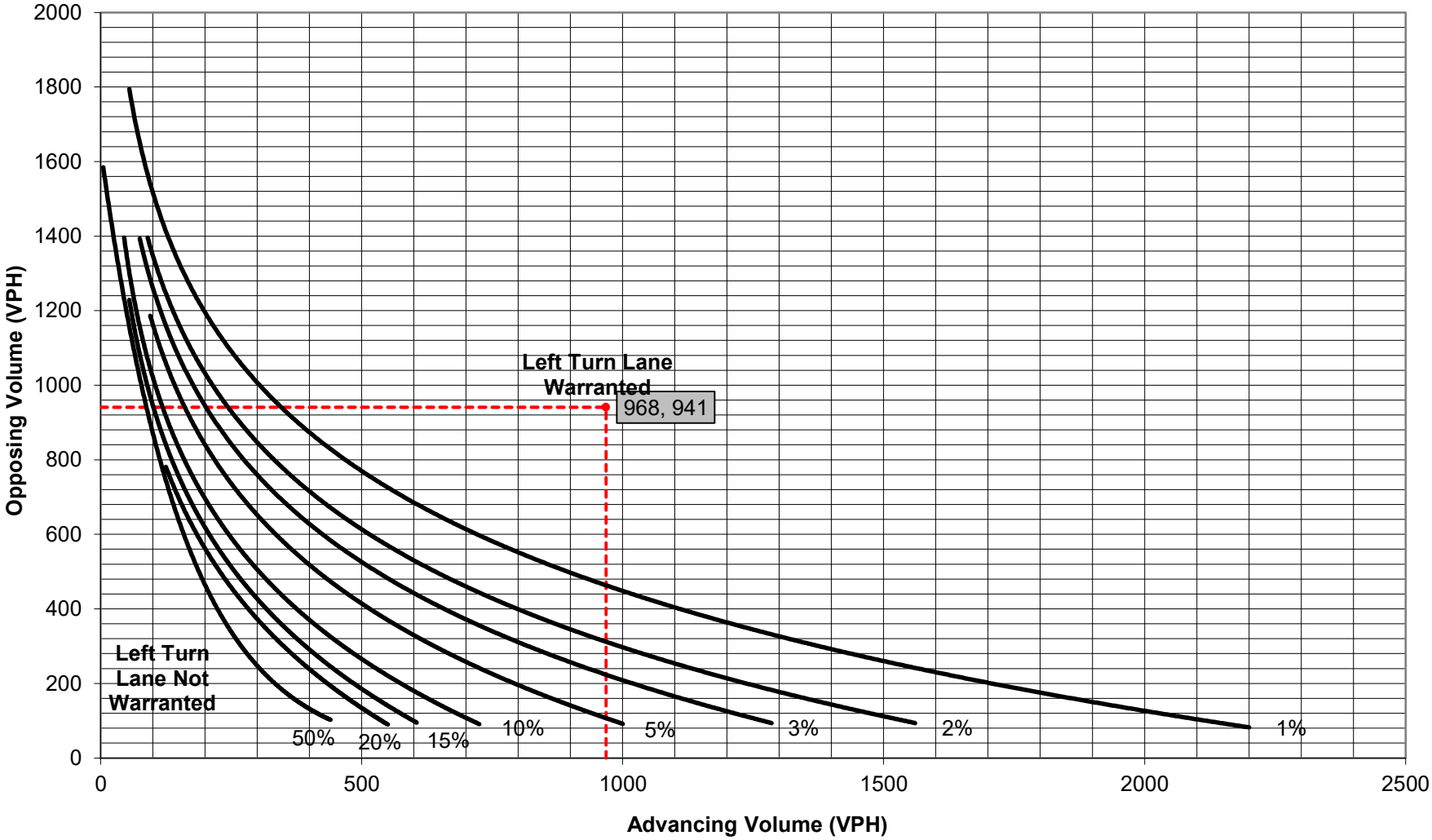
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | 100 | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | 100 | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 8. Warrant for left turn lanes on four-lane, divided highways (unsignalized and signalized intersections)**
(L = % Left Turns in Advancing Volume)



# Traffic Signal Warrants

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue

# Traffic Signal Warrants - 15 MINUTE INTERVAL VOLUME DATA (2025)

## Hackett Avenue (SR 2017) & Wood Avenue (SR 2017)/(SR 2024)

| Interval | | Existing Traffic Volumes | | | Growth from 2023 to 2025 | | | Factor for Site Generated Traffic (Vehicle) | Site Generated Volumes (Vehicle) | | | Factor for Site Generated Traffic (Truck) | Site Generated Volumes (Truck) | | | 2025 WD Volumes (Growth + Site) | | | Total 2025 Volumes | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Begin | End | SB | EB | WB | SB | EB | WB | | SB | EB | WB | | SB | EB | WB | SB | EB | WB | SB | EB | WB |
| 5:15 | 5:29 | | | | | | | | AM Peak Hour | | | | AM Peak Hour | | | | | | | | |
| 5:30 | 5:44 | | | | | | | | | | | | | | | | | | | | |
| 5:45 | 5:59 | | | | | | | | 5 | 64 | 17 | | 4 | 5 | 3 | | | | | | |
| 6:00 | 6:14 | 24 | 13 | 27 | 24 | 13 | 27 | 0.43 of row below | 0 | 7 | 2 | 0.41 of row below | 0 | 0 | 0 | 24 | 20 | 29 | 24 | 20 | 29 |
| 6:15 | 6:29 | 26 | 25 | 47 | 26 | 25 | 47 | | 0 | 7 | 2 | | 0 | 0 | 0 | 26 | 32 | 49 | 26 | 32 | 49 |
| 6:30 | 6:44 | 31 | 38 | 68 | 31 | 38 | 69 | | 0 | 7 | 2 | | 0 | 0 | 0 | 31 | 45 | 71 | 31 | 45 | 71 |
| 6:45 | 6:59 | 35 | 34 | 104 | 35 | 34 | 105 | | 0 | 7 | 2 | | 0 | 0 | 0 | 35 | 41 | 107 | 35 | 41 | 107 |
| 7:00 | 7:14 | 38 | 39 | 94 | 38 | 39 | 95 | AM PEAK HOUR / 4 | 1 | 16 | 4 | AM PEAK HOUR / 4 | 1 | 1 | 1 | 40 | 56 | 100 | 40 | 56 | 100 |
| 7:15 | 7:29 | 57 | 78 | 63 | 57 | 79 | 64 | | 1 | 16 | 4 | | 1 | 1 | 1 | 59 | 96 | 69 | 59 | 96 | 69 |
| 7:30 | 7:44 | 39 | 52 | 74 | 39 | 52 | 75 | | 1 | 16 | 4 | | 1 | 1 | 1 | 41 | 69 | 80 | 41 | 69 | 80 |
| 7:45 | 7:59 | 54 | 40 | 56 | 54 | 40 | 56 | | 1 | 16 | 4 | | 1 | 1 | 1 | 56 | 57 | 61 | 56 | 57 | 61 |
| 8:00 | 8:14 | 39 | 36 | 64 | 39 | 36 | 65 | 1.65 of row above | 2 | 26 | 7 | 0.90 of row above | 1 | 1 | 1 | 42 | 63 | 73 | 42 | 63 | 73 |
| 8:15 | 8:29 | 33 | 40 | 57 | 33 | 40 | 57 | | 2 | 26 | 7 | | 1 | 1 | 1 | 36 | 67 | 65 | 36 | 67 | 65 |
| 8:30 | 8:44 | 43 | 44 | 64 | 43 | 44 | 65 | | 2 | 26 | 7 | | 1 | 1 | 1 | 46 | 71 | 73 | 46 | 71 | 73 |
| 8:45 | 8:59 | 32 | 49 | 73 | 32 | 49 | 74 | | 2 | 26 | 7 | | 1 | 1 | 1 | 35 | 76 | 82 | 35 | 76 | 82 |
| 15:00 | 15:14 | 54 | 58 | 93 | 54 | 58 | 94 | PM PEAK HOUR / 4 | 5 | 8 | 11 | PM PEAK HOUR / 4 | 1 | 1 | 1 | 60 | 67 | 106 | 60 | 67 | 106 |
| 15:15 | 15:29 | 52 | 74 | 104 | 52 | 75 | 105 | | 5 | 8 | 11 | | 1 | 1 | 1 | 58 | 84 | 117 | 58 | 84 | 117 |
| 15:30 | 15:44 | 58 | 87 | 121 | 58 | 88 | 122 | | 5 | 8 | 11 | | 1 | 1 | 1 | 64 | 97 | 134 | 64 | 97 | 134 |
| 15:45 | 15:59 | 54 | 65 | 129 | 54 | 66 | 130 | | 5 | 8 | 11 | | 1 | 1 | 1 | 60 | 75 | 142 | 60 | 75 | 142 |
| 16:00 | 16:14 | 44 | 70 | 113 | 44 | 71 | 114 | 1.62 of row above | 8 | 13 | 18 | 1.19 of row above | 1 | 1 | 1 | 53 | 85 | 133 | 53 | 85 | 133 |
| 16:15 | 16:29 | 60 | 72 | 91 | 61 | 73 | 92 | | 8 | 13 | 18 | | 1 | 1 | 1 | 70 | 87 | 111 | 70 | 87 | 111 |
| 16:30 | 16:44 | 56 | 77 | 127 | 56 | 78 | 128 | | 8 | 13 | 18 | | 1 | 1 | 1 | 65 | 92 | 147 | 65 | 92 | 147 |
| 16:45 | 16:59 | 60 | 80 | 121 | 61 | 81 | 122 | | 8 | 13 | 18 | | 1 | 1 | 1 | 70 | 95 | 141 | 70 | 95 | 141 |
| 17:00 | 17:14 | 51 | 76 | 100 | 51 | 77 | 101 | 1.47 of row above | 12 | 19 | 26 | 1.04 of row above | 1 | 1 | 1 | 64 | 97 | 128 | 64 | 97 | 128 |
| 17:15 | 17:29 | 38 | 59 | 89 | 38 | 60 | 90 | | 12 | 19 | 26 | | 1 | 1 | 1 | 51 | 80 | 117 | 51 | 80 | 117 |
| 17:30 | 17:44 | 45 | 57 | 103 | 45 | 57 | 104 | | 12 | 19 | 26 | | 1 | 1 | 1 | 58 | 77 | 131 | 58 | 77 | 131 |
| 17:45 | 17:59 | 28 | 76 | 74 | 28 | 77 | 75 | | 12 | 19 | 26 | | 1 | 1 | 1 | 41 | 97 | 102 | 41 | 97 | 102 |
| 18:00 | 18:14 | | | | | | | | PM Peak Hour | | | | PM Peak Hour | | | | | | | | |
| 18:15 | 18:29 | | | | | | | | 21 | 33 | 43 | | 2 | 3 | 2 | | | | | | |

# Traffic Signal Warrants - 15 MINUTE INTERVAL VOLUME DATA (2030)

## Hackett Avenue (SR 2017) & Wood Avenue (SR 2017)/(SR 2024)

| Interval | | Existing Traffic Volumes | | | Growth from 2023 to 2030 | | | Factor for Site Generated Traffic (Vehicle) | Site Generated Volumes (Vehicle) | | | Factor for Site Generated Traffic (Truck) | Site Generated Volumes (Truck) | | | 2030 WD Volumes (Growth + Site) | | | Total 2030 Volumes | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Begin | End | SB | EB | WB | SB | EB | WB | | SB | EB | WB | | SB | EB | WB | SB | EB | WB | SB | EB | WB |
| 5:15 | 5:29 | | | | | 1.0005 | | | AM Peak Hour | | | | AM Peak Hour | | | | | | | | |
| 5:30 | 5:44 | | | | | | | | | | | | | | | | | | | | |
| 5:45 | 5:59 | | | | | | | | 5 | 64 | 17 | | 4 | 5 | 3 | | | | | | |
| 6:00 | 6:14 | 24 | 13 | 27 | 25 | 13 | 28 | 0.43 of row below | 0 | 7 | 2 | 0.41 of row below | 0 | 0 | 0 | 25 | 20 | 30 | 25 | 20 | 30 |
| 6:15 | 6:29 | 26 | 25 | 47 | 27 | 26 | 48 | | 0 | 7 | 2 | | 0 | 0 | 0 | 27 | 33 | 50 | 27 | 33 | 50 |
| 6:30 | 6:44 | 31 | 38 | 68 | 32 | 39 | 70 | | 0 | 7 | 2 | | 0 | 0 | 0 | 32 | 46 | 72 | 32 | 46 | 72 |
| 6:45 | 6:59 | 35 | 34 | 104 | 36 | 35 | 107 | | 0 | 7 | 2 | 0.41 | 0 | 0 | 0 | 36 | 42 | 109 | 36 | 42 | 109 |
| 7:00 | 7:14 | 38 | 39 | 94 | 39 | 40 | 97 | AM PEAK HOUR / 4 | 1 | 16 | 4 | AM PEAK HOUR / 4 | 1 | 1 | 1 | 41 | 57 | 102 | 41 | 57 | 102 |
| 7:15 | 7:29 | 57 | 78 | 63 | 59 | 80 | 65 | | 1 | 16 | 4 | | 1 | 1 | 1 | 61 | 97 | 70 | 61 | 97 | 70 |
| 7:30 | 7:44 | 39 | 52 | 74 | 40 | 54 | 76 | | 1 | 16 | 4 | | 1 | 1 | 1 | 42 | 71 | 81 | 42 | 71 | 81 |
| 7:45 | 7:59 | 54 | 40 | 56 | 56 | 41 | 58 | | 1 | 16 | 4 | | 1 | 1 | 1 | 58 | 58 | 63 | 58 | 58 | 63 |
| 8:00 | 8:14 | 39 | 36 | 64 | 40 | 37 | 66 | 1.65 of row above | 2 | 26 | 7 | 0.90 of row above | 1 | 1 | 1 | 43 | 64 | 74 | 43 | 64 | 74 |
| 8:15 | 8:29 | 33 | 40 | 57 | 34 | 41 | 59 | | 2 | 26 | 7 | | 1 | 1 | 1 | 37 | 68 | 67 | 37 | 68 | 67 |
| 8:30 | 8:44 | 43 | 44 | 64 | 44 | 45 | 66 | | 2 | 26 | 7 | | 1 | 1 | 1 | 47 | 72 | 74 | 47 | 72 | 74 |
| 8:45 | 8:59 | 32 | 49 | 73 | 33 | 50 | 75 | | 2 | 26 | 7 | 0.90 | 1 | 1 | 1 | 36 | 77 | 83 | 36 | 77 | 83 |
| 15:00 | 15:14 | 54 | 58 | 93 | 56 | 60 | 96 | PM PEAK HOUR / 4 | 5 | 8 | 11 | PM PEAK HOUR / 4 | 1 | 1 | 1 | 62 | 69 | 108 | 62 | 69 | 108 |
| 15:15 | 15:29 | 52 | 74 | 104 | 54 | 76 | 107 | | 5 | 8 | 11 | | 1 | 1 | 1 | 60 | 85 | 119 | 60 | 85 | 119 |
| 15:30 | 15:44 | 58 | 87 | 121 | 60 | 90 | 125 | | 5 | 8 | 11 | | 1 | 1 | 1 | 66 | 99 | 137 | 66 | 99 | 137 |
| 15:45 | 15:59 | 54 | 65 | 129 | 56 | 67 | 133 | | 5 | 8 | 11 | | 1 | 1 | 1 | 62 | 76 | 145 | 62 | 76 | 145 |
| 16:00 | 16:14 | 44 | 70 | 113 | 45 | 72 | 116 | 1.62 of row above | 8 | 13 | 18 | 1.19 of row above | 1 | 1 | 1 | 54 | 86 | 135 | 54 | 86 | 135 |
| 16:15 | 16:29 | 60 | 72 | 91 | 62 | 74 | 94 | | 8 | 13 | 18 | | 1 | 1 | 1 | 71 | 88 | 113 | 71 | 88 | 113 |
| 16:30 | 16:44 | 56 | 77 | 127 | 58 | 79 | 131 | | 8 | 13 | 18 | | 1 | 1 | 1 | 67 | 93 | 150 | 67 | 93 | 150 |
| 16:45 | 16:59 | 60 | 80 | 121 | 62 | 82 | 125 | | 8 | 13 | 18 | 1.19 | 1 | 1 | 1 | 71 | 96 | 144 | 71 | 96 | 144 |
| 17:00 | 17:14 | 51 | 76 | 100 | 53 | 78 | 103 | 1.47 of row above | 12 | 19 | 26 | 1.04 of row above | 1 | 1 | 1 | 66 | 98 | 130 | 66 | 98 | 130 |
| 17:15 | 17:29 | 38 | 59 | 89 | 39 | 61 | 92 | | 12 | 19 | 26 | | 1 | 1 | 1 | 52 | 81 | 119 | 52 | 81 | 119 |
| 17:30 | 17:44 | 45 | 57 | 103 | 46 | 59 | 106 | | 12 | 19 | 26 | | 1 | 1 | 1 | 59 | 79 | 133 | 59 | 79 | 133 |
| 17:45 | 17:59 | 28 | 76 | 74 | 29 | 78 | 76 | | 12 | 19 | 26 | 1.04 | 1 | 1 | 1 | 42 | 98 | 103 | 42 | 98 | 103 |
| 18:00 | 18:14 | | | | | | | | PM Peak Hour | | | | PM Peak Hour | | | | | | | | |
| 18:15 | 18:29 | | | | | | | | 21 | 33 | 43 | | 2 | 3 | 2 | | | | | | |

| Summary | |
|---|---|
| Study Name | Hackett Ave & Wood Ave |
| Project | KCI - Northampton County, PA 02 22 2023 |
| Bin Size | 15 minutes |
| Start Time | 2/22/2023 6:00 |
| End Time | 2/22/2023 18:00 |
| Location | Hackett Ave & Wood Ave |
| Lat & Long. | 40.694879,-75.234387 |
| AM Peak | 6:45 AM - 7:45 AM (0.904) |
| PM Peak | 3:15 PM - 4:15 PM (0.910) |

| Entry | Hackett Avenue (SR 2017) | | | |
|---|---|---|---|---|
| Direction | Southbound | | | |
| Start Time | Left | Right | U-Turn | Total |
| 6:00 | 21 | 3 | 0 | 24 |
| 6:15 | 24 | 2 | 0 | 26 |
| 6:30 | 26 | 5 | 0 | 31 |
| 6:45 | 28 | 7 | 0 | 35 |
| 7:00 | 29 | 9 | 0 | 38 |
| 7:15 | 39 | 18 | 0 | 57 |
| 7:30 | 32 | 7 | 0 | 39 |
| 7:45 | 47 | 7 | 0 | 54 |
| 8:00 | 29 | 10 | 0 | 39 |
| 8:15 | 28 | 5 | 0 | 33 |
| 8:30 | 34 | 9 | 0 | 43 |
| 8:45 | 22 | 10 | 0 | 32 |
| 9:00 | 0 | 0 | 0 | 0 |
| 3:00 | 34 | 20 | 0 | 54 |
| 3:15 | 35 | 17 | 0 | 52 |
| 3:30 | 42 | 16 | 0 | 58 |
| 3:45 | 38 | 16 | 0 | 54 |
| 4:00 | 32 | 12 | 0 | 44 |
| 4:15 | 43 | 17 | 0 | 60 |
| 4:30 | 37 | 19 | 0 | 56 |
| 4:45 | 40 | 20 | 0 | 60 |
| 5:00 | 27 | 24 | 0 | 51 |
| 5:15 | 30 | 8 | 0 | 38 |
| 5:30 | 34 | 11 | 0 | 45 |
| 5:45 | 21 | 7 | 0 | 28 |
| 6:00 | 0 | 0 | 0 | 0 |

| Wood Avenue (SR 2024) | | | |
|---|---|---|---|
| Eastbound | | | |
| Left | Thru | U-Turn | Total |
| 3 | 10 | 0 | 13 |
| 8 | 17 | 0 | 25 |
| 17 | 21 | 0 | 38 |
| 9 | 25 | 0 | 34 |
| 11 | 28 | 0 | 39 |
| 18 | 60 | 0 | 78 |
| 20 | 32 | 0 | 52 |
| 12 | 28 | 0 | 40 |
| 11 | 25 | 0 | 36 |
| 6 | 34 | 0 | 40 |
| 5 | 39 | 0 | 44 |
| 11 | 37 | 1 | 49 |
| 0 | 0 | 0 | 0 |
| 13 | 45 | 0 | 58 |
| 23 | 51 | 0 | 74 |
| 24 | 63 | 0 | 87 |
| 26 | 39 | 0 | 65 |
| 23 | 47 | 0 | 70 |
| 29 | 43 | 0 | 72 |
| 19 | 58 | 0 | 77 |
| 17 | 63 | 0 | 80 |
| 23 | 53 | 0 | 76 |
| 11 | 48 | 0 | 59 |
| 8 | 49 | 0 | 57 |
| 16 | 60 | 0 | 76 |
| 0 | 0 | 0 | 0 |

| Wood Avenue (SR 2017) | | | |
|---|---|---|---|
| Westbound | | | |
| Thru | Right | U-Turn | Total |
| 15 | 12 | 0 | 27 |
| 29 | 18 | 0 | 47 |
| 37 | 31 | 0 | 68 |
| 72 | 32 | 0 | 104 |
| 74 | 20 | 0 | 94 |
| 39 | 24 | 0 | 63 |
| 37 | 37 | 0 | 74 |
| 28 | 28 | 0 | 56 |
| 34 | 30 | 0 | 64 |
| 36 | 21 | 0 | 57 |
| 41 | 23 | 0 | 64 |
| 45 | 28 | 0 | 73 |
| 0 | 0 | 0 | 0 |
| 44 | 49 | 0 | 93 |
| 58 | 46 | 0 | 104 |
| 66 | 55 | 0 | 121 |
| 66 | 63 | 0 | 129 |
| 48 | 65 | 0 | 113 |
| 38 | 53 | 0 | 91 |
| 46 | 81 | 0 | 127 |
| 55 | 66 | 0 | 121 |
| 45 | 55 | 0 | 100 |
| 43 | 46 | 0 | 89 |
| 46 | 57 | 0 | 103 |
| 42 | 32 | 0 | 74 |
| 0 | 0 | 0 | 0 |

| Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use | | | |
|---|---|---|---|
| Source: ITE *Trip Generation Manual*, 11th Edition | | | |
| Land Use Code | 156 | | |
| Land Use | High-Cube Parcel Hub Warehouse | | |
| Setting | General Urban/Suburban | | |
| Time Period | Weekday | | |
| # Data Sites | 2 | | |
| | % of 24-Hour Vehicle Trips | | |
| Time | Total | Entering | Exiting |
| 12:00 - 1:00 AM | 0.9% | 0.7% | 1.1% |
| 1:00 - 2:00 AM | 0.6% | 0.7% | 0.6% |
| 2:00 - 3:00 AM | 1.5% | 2.3% | 0.8% |
| 3:00 - 4:00 AM | 4.5% | 8.4% | 0.6% |
| 4:00 - 5:00 AM | 2.8% | 4.8% | 0.9% |
| 5:00 - 6:00 AM | 1.2% | 1.8% | 0.6% |
| 6:00 - 7:00 AM | 2.9% | 4.8% | 1.0% |
| 7:00 - 8:00 AM | 6.9% | 6.9% | 6.9% |
| 8:00 - 9:00 AM | 11.3% | 10.6% | 12.1% |
| 9:00 - 10:00 AM | 8.1% | 2.3% | 13.9% |
| 10:00 - 11:00 AM | 2.3% | 1.7% | 2.9% |
| 11:00 - 12:00 PM | 2.1% | 1.7% | 2.4% |
| 12:00 - 1:00 PM | 2.1% | 1.9% | 2.3% |
| 1:00 - 2:00 PM | 2.6% | 2.9% | 2.4% |
| 2:00 - 3:00 PM | 3.1% | 3.5% | 2.7% |
| 3:00 - 4:00 PM | 4.3% | 4.4% | 4.1% |
| 4:00 - 5:00 PM | 6.9% | 9.1% | 4.7% |
| 5:00 - 6:00 PM | 10.2% | 13.5% | 6.8% |
| 6:00 - 7:00 PM | 9.6% | 9.2% | 10.0% |
| 7:00 - 8:00 PM | 5.1% | 4.0% | 6.3% |
| 8:00 - 9:00 PM | 3.0% | 1.4% | 4.6% |
| 9:00 - 10:00 PM | 4.0% | 1.4% | 6.7% |
| 10:00 - 11:00 PM | 2.7% | 1.1% | 4.2% |
| 11:00 - 12:00 AM | 1.2% | 1.1% | 1.3% |

| | |
|---|---|
| | 0.43 |
| | AM |
| | 1.65 |
| | 0.71 |
| | 0.28 |
| | 0.92 |
| 3% | 0.61 |
| | PM |
| | 1.62 |
| | 1.47 |

**Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use is not available for LUC 155*

## Hourly Distribution of Entering and Exiting Truck Trips by Land Use

| Source: ITE *Trip Generation Manual*, 11th Edition | | | |
|---|---|---|---|
| Land Use Code | 154 | | |
| Land Use | High-Cube Transload and Short-Term Storage Warehouse | | |
| Setting | General Urban/Suburban | | |
| Time Period | Weekday | | |
| # Data Sites | 3 | | |
| | % of 24-Hour Truck Trips | | |
| Time | Total | Entering | Exiting |
| 12:00 - 1:00 AM | 0.8% | 1.7% | 0.0% |
| 1:00 - 2:00 AM | 1.0% | 1.4% | 0.5% |
| 2:00 - 3:00 AM | 0.8% | 1.1% | 0.5% |
| 3:00 - 4:00 AM | 0.7% | 0.8% | 0.5% |
| 4:00 - 5:00 AM | 0.7% | 0.6% | 0.8% |
| 5:00 - 6:00 AM | 2.3% | 2.5% | 2.1% |
| 6:00 - 7:00 AM | 2.2% | 2.5% | 1.9% |
| 7:00 - 8:00 AM | 5.3% | 7.0% | 3.8% |
| 8:00 - 9:00 AM | 4.8% | 3.3% | 6.2% |
| 9:00 - 10:00 AM | 5.9% | 5.8% | 5.9% |
| 10:00 - 11:00 AM | 5.9% | 5.6% | 6.2% |
| 11:00 - 12:00 PM | 9.3% | 9.5% | 9.1% |
| 12:00 - 1:00 PM | 7.7% | 6.7% | 8.6% |
| 1:00 - 2:00 PM | 5.5% | 4.2% | 6.7% |
| 2:00 - 3:00 PM | 6.6% | 8.1% | 5.1% |
| 3:00 - 4:00 PM | 5.7% | 5.6% | 5.9% |
| 4:00 - 5:00 PM | 6.8% | 7.5% | 6.2% |
| 5:00 - 6:00 PM | 7.1% | 5.3% | 8.8% |
| 6:00 - 7:00 PM | 5.7% | 5.8% | 5.6% |
| 7:00 - 8:00 PM | 4.9% | 4.7% | 5.1% |
| 8:00 - 9:00 PM | 5.2% | 4.7% | 5.6% |
| 9:00 - 10:00 PM | 2.0% | 1.4% | 2.7% |
| 10:00 - 11:00 PM | 1.8% | 2.8% | 0.8% |
| 11:00 - 12:00 AM | 1.4% | 1.4% | 1.3% |

**Hourly Distribution of Entering and Exiting Truck Trips by Land Use is not available for LUC 155 or LUC 156*

| | | |
|---|---|---|
| 0.41 | | |
| AM | | |
| 0.90 | | |
| 1.23 | | |
| 1.00 | | |
| 1.58 | | |
| | | |
| 7% | 1.14 | |
| | | |
| PM | | |
| 1.19 | | |
| 1.04 | | |

# Traffic Signal Warrant Analysis

*Hackett Ave (SR 2017) & Wood Ave (SR 2017)/(SR 2024)*

*2025 With Development*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

# Traffic Signal Warrant Analysis Workbook

## STUDY AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson Borough | **Analysis Date:** | 6/13/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Agency/Company Name:** | KCI Technologies |

### Analysis Information

| | |
|---|---|
| **Data Collection Date:** | 2025 |
| **Day of the Week:** | Wednesday |

**Is the intersection in a built-up area of an isolated community of <10,000 population?** No

### Major Street Information

| | |
|---|---|
| **Major Street Name and Route Number:** | Wood Avenue (SR 2024)/(SR 2017) |
| **Major Street Approach #1 Direction:** | E-Bound |
| **Major Street Approach #2 Direction:** | W-Bound |

| | | |
|---|---|---|
| **Number of Lanes for Moving Traffic on Each Major Street Approach:** | 1 | **LANE(S)** |
| **Speed Limit or 85th Percentile Speed on the Major Street:** | 35 | **MPH** |

### Minor Street Information

| | |
|---|---|
| **Minor Street Name and Route Number:** | Hackett Avenue (SR 2017) |
| **Minor Street Approach #1 Direction:** | S-Bound |
| **Minor Street Approach #2 Direction:** | |

| | | |
|---|---|---|
| **Number of Lanes for Moving Traffic on Each Minor Street Approach:** | 1 | **LANE(S)** |

## TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

| | Applicable? | Warrant Met? |
|---|---|---|
| Warrant 1, Eight-Hour Vehicular Volume | Yes | No |
| Warrant 2, Four-Hour Vehicular Volume | Yes | No |
| Warrant 3, Peak Hour | Yes | No |
| Warrant 4, Pedestrian Volume | No | N/A |
| Warrant 5, School Crossing | No | N/A |
| Warrant 6, Coordinated Signal System | No | N/A |
| Warrant 7, Crash Experience | No | N/A |
| Warrant 8, Roadway Network | No | N/A |
| Warrant 9, Intersection Near a Grade Crossing | No | N/A |
| Warrant PA-1, ADT Volume Warrant | No | N/A |
| Warrant PA-2, Midblock and Trail Crossings | No | N/A |

## ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

| Time Interval | | Major Street Approach #1 (E-Bound) | Major Street Approach #2 (W-Bound) | Major Street Combined | Minor Street Approach #1 (S-Bound) | Minor Street Approach #2 () |
|---|---|---|---|---|---|---|
| Begin At | End Of | Volume | Volume | Total Volume | Volume | Volume |
| 12:00 AM | 12:14 AM | | | 0 | | |
| 12:15 AM | 12:29 AM | | | 0 | | |
| 12:30 AM | 12:44 AM | | | 0 | | |
| 12:45 AM | 12:59 AM | | | 0 | | |
| 1:00 AM | 1:14 AM | | | 0 | | |
| 1:15 AM | 1:29 AM | | | 0 | | |
| 1:30 AM | 1:44 AM | | | 0 | | |
| 1:45 AM | 1:59 AM | | | 0 | | |
| 2:00 AM | 2:14 AM | | | 0 | | |
| 2:15 AM | 2:29 AM | | | 0 | | |
| 2:30 AM | 2:44 AM | | | 0 | | |
| 2:45 AM | 2:59 AM | | | 0 | | |
| 3:00 AM | 3:14 AM | | | 0 | | |
| 3:15 AM | 3:29 AM | | | 0 | | |
| 3:30 AM | 3:44 AM | | | 0 | | |
| 3:45 AM | 3:59 AM | | | 0 | | |
| 4:00 AM | 4:14 AM | | | 0 | | |
| 4:15 AM | 4:29 AM | | | 0 | | |
| 4:30 AM | 4:44 AM | | | 0 | | |
| 4:45 AM | 4:59 AM | | | 0 | | |
| 5:00 AM | 5:14 AM | | | 0 | | |
| 5:15 AM | 5:29 AM | | | 0 | | |
| 5:30 AM | 5:44 AM | | | 0 | | |
| 5:45 AM | 5:59 AM | | | 0 | | |
| 6:00 AM | 6:14 AM | 20 | 29 | 49 | 24 | |
| 6:15 AM | 6:29 AM | 32 | 49 | 81 | 26 | |
| 6:30 AM | 6:44 AM | 45 | 71 | 116 | 31 | |
| 6:45 AM | 6:59 AM | 41 | 107 | 148 | 35 | |
| 7:00 AM | 7:14 AM | 56 | 100 | 156 | 40 | |
| 7:15 AM | 7:29 AM | 96 | 69 | 165 | 59 | |
| 7:30 AM | 7:44 AM | 69 | 80 | 149 | 41 | |
| 7:45 AM | 7:59 AM | 57 | 61 | 118 | 56 | |
| 8:00 AM | 8:14 AM | 63 | 73 | 136 | 42 | |
| 8:15 AM | 8:29 AM | 67 | 65 | 132 | 36 | |
| 8:30 AM | 8:44 AM | 71 | 73 | 144 | 46 | |
| 8:45 AM | 8:59 AM | 76 | 82 | 158 | 35 | |
| 9:00 AM | 9:14 AM | | | 0 | | |
| 9:15 AM | 9:29 AM | | | 0 | | |
| 9:30 AM | 9:44 AM | | | 0 | | |
| 9:45 AM | 9:59 AM | | | 0 | | |
| 10:00 AM | 10:14 AM | | | 0 | | |
| 10:15 AM | 10:29 AM | | | 0 | | |
| 10:30 AM | 10:44 AM | | | 0 | | |
| 10:45 AM | 10:59 AM | | | 0 | | |
| 11:00 AM | 11:14 AM | | | 0 | | |
| 11:15 AM | 11:29 AM | | | 0 | | |
| 11:30 AM | 11:44 AM | | | 0 | | |
| 11:45 AM | 11:59 AM | | | 0 | | |

## ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

| Time Interval | | Major Street Approach #1 (E-Bound) | Major Street Approach #2 (W-Bound) | Major Street Combined | Minor Street Approach #1 (S-Bound) | Minor Street Approach #2 () |
|---|---|---|---|---|---|---|
| Begin At | End Of | Volume | Volume | Total Volume | Volume | Volume |
| 12:00 PM | 12:14 PM | | | 0 | | |
| 12:15 PM | 12:29 PM | | | 0 | | |
| 12:30 PM | 12:44 PM | | | 0 | | |
| 12:45 PM | 12:59 PM | | | 0 | | |
| 1:00 PM | 1:14 PM | | | 0 | | |
| 1:15 PM | 1:29 PM | | | 0 | | |
| 1:30 PM | 1:44 PM | | | 0 | | |
| 1:45 PM | 1:59 PM | | | 0 | | |
| 2:00 PM | 2:14 PM | | | 0 | | |
| 2:15 PM | 2:29 PM | | | 0 | | |
| 2:30 PM | 2:44 PM | | | 0 | | |
| 2:45 PM | 2:59 PM | | | 0 | | |
| 3:00 PM | 3:14 PM | 67 | 106 | 173 | 60 | |
| 3:15 PM | 3:29 PM | 84 | 117 | 201 | 58 | |
| 3:30 PM | 3:44 PM | 97 | 134 | 231 | 64 | |
| 3:45 PM | 3:59 PM | 75 | 142 | 217 | 60 | |
| 4:00 PM | 4:14 PM | 85 | 133 | 218 | 53 | |
| 4:15 PM | 4:29 PM | 87 | 111 | 198 | 70 | |
| 4:30 PM | 4:44 PM | 92 | 147 | 239 | 65 | |
| 4:45 PM | 4:59 PM | 95 | 141 | 236 | 70 | |
| 5:00 PM | 5:14 PM | 97 | 128 | 225 | 64 | |
| 5:15 PM | 5:29 PM | 80 | 117 | 197 | 51 | |
| 5:30 PM | 5:44 PM | 77 | 131 | 208 | 58 | |
| 5:45 PM | 5:59 PM | 97 | 102 | 199 | 41 | |
| 6:00 PM | 6:14 PM | | | 0 | | |
| 6:15 PM | 6:29 PM | | | 0 | | |
| 6:30 PM | 6:44 PM | | | 0 | | |
| 6:45 PM | 6:59 PM | | | 0 | | |
| 7:00 PM | 7:14 PM | | | 0 | | |
| 7:15 PM | 7:29 PM | | | 0 | | |
| 7:30 PM | 7:44 PM | | | 0 | | |
| 7:45 PM | 7:59 PM | | | 0 | | |
| 8:00 PM | 8:14 PM | | | 0 | | |
| 8:15 PM | 8:29 PM | | | 0 | | |
| 8:30 PM | 8:44 PM | | | 0 | | |
| 8:45 PM | 8:59 PM | | | 0 | | |
| 9:00 PM | 9:14 PM | | | 0 | | |
| 9:15 PM | 9:29 PM | | | 0 | | |
| 9:30 PM | 9:44 PM | | | 0 | | |
| 9:45 PM | 9:59 PM | | | 0 | | |
| 10:00 PM | 10:14 PM | | | 0 | | |
| 10:15 PM | 10:29 PM | | | 0 | | |
| 10:30 PM | 10:44 PM | | | 0 | | |
| 10:45 PM | 10:59 PM | | | 0 | | |
| 11:00 PM | 11:14 PM | | | 0 | | |
| 11:15 PM | 11:29 PM | | | 0 | | |
| 11:30 PM | 11:44 PM | | | 0 | | |
| 11:45 PM | 11:59 PM | | | 0 | | |

| ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH | | | | | | |
|---|---|---|---|---|---|---|
| Time Interval | | Major Street Approach #1 (E-Bound) | Major Street Approach #2 (W-Bound) | Major Street Combined | Minor Street Approach #1 (S-Bound) | Minor Street Approach #2 () |
| Begin At | End Of | Volume | Volume | Total Volume | Volume | Volume |
| Approach Totals: | | 1726 | 2368 | 4094 | 1185 | 0 |

# MUTCD WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

| Number of Lanes for Moving Traffic on Each Approach | |
|---|---|
| Major Street: | 1 Lane |
| Minor Street: | 1 Lane |

| Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street? | No |
|---|---|

**Combination of Conditions A and B Necessary?*:** No

**Only applicable for Warrant 1 if after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems. See Section 4C.02 of the 2009 MUTCD for application.*

**Condition A - Minimum Vehicular Volume**

| Number of lanes for moving traffic on each approach | | Vehicles per hour on major street (total of both approaches) | | | | Vehicles per hour on higher-volume minor street approach (one direction only) | | | |
|---|---|---|---|---|---|---|---|---|---|
| Major Street | Minor Street | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% |
| 1 | 1 | 500 | 400 | 350 | 280 | 150 | 120 | 105 | 84 |
| 2 or More | 1 | 600 | 480 | 420 | 336 | 150 | 120 | 105 | 84 |
| 2 or More | 2 or More | 600 | 480 | 420 | 336 | 200 | 160 | 140 | 112 |
| 1 | 2 or More | 500 | 400 | 350 | 280 | 200 | 160 | 140 | 112 |

**Condition B - Interruption of Continuous Traffic**

| Number of lanes for moving traffic on each approach | | Vehicles per hour on major street (total of both approaches) | | | | Vehicles per hour on higher-volume minor street approach (one direction only) | | | |
|---|---|---|---|---|---|---|---|---|---|
| Major Street | Minor Street | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% |
| 1 | 1 | 750 | 600 | 525 | 420 | 75 | 60 | 53 | 42 |
| 2 or More | 1 | 900 | 720 | 630 | 504 | 75 | 60 | 53 | 42 |
| 2 or More | 2 or More | 900 | 720 | 630 | 504 | 100 | 80 | 70 | 56 |
| 1 | 2 or More | 750 | 600 | 525 | 420 | 100 | 80 | 70 | 56 |

## Condition A Evaluation

**Number of Unique Hours Met:** 5 **Condition A Satisfied?** No

## Condition B Evaluation

**Number of Unique Hours Met:** 3 **Condition B Satisfied?** No

## Combination of Condition A and Condition B Evaluation

**Number of Unique Hours Met for Condition A:** N/A

**Number of Unique Hours Met for Condition B:** N/A

**Combination of Condition A and Condition B Satisfied?** N/A

# MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

| Number of Lanes for Moving Traffic on Each Approach | |
|---|---|
| Major Street: | 1 Lane |
| Minor Street: | 1 Lane |

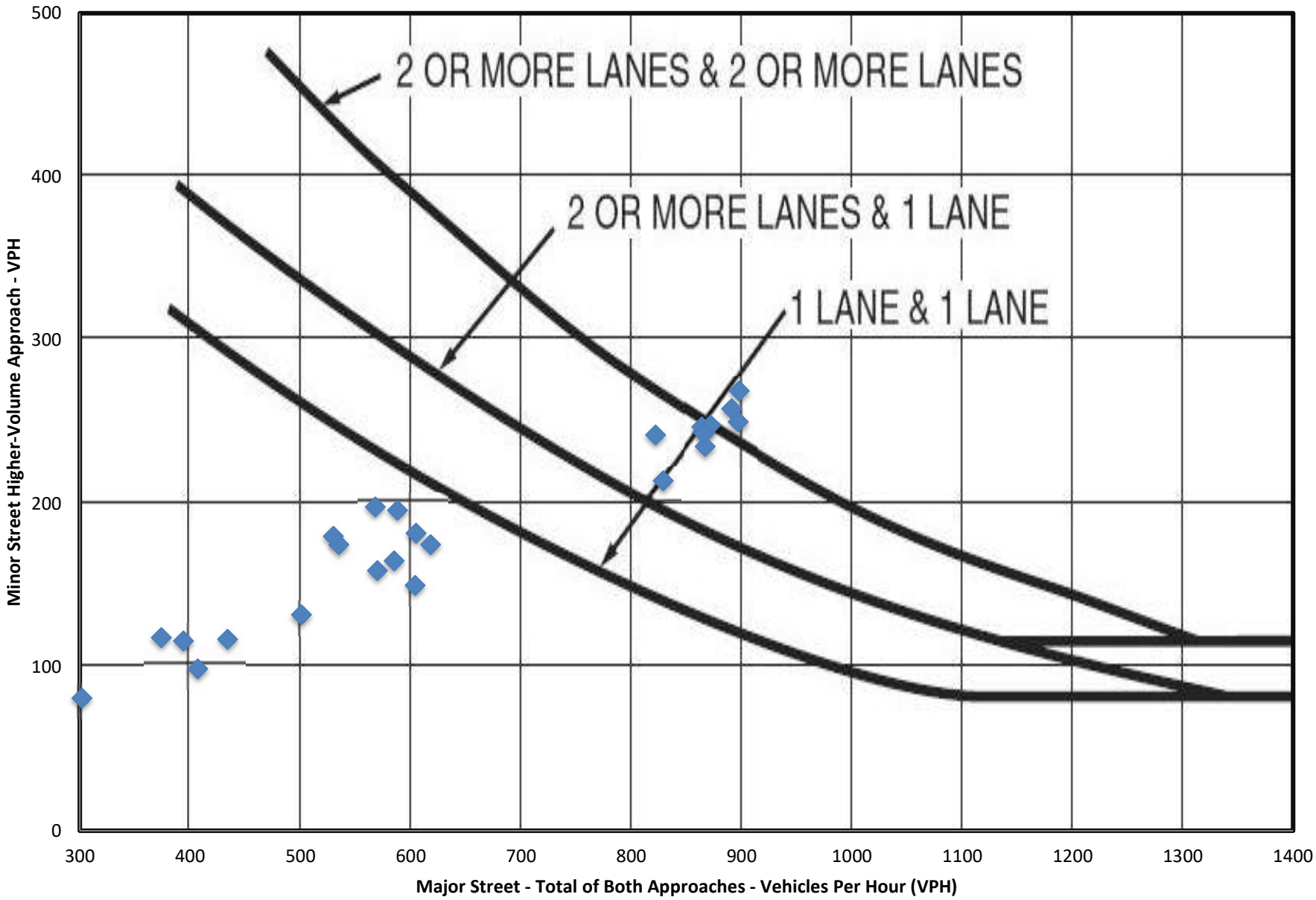
| Total Number of Unique Hours Met On Figure 4C-1 |
|---|
| 3 |

| Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street? | No |
|---|---|

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 12:00 AM | 0 | 0 | |
| 12:15 AM | 0 | 0 | |
| 12:30 AM | 0 | 0 | |
| 12:45 AM | 0 | 0 | |
| 1:00 AM | 0 | 0 | |
| 1:15 AM | 0 | 0 | |
| 1:30 AM | 0 | 0 | |
| 1:45 AM | 0 | 0 | |
| 2:00 AM | 0 | 0 | |
| 2:15 AM | 0 | 0 | |
| 2:30 AM | 0 | 0 | |
| 2:45 AM | 0 | 0 | |
| 3:00 AM | 0 | 0 | |
| 3:15 AM | 0 | 0 | |
| 3:30 AM | 0 | 0 | |
| 3:45 AM | 0 | 0 | |
| 4:00 AM | 0 | 0 | |
| 4:15 AM | 0 | 0 | |
| 4:30 AM | 0 | 0 | |
| 4:45 AM | 0 | 0 | |
| 5:00 AM | 0 | 0 | |
| 5:15 AM | 49 | 24 | |
| 5:30 AM | 130 | 50 | |
| 5:45 AM | 246 | 81 | |
| 6:00 AM | 394 | 116 | |
| 6:15 AM | 501 | 132 | |
| 6:30 AM | 585 | 165 | |
| 6:45 AM | 618 | 175 | |
| 7:00 AM | 588 | 196 | |
| 7:15 AM | 568 | 198 | |
| 7:30 AM | 535 | 175 | |
| 7:45 AM | 530 | 180 | |
| 8:00 AM | 570 | 159 | |
| 8:15 AM | 434 | 117 | |
| 8:30 AM | 302 | 81 | |
| 8:45 AM | 158 | 35 | |
| 9:00 AM | 0 | 0 | |
| 9:15 AM | 0 | 0 | |
| 9:30 AM | 0 | 0 | |
| 9:45 AM | 0 | 0 | |
| 10:00 AM | 0 | 0 | |
| 10:15 AM | 0 | 0 | |
| 10:30 AM | 0 | 0 | |
| 10:45 AM | 0 | 0 | |
| 11:00 AM | 0 | 0 | |
| 11:15 AM | 0 | 0 | |
| 11:30 AM | 0 | 0 | |
| 11:45 AM | 0 | 0 | |

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 12:00 PM | 0 | 0 | |
| 12:15 PM | 0 | 0 | |
| 12:30 PM | 0 | 0 | |
| 12:45 PM | 0 | 0 | |
| 1:00 PM | 0 | 0 | |
| 1:15 PM | 0 | 0 | |
| 1:30 PM | 0 | 0 | |
| 1:45 PM | 0 | 0 | |
| 2:00 PM | 0 | 0 | |
| 2:15 PM | 173 | 60 | |
| 2:30 PM | 374 | 118 | |
| 2:45 PM | 605 | 182 | |
| 3:00 PM | 822 | 242 | Met |
| 3:15 PM | 867 | 235 | Met |
| 3:30 PM | 864 | 247 | Met |
| 3:45 PM | 872 | 248 | Met |
| 4:00 PM | 891 | 258 | Met |
| 4:15 PM | 898 | 269 | Met |
| 4:30 PM | 897 | 250 | Met |
| 4:45 PM | 866 | 243 | Met |
| 5:00 PM | 829 | 214 | Met |
| 5:15 PM | 604 | 150 | |
| 5:30 PM | 407 | 99 | |
| 5:45 PM | 199 | 41 | |
| 6:00 PM | 0 | 0 | |
| 6:15 PM | 0 | 0 | |
| 6:30 PM | 0 | 0 | |
| 6:45 PM | 0 | 0 | |
| 7:00 PM | 0 | 0 | |
| 7:15 PM | 0 | 0 | |
| 7:30 PM | 0 | 0 | |
| 7:45 PM | 0 | 0 | |
| 8:00 PM | 0 | 0 | |
| 8:15 PM | 0 | 0 | |
| 8:30 PM | 0 | 0 | |
| 8:45 PM | 0 | 0 | |
| 9:00 PM | 0 | 0 | |
| 9:15 PM | 0 | 0 | |
| 9:30 PM | 0 | 0 | |
| 9:45 PM | 0 | 0 | |
| 10:00 PM | 0 | 0 | |
| 10:15 PM | 0 | 0 | |
| 10:30 PM | 0 | 0 | |
| 10:45 PM | 0 | 0 | |
| 11:00 PM | 0 | 0 | |

## MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



# MUTCD WARRANT 3, PEAK HOUR

| Number of Lanes for Moving Traffic on Each Approach | |
|---|---|
| Major Street: | 1 Lane |
| Minor Street: | 1 Lane |

| | |
|---|---|
| Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street? | No |
| Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time? | N/A |

| Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present* | |
|---|---|
| Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach? | N/A |
| Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes? | N/A |
| Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches? | N/A |
| **If applicable, attach all supporting calculations and documentation.* | |

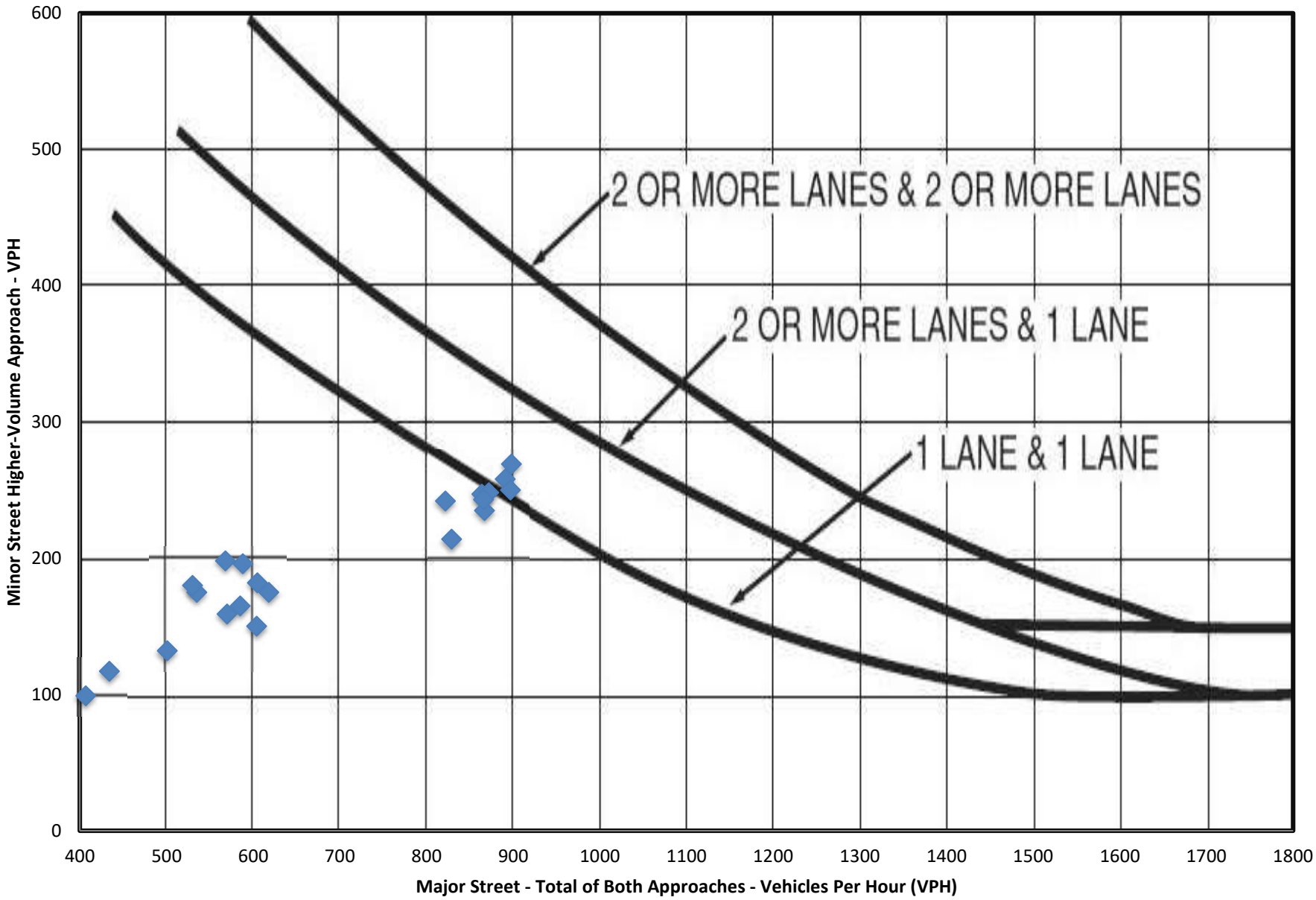
| Total Number of Unique Hours Met On Figure 4C-3 |
|---|
| **1** |

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 12:00 AM | 0 | 0 | |
| 12:15 AM | 0 | 0 | |
| 12:30 AM | 0 | 0 | |
| 12:45 AM | 0 | 0 | |
| 1:00 AM | 0 | 0 | |
| 1:15 AM | 0 | 0 | |
| 1:30 AM | 0 | 0 | |
| 1:45 AM | 0 | 0 | |
| 2:00 AM | 0 | 0 | |
| 2:15 AM | 0 | 0 | |
| 2:30 AM | 0 | 0 | |
| 2:45 AM | 0 | 0 | |
| 3:00 AM | 0 | 0 | |
| 3:15 AM | 0 | 0 | |
| 3:30 AM | 0 | 0 | |
| 3:45 AM | 0 | 0 | |
| 4:00 AM | 0 | 0 | |
| 4:15 AM | 0 | 0 | |
| 4:30 AM | 0 | 0 | |
| 4:45 AM | 0 | 0 | |
| 5:00 AM | 0 | 0 | |
| 5:15 AM | 49 | 24 | |
| 5:30 AM | 130 | 50 | |
| 5:45 AM | 246 | 81 | |
| 6:00 AM | 394 | 116 | |
| 6:15 AM | 501 | 132 | |
| 6:30 AM | 585 | 165 | |
| 6:45 AM | 618 | 175 | |
| 7:00 AM | 588 | 196 | |
| 7:15 AM | 568 | 198 | |
| 7:30 AM | 535 | 175 | |
| 7:45 AM | 530 | 180 | |
| 8:00 AM | 570 | 159 | |

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 8:15 AM | 434 | 117 | |

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 8:30 AM | 302 | 81 | |
| 8:45 AM | 158 | 35 | |
| 9:00 AM | 0 | 0 | |
| 9:15 AM | 0 | 0 | |
| 9:30 AM | 0 | 0 | |
| 9:45 AM | 0 | 0 | |
| 10:00 AM | 0 | 0 | |
| 10:15 AM | 0 | 0 | |
| 10:30 AM | 0 | 0 | |
| 10:45 AM | 0 | 0 | |
| 11:00 AM | 0 | 0 | |
| 11:15 AM | 0 | 0 | |
| 11:30 AM | 0 | 0 | |
| 11:45 AM | 0 | 0 | |
| 12:00 PM | 0 | 0 | |
| 12:15 PM | 0 | 0 | |
| 12:30 PM | 0 | 0 | |
| 12:45 PM | 0 | 0 | |
| 1:00 PM | 0 | 0 | |
| 1:15 PM | 0 | 0 | |
| 1:30 PM | 0 | 0 | |
| 1:45 PM | 0 | 0 | |
| 2:00 PM | 0 | 0 | |
| 2:15 PM | 173 | 60 | |
| 2:30 PM | 374 | 118 | |
| 2:45 PM | 605 | 182 | |
| 3:00 PM | 822 | 242 | |
| 3:15 PM | 867 | 235 | |
| 3:30 PM | 864 | 247 | |
| 3:45 PM | 872 | 248 | |
| 4:00 PM | 891 | 258 | Met |
| 4:15 PM | 898 | 269 | Met |
| 4:30 PM | 897 | 250 | Met |
| 4:45 PM | 866 | 243 | |
| 5:00 PM | 829 | 214 | |
| 5:15 PM | 604 | 150 | |
| 5:30 PM | 407 | 99 | |
| 5:45 PM | 199 | 41 | |
| 6:00 PM | 0 | 0 | |
| 6:15 PM | 0 | 0 | |
| 6:30 PM | 0 | 0 | |
| 6:45 PM | 0 | 0 | |
| 7:00 PM | 0 | 0 | |
| 7:15 PM | 0 | 0 | |
| 7:30 PM | 0 | 0 | |
| 7:45 PM | 0 | 0 | |
| 8:00 PM | 0 | 0 | |
| 8:15 PM | 0 | 0 | |
| 8:30 PM | 0 | 0 | |
| 8:45 PM | 0 | 0 | |
| 9:00 PM | 0 | 0 | |
| 9:15 PM | 0 | 0 | |
| 9:30 PM | 0 | 0 | |
| 9:45 PM | 0 | 0 | |
| 10:00 PM | 0 | 0 | |
| 10:15 PM | 0 | 0 | |
| 10:30 PM | 0 | 0 | |
| 10:45 PM | 0 | 0 | |
| 11:00 PM | 0 | 0 | |

## MUTCD Figure 4C-3. Warrant 3, Peak Hour



# Traffic Signal Warrant Analysis

*Hackett Ave (SR 2017) & Wood Ave (SR 2017)/(SR 2024)*

*2030 With Development*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

# Traffic Signal Warrant Analysis Workbook

## STUDY AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Wilson Borough | **Analysis Date:** | 6/13/2024 |
| **County:** | Northampton County | **Conducted By:** | VRG |
| **PennDOT Engineering District:** | 5 | **Agency/Company Name:** | KCI Technologies |

### Analysis Information

| | |
|---|---|
| **Data Collection Date:** | 2030 |
| **Day of the Week:** | Wednesday |

**Is the intersection in a built-up area of an isolated community of <10,000 population?** No

### Major Street Information

| | |
|---|---|
| **Major Street Name and Route Number:** | Wood Avenue (SR 2024)/(SR 2017) |
| **Major Street Approach #1 Direction:** | E-Bound |
| **Major Street Approach #2 Direction:** | W-Bound |

| | | |
|---|---|---|
| **Number of Lanes for Moving Traffic on Each Major Street Approach:** | 1 | **LANE(S)** |
| **Speed Limit or 85th Percentile Speed on the Major Street:** | 35 | **MPH** |

### Minor Street Information

| | |
|---|---|
| **Minor Street Name and Route Number:** | Hackett Avenue (SR 2017) |
| **Minor Street Approach #1 Direction:** | S-Bound |
| **Minor Street Approach #2 Direction:** | |

| | | |
|---|---|---|
| **Number of Lanes for Moving Traffic on Each Minor Street Approach:** | 1 | **LANE(S)** |

## TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

| | Applicable? | Warrant Met? |
|---|---|---|
| Warrant 1, Eight-Hour Vehicular Volume | Yes | No |
| Warrant 2, Four-Hour Vehicular Volume | Yes | No |
| Warrant 3, Peak Hour | Yes | No |
| Warrant 4, Pedestrian Volume | No | N/A |
| Warrant 5, School Crossing | No | N/A |
| Warrant 6, Coordinated Signal System | No | N/A |
| Warrant 7, Crash Experience | No | N/A |
| Warrant 8, Roadway Network | No | N/A |
| Warrant 9, Intersection Near a Grade Crossing | No | N/A |
| Warrant PA-1, ADT Volume Warrant | No | N/A |
| Warrant PA-2, Midblock and Trail Crossings | No | N/A |

## ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

| Time Interval | | Major Street Approach #1 (E-Bound) | Major Street Approach #2 (W-Bound) | Major Street Combined | Minor Street Approach #1 (S-Bound) | Minor Street Approach #2 () |
|---|---|---|---|---|---|---|
| Begin At | End Of | Volume | Volume | Total Volume | Volume | Volume |
| 12:00 AM | 12:14 AM | | | 0 | | |
| 12:15 AM | 12:29 AM | | | 0 | | |
| 12:30 AM | 12:44 AM | | | 0 | | |
| 12:45 AM | 12:59 AM | | | 0 | | |
| 1:00 AM | 1:14 AM | | | 0 | | |
| 1:15 AM | 1:29 AM | | | 0 | | |
| 1:30 AM | 1:44 AM | | | 0 | | |
| 1:45 AM | 1:59 AM | | | 0 | | |
| 2:00 AM | 2:14 AM | | | 0 | | |
| 2:15 AM | 2:29 AM | | | 0 | | |
| 2:30 AM | 2:44 AM | | | 0 | | |
| 2:45 AM | 2:59 AM | | | 0 | | |
| 3:00 AM | 3:14 AM | | | 0 | | |
| 3:15 AM | 3:29 AM | | | 0 | | |
| 3:30 AM | 3:44 AM | | | 0 | | |
| 3:45 AM | 3:59 AM | | | 0 | | |
| 4:00 AM | 4:14 AM | | | 0 | | |
| 4:15 AM | 4:29 AM | | | 0 | | |
| 4:30 AM | 4:44 AM | | | 0 | | |
| 4:45 AM | 4:59 AM | | | 0 | | |
| 5:00 AM | 5:14 AM | | | 0 | | |
| 5:15 AM | 5:29 AM | | | 0 | | |
| 5:30 AM | 5:44 AM | | | 0 | | |
| 5:45 AM | 5:59 AM | | | 0 | | |
| 6:00 AM | 6:14 AM | 20 | 30 | 50 | 25 | |
| 6:15 AM | 6:29 AM | 33 | 50 | 83 | 27 | |
| 6:30 AM | 6:44 AM | 46 | 72 | 118 | 32 | |
| 6:45 AM | 6:59 AM | 42 | 109 | 151 | 36 | |
| 7:00 AM | 7:14 AM | 57 | 102 | 159 | 41 | |
| 7:15 AM | 7:29 AM | 97 | 70 | 167 | 61 | |
| 7:30 AM | 7:44 AM | 71 | 81 | 152 | 42 | |
| 7:45 AM | 7:59 AM | 58 | 63 | 121 | 58 | |
| 8:00 AM | 8:14 AM | 64 | 74 | 138 | 43 | |
| 8:15 AM | 8:29 AM | 68 | 67 | 135 | 37 | |
| 8:30 AM | 8:44 AM | 72 | 74 | 146 | 47 | |
| 8:45 AM | 8:59 AM | 77 | 83 | 160 | 36 | |
| 9:00 AM | 9:14 AM | | | 0 | | |
| 9:15 AM | 9:29 AM | | | 0 | | |
| 9:30 AM | 9:44 AM | | | 0 | | |
| 9:45 AM | 9:59 AM | | | 0 | | |
| 10:00 AM | 10:14 AM | | | 0 | | |
| 10:15 AM | 10:29 AM | | | 0 | | |
| 10:30 AM | 10:44 AM | | | 0 | | |
| 10:45 AM | 10:59 AM | | | 0 | | |
| 11:00 AM | 11:14 AM | | | 0 | | |
| 11:15 AM | 11:29 AM | | | 0 | | |
| 11:30 AM | 11:44 AM | | | 0 | | |
| 11:45 AM | 11:59 AM | | | 0 | | |

## ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

| Time Interval | | Major Street Approach #1 (E-Bound) | Major Street Approach #2 (W-Bound) | Major Street Combined | Minor Street Approach #1 (S-Bound) | Minor Street Approach #2 () |
|---|---|---|---|---|---|---|
| Begin At | End Of | Volume | Volume | Total Volume | Volume | Volume |
| 12:00 PM | 12:14 PM | | | 0 | | |
| 12:15 PM | 12:29 PM | | | 0 | | |
| 12:30 PM | 12:44 PM | | | 0 | | |
| 12:45 PM | 12:59 PM | | | 0 | | |
| 1:00 PM | 1:14 PM | | | 0 | | |
| 1:15 PM | 1:29 PM | | | 0 | | |
| 1:30 PM | 1:44 PM | | | 0 | | |
| 1:45 PM | 1:59 PM | | | 0 | | |
| 2:00 PM | 2:14 PM | | | 0 | | |
| 2:15 PM | 2:29 PM | | | 0 | | |
| 2:30 PM | 2:44 PM | | | 0 | | |
| 2:45 PM | 2:59 PM | | | 0 | | |
| 3:00 PM | 3:14 PM | 69 | 108 | 177 | 62 | |
| 3:15 PM | 3:29 PM | 85 | 119 | 204 | 60 | |
| 3:30 PM | 3:44 PM | 99 | 137 | 236 | 66 | |
| 3:45 PM | 3:59 PM | 76 | 145 | 221 | 62 | |
| 4:00 PM | 4:14 PM | 86 | 135 | 221 | 54 | |
| 4:15 PM | 4:29 PM | 88 | 113 | 201 | 71 | |
| 4:30 PM | 4:44 PM | 93 | 150 | 243 | 67 | |
| 4:45 PM | 4:59 PM | 96 | 144 | 240 | 71 | |
| 5:00 PM | 5:14 PM | 98 | 130 | 228 | 66 | |
| 5:15 PM | 5:29 PM | 81 | 119 | 200 | 52 | |
| 5:30 PM | 5:44 PM | 79 | 133 | 212 | 59 | |
| 5:45 PM | 5:59 PM | 98 | 103 | 201 | 42 | |
| 6:00 PM | 6:14 PM | | | 0 | | |
| 6:15 PM | 6:29 PM | | | 0 | | |
| 6:30 PM | 6:44 PM | | | 0 | | |
| 6:45 PM | 6:59 PM | | | 0 | | |
| 7:00 PM | 7:14 PM | | | 0 | | |
| 7:15 PM | 7:29 PM | | | 0 | | |
| 7:30 PM | 7:44 PM | | | 0 | | |
| 7:45 PM | 7:59 PM | | | 0 | | |
| 8:00 PM | 8:14 PM | | | 0 | | |
| 8:15 PM | 8:29 PM | | | 0 | | |
| 8:30 PM | 8:44 PM | | | 0 | | |
| 8:45 PM | 8:59 PM | | | 0 | | |
| 9:00 PM | 9:14 PM | | | 0 | | |
| 9:15 PM | 9:29 PM | | | 0 | | |
| 9:30 PM | 9:44 PM | | | 0 | | |
| 9:45 PM | 9:59 PM | | | 0 | | |
| 10:00 PM | 10:14 PM | | | 0 | | |
| 10:15 PM | 10:29 PM | | | 0 | | |
| 10:30 PM | 10:44 PM | | | 0 | | |
| 10:45 PM | 10:59 PM | | | 0 | | |
| 11:00 PM | 11:14 PM | | | 0 | | |
| 11:15 PM | 11:29 PM | | | 0 | | |
| 11:30 PM | 11:44 PM | | | 0 | | |
| 11:45 PM | 11:59 PM | | | 0 | | |

| ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH | | | | | | |
|---|---|---|---|---|---|---|
| Time Interval | | Major Street Approach #1 (E-Bound) | Major Street Approach #2 (W-Bound) | Major Street Combined | Minor Street Approach #1 (S-Bound) | Minor Street Approach #2 () |
| Begin At | End Of | Volume | Volume | Total Volume | Volume | Volume |
| Approach Totals: | | 1753 | 2411 | 4164 | 1217 | 0 |

# MUTCD WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

| Number of Lanes for Moving Traffic on Each Approach | |
|---|---|
| Major Street: | 1 Lane |
| Minor Street: | 1 Lane |

| Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street? | No |
|---|---|

**Combination of Conditions A and B Necessary?*:** No

**Only applicable for Warrant 1 if after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems. See Section 4C.02 of the 2009 MUTCD for application.*

**Condition A - Minimum Vehicular Volume**

| Number of lanes for moving traffic on each approach | | Vehicles per hour on major street (total of both approaches) | | | | Vehicles per hour on higher-volume minor street approach (one direction only) | | | |
|---|---|---|---|---|---|---|---|---|---|
| Major Street | Minor Street | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% |
| 1 | 1 | 500 | 400 | 350 | 280 | 150 | 120 | 105 | 84 |
| 2 or More | 1 | 600 | 480 | 420 | 336 | 150 | 120 | 105 | 84 |
| 2 or More | 2 or More | 600 | 480 | 420 | 336 | 200 | 160 | 140 | 112 |
| 1 | 2 or More | 500 | 400 | 350 | 280 | 200 | 160 | 140 | 112 |

**Condition B - Interruption of Continuous Traffic**

| Number of lanes for moving traffic on each approach | | Vehicles per hour on major street (total of both approaches) | | | | Vehicles per hour on higher-volume minor street approach (one direction only) | | | |
|---|---|---|---|---|---|---|---|---|---|
| Major Street | Minor Street | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% |
| 1 | 1 | 750 | 600 | 525 | 420 | 75 | 60 | 53 | 42 |
| 2 or More | 1 | 900 | 720 | 630 | 504 | 75 | 60 | 53 | 42 |
| 2 or More | 2 or More | 900 | 720 | 630 | 504 | 100 | 80 | 70 | 56 |
| 1 | 2 or More | 750 | 600 | 525 | 420 | 100 | 80 | 70 | 56 |

## Condition A Evaluation

**Number of Unique Hours Met:** 5 **Condition A Satisfied?** No

## Condition B Evaluation

**Number of Unique Hours Met:** 3 **Condition B Satisfied?** No

## Combination of Condition A and Condition B Evaluation

**Number of Unique Hours Met for Condition A:** N/A

**Number of Unique Hours Met for Condition B:** N/A

**Combination of Condition A and Condition B Satisfied?** N/A

# MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

| Number of Lanes for Moving Traffic on Each Approach | |
|---|---|
| Major Street: | 1 Lane |
| Minor Street: | 1 Lane |

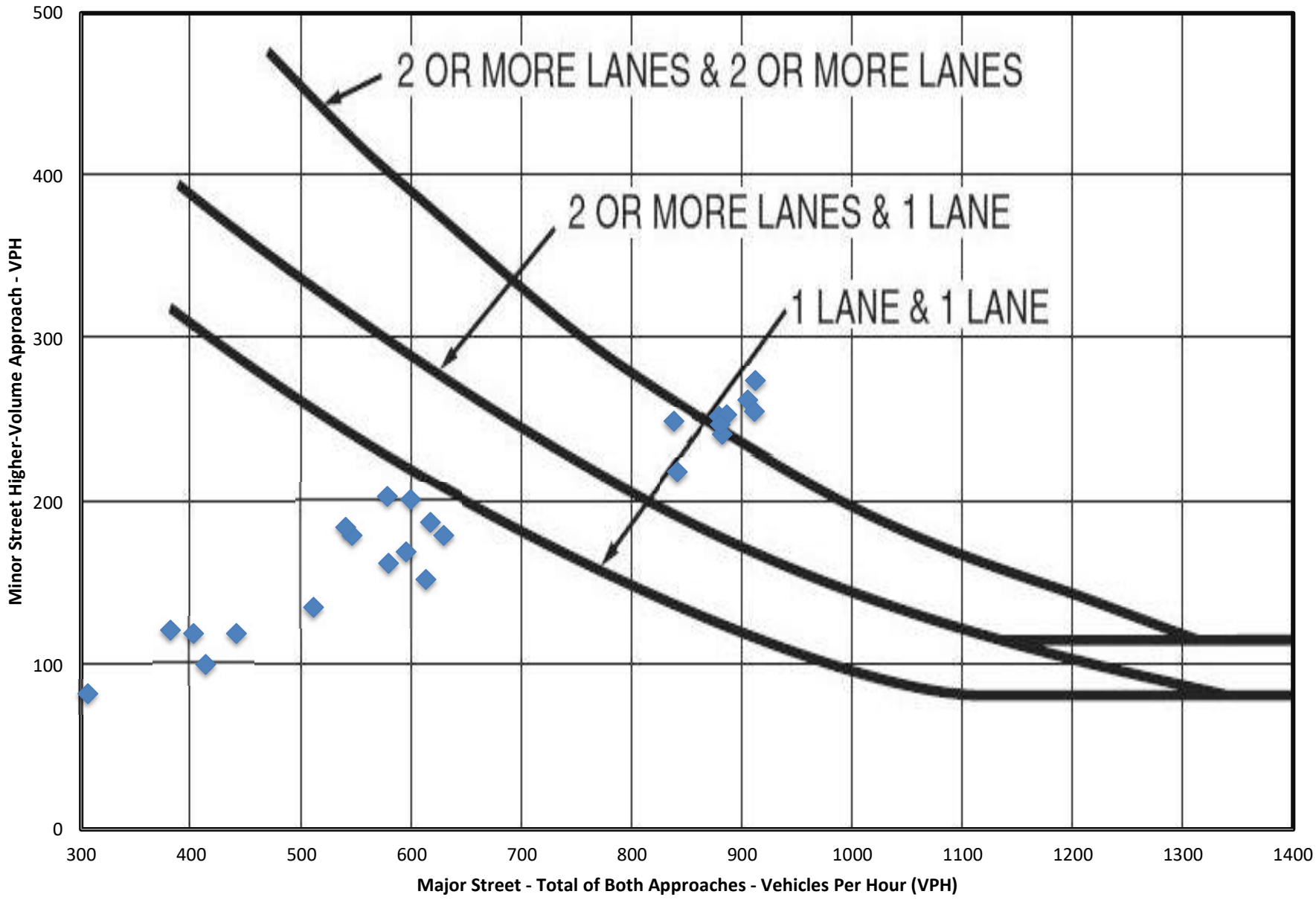
| Total Number of Unique Hours Met On Figure 4C-1 |
|---|
| 3 |

| Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street? | No |
|---|---|

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 12:00 AM | 0 | 0 | |
| 12:15 AM | 0 | 0 | |
| 12:30 AM | 0 | 0 | |
| 12:45 AM | 0 | 0 | |
| 1:00 AM | 0 | 0 | |
| 1:15 AM | 0 | 0 | |
| 1:30 AM | 0 | 0 | |
| 1:45 AM | 0 | 0 | |
| 2:00 AM | 0 | 0 | |
| 2:15 AM | 0 | 0 | |
| 2:30 AM | 0 | 0 | |
| 2:45 AM | 0 | 0 | |
| 3:00 AM | 0 | 0 | |
| 3:15 AM | 0 | 0 | |
| 3:30 AM | 0 | 0 | |
| 3:45 AM | 0 | 0 | |
| 4:00 AM | 0 | 0 | |
| 4:15 AM | 0 | 0 | |
| 4:30 AM | 0 | 0 | |
| 4:45 AM | 0 | 0 | |
| 5:00 AM | 0 | 0 | |
| 5:15 AM | 50 | 25 | |
| 5:30 AM | 133 | 52 | |
| 5:45 AM | 251 | 84 | |
| 6:00 AM | 402 | 120 | |
| 6:15 AM | 511 | 136 | |
| 6:30 AM | 595 | 170 | |
| 6:45 AM | 629 | 180 | |
| 7:00 AM | 599 | 202 | |
| 7:15 AM | 578 | 204 | |
| 7:30 AM | 546 | 180 | |
| 7:45 AM | 540 | 185 | |
| 8:00 AM | 579 | 163 | |
| 8:15 AM | 441 | 120 | |
| 8:30 AM | 306 | 83 | |
| 8:45 AM | 160 | 36 | |
| 9:00 AM | 0 | 0 | |
| 9:15 AM | 0 | 0 | |
| 9:30 AM | 0 | 0 | |
| 9:45 AM | 0 | 0 | |
| 10:00 AM | 0 | 0 | |
| 10:15 AM | 0 | 0 | |
| 10:30 AM | 0 | 0 | |
| 10:45 AM | 0 | 0 | |
| 11:00 AM | 0 | 0 | |
| 11:15 AM | 0 | 0 | |
| 11:30 AM | 0 | 0 | |
| 11:45 AM | 0 | 0 | |

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 12:00 PM | 0 | 0 | |
| 12:15 PM | 0 | 0 | |
| 12:30 PM | 0 | 0 | |
| 12:45 PM | 0 | 0 | |
| 1:00 PM | 0 | 0 | |
| 1:15 PM | 0 | 0 | |
| 1:30 PM | 0 | 0 | |
| 1:45 PM | 0 | 0 | |
| 2:00 PM | 0 | 0 | |
| 2:15 PM | 177 | 62 | |
| 2:30 PM | 381 | 122 | |
| 2:45 PM | 617 | 188 | |
| 3:00 PM | 838 | 250 | Met |
| 3:15 PM | 882 | 242 | Met |
| 3:30 PM | 879 | 253 | Met |
| 3:45 PM | 886 | 254 | Met |
| 4:00 PM | 905 | 263 | Met |
| 4:15 PM | 912 | 275 | Met |
| 4:30 PM | 911 | 256 | Met |
| 4:45 PM | 880 | 248 | Met |
| 5:00 PM | 841 | 219 | Met |
| 5:15 PM | 613 | 153 | |
| 5:30 PM | 413 | 101 | |
| 5:45 PM | 201 | 42 | |
| 6:00 PM | 0 | 0 | |
| 6:15 PM | 0 | 0 | |
| 6:30 PM | 0 | 0 | |
| 6:45 PM | 0 | 0 | |
| 7:00 PM | 0 | 0 | |
| 7:15 PM | 0 | 0 | |
| 7:30 PM | 0 | 0 | |
| 7:45 PM | 0 | 0 | |
| 8:00 PM | 0 | 0 | |
| 8:15 PM | 0 | 0 | |
| 8:30 PM | 0 | 0 | |
| 8:45 PM | 0 | 0 | |
| 9:00 PM | 0 | 0 | |
| 9:15 PM | 0 | 0 | |
| 9:30 PM | 0 | 0 | |
| 9:45 PM | 0 | 0 | |
| 10:00 PM | 0 | 0 | |
| 10:15 PM | 0 | 0 | |
| 10:30 PM | 0 | 0 | |
| 10:45 PM | 0 | 0 | |
| 11:00 PM | 0 | 0 | |

## MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



# MUTCD WARRANT 3, PEAK HOUR

| Number of Lanes for Moving Traffic on Each Approach | |
|---|---|
| Major Street: | 1 Lane |
| Minor Street: | 1 Lane |

| | |
|---|---|
| Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street? | No |
| Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time? | N/A |

| Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present* | |
|---|---|
| Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach? | N/A |
| Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes? | N/A |
| Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches? | N/A |
| **If applicable, attach all supporting calculations and documentation.* | |

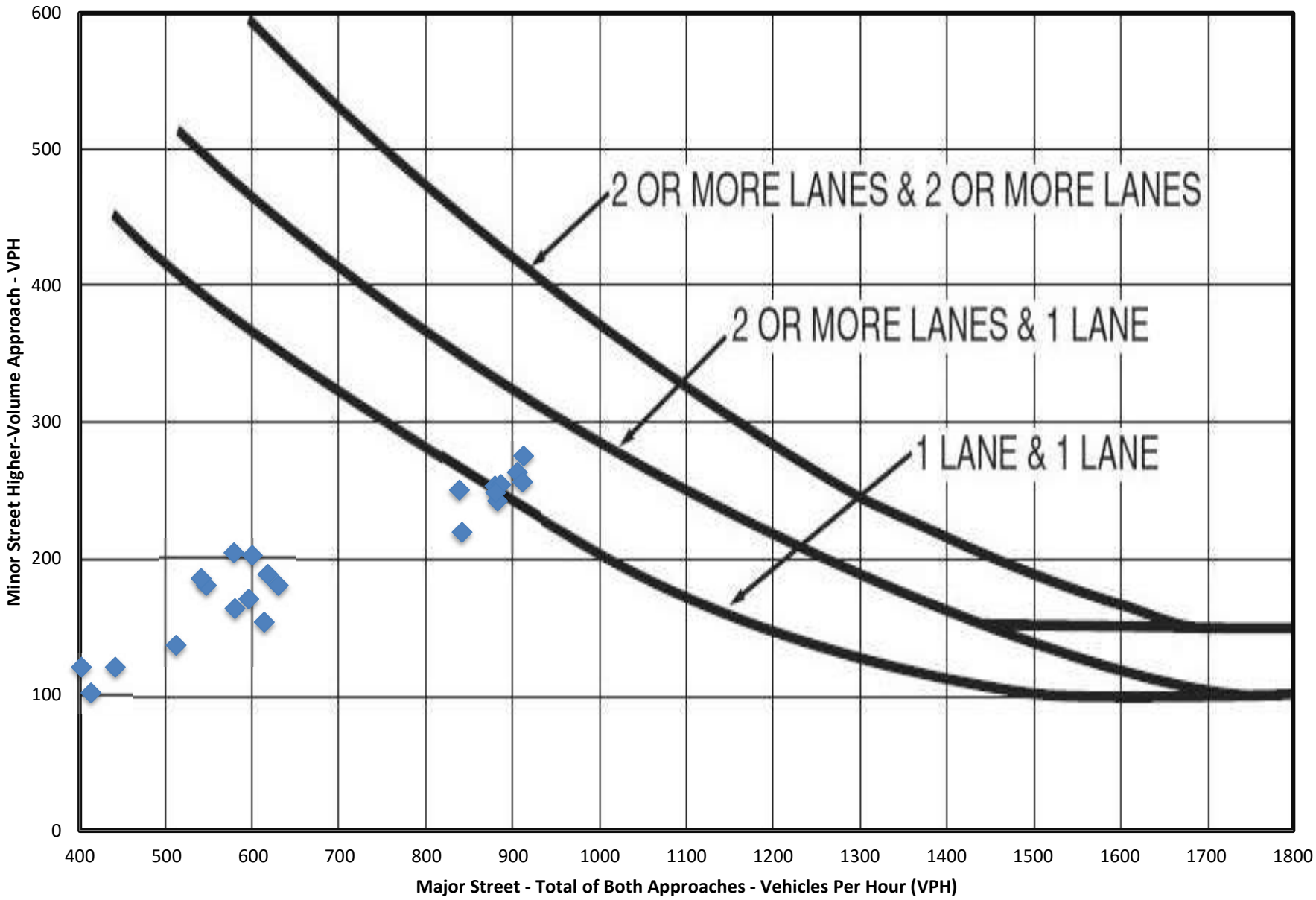
| Total Number of Unique Hours Met On Figure 4C-3 |
|---|
| **2** |

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 12:00 AM | 0 | 0 | |
| 12:15 AM | 0 | 0 | |
| 12:30 AM | 0 | 0 | |
| 12:45 AM | 0 | 0 | |
| 1:00 AM | 0 | 0 | |
| 1:15 AM | 0 | 0 | |
| 1:30 AM | 0 | 0 | |
| 1:45 AM | 0 | 0 | |
| 2:00 AM | 0 | 0 | |
| 2:15 AM | 0 | 0 | |
| 2:30 AM | 0 | 0 | |
| 2:45 AM | 0 | 0 | |
| 3:00 AM | 0 | 0 | |
| 3:15 AM | 0 | 0 | |
| 3:30 AM | 0 | 0 | |
| 3:45 AM | 0 | 0 | |
| 4:00 AM | 0 | 0 | |
| 4:15 AM | 0 | 0 | |
| 4:30 AM | 0 | 0 | |
| 4:45 AM | 0 | 0 | |
| 5:00 AM | 0 | 0 | |
| 5:15 AM | 50 | 25 | |
| 5:30 AM | 133 | 52 | |
| 5:45 AM | 251 | 84 | |
| 6:00 AM | 402 | 120 | |
| 6:15 AM | 511 | 136 | |
| 6:30 AM | 595 | 170 | |
| 6:45 AM | 629 | 180 | |
| 7:00 AM | 599 | 202 | |
| 7:15 AM | 578 | 204 | |
| 7:30 AM | 546 | 180 | |
| 7:45 AM | 540 | 185 | |
| 8:00 AM | 579 | 163 | |

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 8:15 AM | 441 | 120 | |

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 8:30 AM | 306 | 83 | |
| 8:45 AM | 160 | 36 | |
| 9:00 AM | 0 | 0 | |
| 9:15 AM | 0 | 0 | |
| 9:30 AM | 0 | 0 | |
| 9:45 AM | 0 | 0 | |
| 10:00 AM | 0 | 0 | |
| 10:15 AM | 0 | 0 | |
| 10:30 AM | 0 | 0 | |
| 10:45 AM | 0 | 0 | |
| 11:00 AM | 0 | 0 | |
| 11:15 AM | 0 | 0 | |
| 11:30 AM | 0 | 0 | |
| 11:45 AM | 0 | 0 | |
| 12:00 PM | 0 | 0 | |
| 12:15 PM | 0 | 0 | |
| 12:30 PM | 0 | 0 | |
| 12:45 PM | 0 | 0 | |
| 1:00 PM | 0 | 0 | |
| 1:15 PM | 0 | 0 | |
| 1:30 PM | 0 | 0 | |
| 1:45 PM | 0 | 0 | |
| 2:00 PM | 0 | 0 | |
| 2:15 PM | 177 | 62 | |
| 2:30 PM | 381 | 122 | |
| 2:45 PM | 617 | 188 | |
| 3:00 PM | 838 | 250 | |
| 3:15 PM | 882 | 242 | |
| 3:30 PM | 879 | 253 | Met |
| 3:45 PM | 886 | 254 | Met |
| 4:00 PM | 905 | 263 | Met |
| 4:15 PM | 912 | 275 | Met |
| 4:30 PM | 911 | 256 | Met |
| 4:45 PM | 880 | 248 | Met |
| 5:00 PM | 841 | 219 | |
| 5:15 PM | 613 | 153 | |
| 5:30 PM | 413 | 101 | |
| 5:45 PM | 201 | 42 | |
| 6:00 PM | 0 | 0 | |
| 6:15 PM | 0 | 0 | |
| 6:30 PM | 0 | 0 | |
| 6:45 PM | 0 | 0 | |
| 7:00 PM | 0 | 0 | |
| 7:15 PM | 0 | 0 | |
| 7:30 PM | 0 | 0 | |
| 7:45 PM | 0 | 0 | |
| 8:00 PM | 0 | 0 | |
| 8:15 PM | 0 | 0 | |
| 8:30 PM | 0 | 0 | |
| 8:45 PM | 0 | 0 | |
| 9:00 PM | 0 | 0 | |
| 9:15 PM | 0 | 0 | |
| 9:30 PM | 0 | 0 | |
| 9:45 PM | 0 | 0 | |
| 10:00 PM | 0 | 0 | |
| 10:15 PM | 0 | 0 | |
| 10:30 PM | 0 | 0 | |
| 10:45 PM | 0 | 0 | |
| 11:00 PM | 0 | 0 | |

## MUTCD Figure 4C-3. Warrant 3, Peak Hour



# APPENDIX F

## *Sight Distance*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue

M-950S
(03-04)
PENNDOT

# DRIVEWAY SIGHT DISTANCE MEASUREMENTS
## (FOR LOCAL ROADS, USE PENNDOT PUB 70)

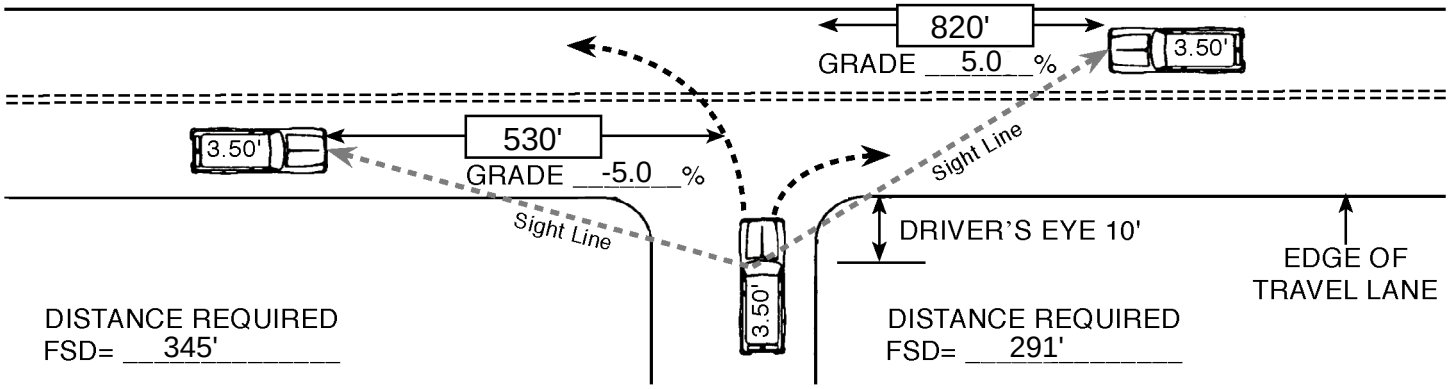
APPLICANT Easton Wood Avenue PropCo, LLC APPLICATION NO. 320663

S.R. 2017 SEG. 0030 OFFSET 0780 LEGAL SPEED LIMIT 40 MPH

MEASURED BY ICP/VRG DATE 9/18/2023

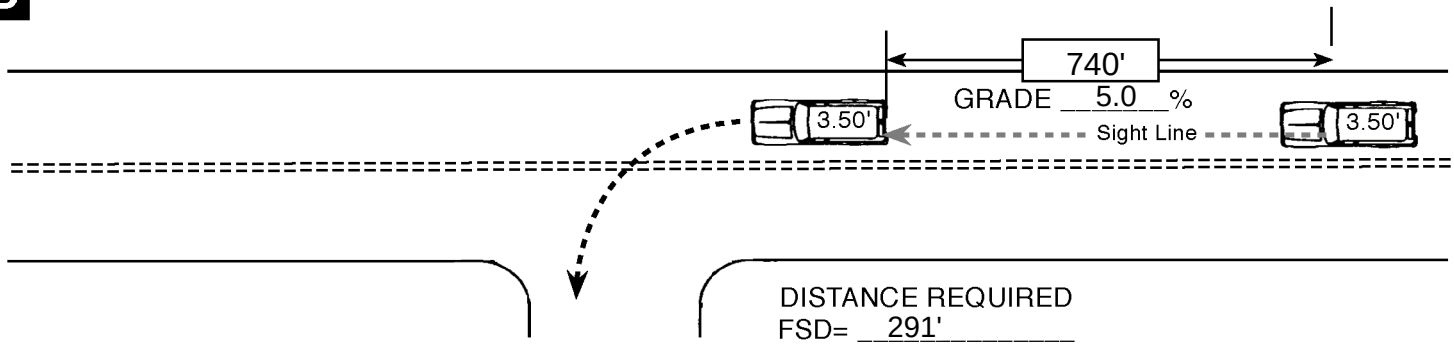
FOR DEPARTMENT USE ONLY: Safe-Running Speed _____ 85th Percentile Speed _____

**A**



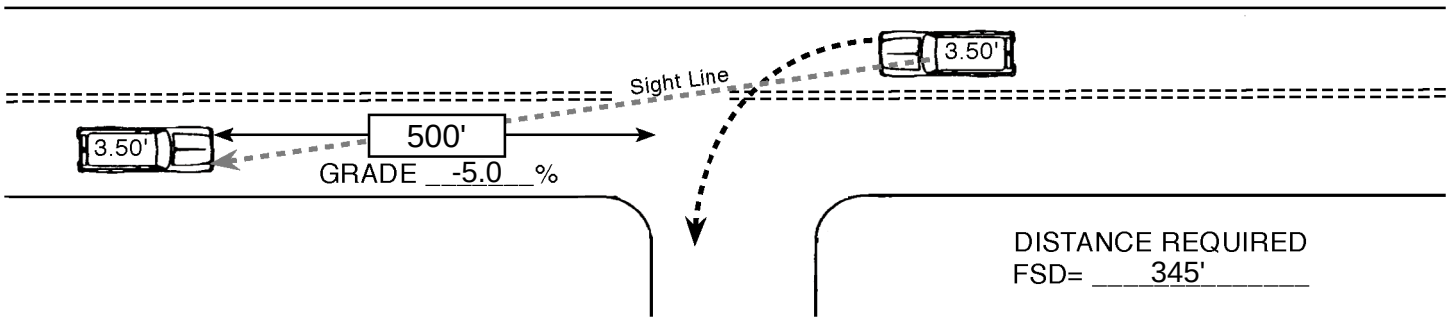

THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER AT A DRIVEWAY LOCATION CAN CONTINUOUSLY SEE ANOTHER VEHICLE APPROACHING ON THE ROADWAY.

**B**




THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER ON THE ROADWAY CAN CONTINUOUSLY SEE THE REAR OF A VEHICLE WHICH IS LOCATED IN THE DRIVER'S TRAVEL LANE AND WHICH IS POSITIONED TO MAKE A LEFT TURN INTO A DRIVEWAY.

**C**




THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER OF A VEHICLE INTENDING TO MAKE A LEFT TURN INTO A DRIVEWAY CAN CONTINUOUSLY SEE A VEHICLE APPROACHING FROM THE OPPOSITE DIRECTION.

# FORMULA SIGHT DISTANCE TABLE

| Speed (V) (Miles Per Hour) | Average Grade (G) (Percent) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Use plus grades when approaching vehicle is travelling upgrade.** | | | | | | | | | | |
| | 0.0 | +1.0 | +2.0 | +3.0 | +4.0 | +5.0 | +6.0 | +7.0 | +8.0 | +9.0 | +10.0 |
| 25 | 147 | 145 | 144 | 143 | 142 | 140 | 139 | 138 | 137 | 136 | 135 |
| 30 | 196 | 194 | 191 | 189 | 187 | 185 | 183 | 182 | 180 | 178 | 177 |
| 35 | 249 | 245 | 242 | 239 | 236 | 233 | 231 | 228 | 226 | 224 | 221 |
| 40 | 314 | 309 | 304 | 299 | 295 | 291 | 287 | 284 | 280 | 277 | 274 |
| 45 | 383 | 376 | 370 | 364 | 358 | 353 | 348 | 343 | 339 | 334 | 330 |
| 50 | 462 | 453 | 444 | 436 | 429 | 422 | 415 | 409 | 403 | 397 | 392 |
| 55 | 538 | 527 | 517 | 508 | 499 | 490 | 482 | 475 | 468 | 461 | 454 |
| | **Use negative grades when approaching vehicle is travelling downgrade.** | | | | | | | | | | |
| | 0.0 | -1.0 | -2.0 | -3.0 | -4.0 | -5.0 | -6.0 | -7.0 | -8.0 | -9.0 | -10.0 |
| 25 | 147 | 148 | 150 | 151 | 153 | 155 | 157 | 159 | 161 | 164 | 166 |
| 30 | 196 | 199 | 201 | 204 | 207 | 210 | 214 | 217 | 221 | 226 | 230 |
| 35 | 249 | 252 | 256 | 260 | 265 | 269 | 275 | 280 | 286 | 292 | 299 |
| 40 | 314 | 319 | 325 | 331 | 338 | 345 | 352 | 360 | 369 | 379 | 389 |
| 45 | 383 | 390 | 398 | 406 | 415 | 425 | 435 | 447 | 459 | 472 | 487 |
| 50 | 462 | 471 | 481 | 492 | 504 | 517 | 531 | 546 | 563 | 581 | 600 |
| 55 | 538 | 550 | 562 | 576 | 590 | 606 | 622 | 641 | 661 | 682 | 706 |

M-950S
(03-04)
PENNDOT

# DRIVEWAY SIGHT DISTANCE MEASUREMENTS
## (FOR LOCAL ROADS, USE PENNDOT PUB 70)

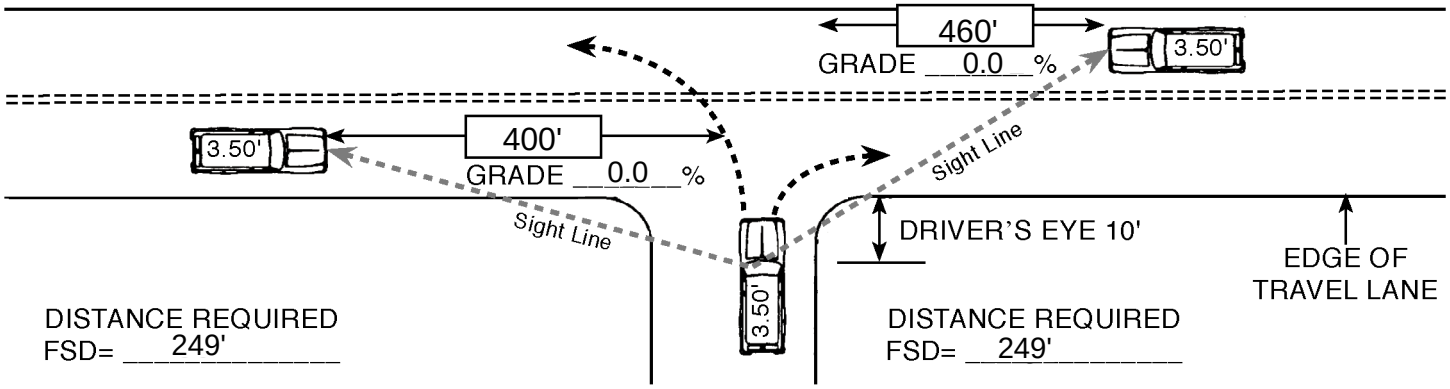
APPLICANT Easton Wood Avenue PropCo, LLC APPLICATION NO. 320663

S.R. 2017 SEG. 0024 OFFSET 0400 LEGAL SPEED LIMIT 35 MPH

MEASURED BY ICP/VRG DATE 9/18/2023

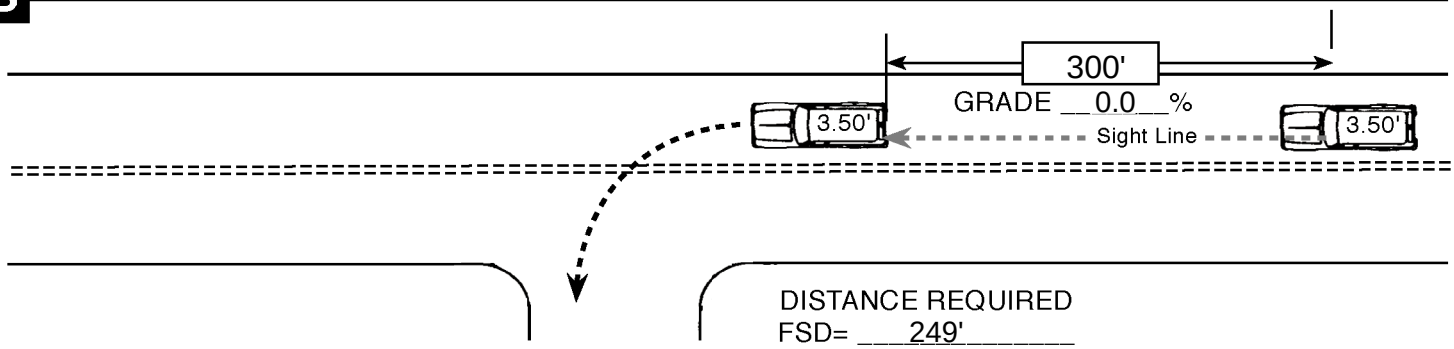
FOR DEPARTMENT USE ONLY: Safe-Running Speed _____ 85th Percentile Speed _____

**A**



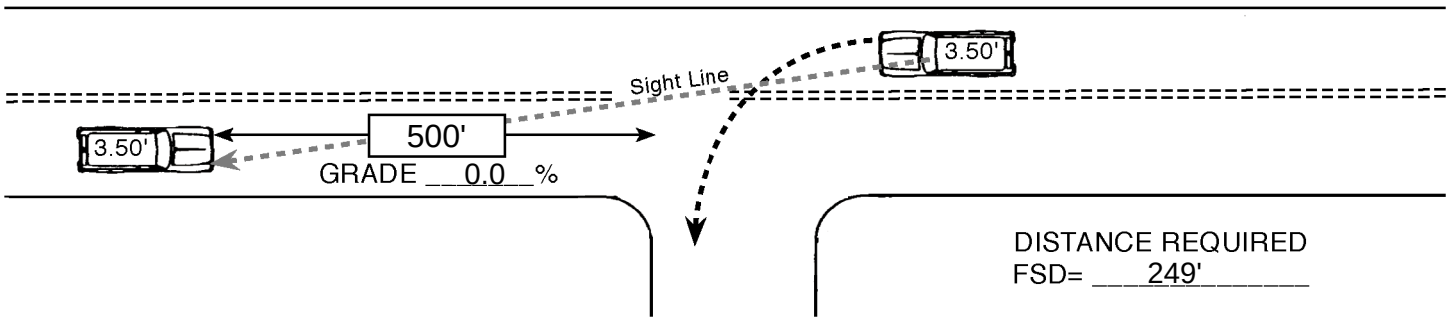

THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER AT A DRIVEWAY LOCATION CAN CONTINUOUSLY SEE ANOTHER VEHICLE APPROACHING ON THE ROADWAY.

**B**




THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER ON THE ROADWAY CAN CONTINUOUSLY SEE THE REAR OF A VEHICLE WHICH IS LOCATED IN THE DRIVER'S TRAVEL LANE AND WHICH IS POSITIONED TO MAKE A LEFT TURN INTO A DRIVEWAY.

**C**




THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER OF A VEHICLE INTENDING TO MAKE A LEFT TURN INTO A DRIVEWAY CAN CONTINUOUSLY SEE A VEHICLE APPROACHING FROM THE OPPOSITE DIRECTION.

# FORMULA SIGHT DISTANCE TABLE

| Speed (V) (Miles Per Hour) | Average Grade (G) (Percent) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Use plus grades when approaching vehicle is travelling upgrade.** | | | | | | | | | | |
| | 0.0 | +1.0 | +2.0 | +3.0 | +4.0 | +5.0 | +6.0 | +7.0 | +8.0 | +9.0 | +10.0 |
| 25 | 147 | 145 | 144 | 143 | 142 | 140 | 139 | 138 | 137 | 136 | 135 |
| 30 | 196 | 194 | 191 | 189 | 187 | 185 | 183 | 182 | 180 | 178 | 177 |
| 35 | 249 | 245 | 242 | 239 | 236 | 233 | 231 | 228 | 226 | 224 | 221 |
| 40 | 314 | 309 | 304 | 299 | 295 | 291 | 287 | 284 | 280 | 277 | 274 |
| 45 | 383 | 376 | 370 | 364 | 358 | 353 | 348 | 343 | 339 | 334 | 330 |
| 50 | 462 | 453 | 444 | 436 | 429 | 422 | 415 | 409 | 403 | 397 | 392 |
| 55 | 538 | 527 | 517 | 508 | 499 | 490 | 482 | 475 | 468 | 461 | 454 |
| | **Use negative grades when approaching vehicle is travelling downgrade.** | | | | | | | | | | |
| | 0.0 | -1.0 | -2.0 | -3.0 | -4.0 | -5.0 | -6.0 | -7.0 | -8.0 | -9.0 | -10.0 |
| 25 | 147 | 148 | 150 | 151 | 153 | 155 | 157 | 159 | 161 | 164 | 166 |
| 30 | 196 | 199 | 201 | 204 | 207 | 210 | 214 | 217 | 221 | 226 | 230 |
| 35 | 249 | 252 | 256 | 260 | 265 | 269 | 275 | 280 | 286 | 292 | 299 |
| 40 | 314 | 319 | 325 | 331 | 338 | 345 | 352 | 360 | 369 | 379 | 389 |
| 45 | 383 | 390 | 398 | 406 | 415 | 425 | 435 | 447 | 459 | 472 | 487 |
| 50 | 462 | 471 | 481 | 492 | 504 | 517 | 531 | 546 | 563 | 581 | 600 |
| 55 | 538 | 550 | 562 | 576 | 590 | 606 | 622 | 641 | 661 | 682 | 706 |

# APPENDIX G

## *Capacity and Level of Service Reports*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue

## Table 6: Detailed Level of Service (Overall Intersection)

| Peak Hour | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Hackett Avenue (SR 2017) & Proposed Site Access Driveway *Unsignalized* | N/A | N/A | A<br>0.6 | A<br>0.6 | N/A | A<br>0.6 | A<br>0.6 | N/A | N/A | A<br>0.9 | A<br>0.9 | N/A | A<br>0.9 | A<br>0.9 |
| Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) *Unsignalized* | A<br>5.2 | A<br>5.3 | A<br>5.3 | A<br>5.1 | A<br>5.5 | A<br>7.0 | A<br>5.3 | B<br>11.2 | B<br>11.8 | C<br>23.6 | A<br>8.6 | B<br>13.4 | D<br>27.6 | A<br>9.5 |
| Wood Avenue (SR 2017) & Proposed Site Access Driveway *Unsignalized* | N/A | N/A | A<br>1.0 | A<br>1.0 | N/A | A<br>1.0 | A<br>1.0 | N/A | N/A | A<br>1.3 | A<br>1.3 | N/A | A<br>1.3 | A<br>1.3 |
| Wood Avenue (SR 2017) & US 22 West Ramps *Unsignalized* | A<br>0.9 | A<br>0.9 | A<br>1.0 | *N/A* | A<br>0.9 | A<br>1.0 | *N/A* | A<br>2.7 | A<br>2.7 | A<br>2.8 | *N/A* | A<br>2.7 | A<br>2.8 | *N/A* |
| Wood Avenue (SR 2017) & N. 13th Street (SR 2019) *Signalized* | D<br>35.5 | D<br>35.8 | D<br>36.7 | *N/A* | D<br>36.8 | D<br>37.7 | *N/A* | E<br>60.7 | E<br>62.2 | E<br>65.5 | *N/A* | E<br>66.7 | E<br>69.5 | *N/A* |
| S. 25th Street (SR 2012) & Wood Avenue (SR 2024) / US 22 East Ramp *Signalized* | C<br>31.6 | C<br>29.4 | C<br>30.6 | *N/A* | C<br>29.9 | C<br>31.1 | *N/A* | D<br>35.4 | C<br>34.8 | D<br>35.7 | *N/A* | D<br>36.0 | D<br>36.8 | *N/A* |
| Northampton Street (SR 0248) & Wood Avenue (SR 2024) *Signalized* | B<br>18.7 | B<br>18.7 | B<br>19.6 | *N/A* | B<br>18.8 | B<br>19.7 | *N/A* | B<br>17.5 | B<br>17.5 | B<br>18.8 | *N/A* | B<br>17.6 | B<br>18.9 | *N/A* |
| Northampton Street (SR 0248) & S. 25th Street (SR 2012)/Nazareth Road (SR 0248) *Signalized* | B<br>15.9 | B<br>15.9 | B<br>16.0 | *N/A* | B<br>16.0 | B<br>16.2 | *N/A* | B<br>18.1 | B<br>18.3 | B<br>18.8 | *N/A* | B<br>18.6 | B<br>19.1 | *N/A* |
| Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps *Signalized* | B<br>19.7 | B<br>19.8 | B<br>19.9 | *N/A* | C<br>20.2 | C<br>20.3 | *N/A* | C<br>33.4 | C<br>33.8 | C<br>34.5 | *N/A* | D<br>35.1 | D<br>36.4 | *N/A* |
| Hackett Avenue (SR 2017) / Mall Entrance & Park Avenue / Tatamy Road *Signalized* | A<br>6.8 | A<br>6.8 | A<br>6.9 | *N/A* | A<br>6.9 | A<br>6.9 | *N/A* | A<br>8.3 | A<br>8.4 | A<br>8.5 | *N/A* | A<br>8.5 | A<br>8.6 | *N/A* |
| Wood Avenue (SR 2017) & US 22 East On Ramp *Unsignalized* | A<br>0.7 | A<br>0.7 | A<br>0.8 | *N/A* | A<br>0.7 | A<br>0.8 | *N/A* | A<br>0.5 | A<br>0.5 | A<br>0.5 | *N/A* | A<br>0.5 | A<br>0.5 | *N/A* |
| Wood Avenue (SR 2017) & US 22 East Off Ramp *Unsignalized* | A<br>4.1 | A<br>4.1 | A<br>4.1 | *N/A* | A<br>4.3 | A<br>4.2 | *N/A* | A<br>4.9 | A<br>5.0 | A<br>5.0 | *N/A* | A<br>5.2 | A<br>5.3 | *N/A* |

# Table 6: Detailed Level of Service (Unsignalized)

1. Hackett Avenue (SR 2017) & Proposed Site Access Driveway

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Proposed Site Access Driveway | *SB* | *Left* | N/A | N/A | B | B | N/A | B | B | N/A | N/A | B | B | N/A | B | B |
| | | *Right* | | | 11.1 | 10.9 | | 11.1 | 11.0 | | | 12.7 | 12.6 | | 12.9 | 12.8 |
| Hackett Avenue (SR 2017) | EB | *Left* | | | A | A | | A | A | | | A | A | | A | A |
| | | Thru | | | 0.6 | 8.6 (1) | | 0.6 | 8.6 (1) | | | 0.3 | 9.1 (1) | | 0.3 | 9.1 (1) |
| | WB | Thru | | | (1) | (1) | | (1) | (1) | | | (1) | (1) | | (1) | (1) |
| | | *Right* | | | | (1) | | | (1) | | | | (1) | | | (1) |
| PennDOT Overall (2) | | | | | A | A | | A | A | | | A | A | | A | A |
| | | | | | 0.6 | 0.6 | | 0.6 | 0.6 | | | 0.9 | 0.9 | | 0.9 | 0.9 |

*(1) Free-flow movement*
*(2) LOS for TWSC intersections is defined by the average intersection delay (all movements) - used for application of PennDOT's LOS criteria. Intersection LOS for TWSC is NOT defined by the HCM6 as it masks deficiencies for minor movements*
*Italics denotes proposed movements*

# Table 6: Detailed Level of Service (Unsignalized)

2. Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP(3) | WO/Dev | WD | WD + IMP(3) | Existing | WO/Dev | WD | WD + IMP(3) | WO/Dev | WD | WD + IMP(3) |
| Hackett Avenue (SR 2017) | SB | Left | C | C | D | C | C | D | C | E | F | F | E | F | F | E |
| | | Right | 19.2 | 19.7 | 26.8 | 19.6 | 20.6 | 28.6 | 20.5 | 47.9 | 50.5 | 105.3 | 35.6 | 58.2 | 123.5 | 39.4 |
| Wood Avenue (SR 2024) | EB | Left | A | A | A | A | A | A | A | A | A | A | A | A | A | A |
| | | Thru | 2.6 | 2.7 | 3.0 | 2.6 | 2.7 | 2.6 | 2.6 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 |
| Wood Avenue (SR 2017) | WB | Thru | (1) | (1) | (1) | (1) | (1) | (1) | (1) | (1) | (1) | (1) | (1) | (1) | (1) | (1) |
| | | Right | | | | (1) | | | (1) | | | | (1) | | | (1) |
| PennDOT Overall (2) | | | A | A | A | A | A | A | A | B | B | C | A | B | D | A |
| | | | 5.2 | 5.3 | 5.3 | 5.1 | 5.5 | 7.0 | 5.3 | 11.2 | 11.8 | 23.6 | 8.6 | 13.4 | 27.6 | 9.5 |

*(1) Free-flow movement*

*(2) LOS for TWSC intersections is defined by the average intersection delay (all movements) - used for application of PennDOT's LOS criteria. Intersection LOS for TWSC is NOT defined by the HCM6 as it masks deficiencies for minor movements*

*(3) Improvements include: Construct a 125' SBR turn lane and construct a 175' WBR turn lane*

*Italics denotes proposed movements*

# Table 6: Detailed Level of Service (Unsignalized)

3. Wood Avenue (SR 2017) & Proposed Site Access Driveway

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Proposed Site Access Driveway | SB | Left<br>Right | N/A | N/A | B<br>12.9 | B<br>12.6 | N/A | B<br>13.0 | B<br>12.8 | N/A | N/A | C<br>15.6 | C<br>15.4 | N/A | C<br>15.9 | C<br>16.2 |
| Wood Avenue (SR 2017) | EB | *Left*<br>Thru | | | A<br>1.4 | A<br>9.3<br>(1) | | A<br>1.4 | A<br>9.4<br>(1) | | | A<br>0.7 | A<br>9.9<br>(1) | | A<br>0.6 | A<br>10.0<br>(1) |
| | WB | Thru<br>*Right* | | | (1) | (1)<br>(1) | | (1) | (1)<br>(1) | | | (1) | (1)<br>(1) | | (1) | (1)<br>(1) |
| PennDOT Overall (2) | | | | | A<br>1.0 | A<br>1.0 | | A<br>1.0 | A<br>1.0 | | | A<br>1.3 | A<br>1.3 | | A<br>1.3 | A<br>1.3 |

*(1) Free-flow movement*
*(2) LOS for TWSC intersections is defined by the average intersection delay (all movements) - used for application of PennDOT's LOS criteria. Intersection LOS for TWSC is NOT defined by the HCM6 as it masks deficiencies for minor movements*
*Italics denotes proposed movements*

# Table 6: Detailed Level of Service (Unsignalized)

4. Wood Avenue (SR 2017) & US 22 West Ramps

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| US 22 West Off Ramp | SB | Left | B<br>12.5 | B<br>12.5 | B<br>13.0 | N/A | B<br>12.7 | B<br>13.2 | N/A | C<br>17.8 | C<br>18.0 | C<br>19.4 | N/A | C<br>18.5 | C<br>20.0 | N/A |
| | | Right | A<br>9.7 | A<br>9.8 | B<br>10.1 | | A<br>9.8 | B<br>10.1 | | B<br>11.6 | B<br>11.7 | B<br>11.9 | | B<br>11.8 | B<br>12.1 | |
| Wood Avenue (SR 2017) | EB | Thru | (1) | (1) | (1) | | (1) | (1) | | (1) | (1) | (1) | | (1) | (1) | |
| | WB | Thru | (1) | (1) | (1) | | (1) | (1) | | (1) | (1) | (1) | | (1) | (1) | |
| | | Right | (1) | (1) | (1) | | (1) | (1) | | (1) | (1) | (1) | | (1) | (1) | |
| PennDOT Overall (2) | | | A<br>0.9 | A<br>0.9 | A<br>1.0 | | A<br>0.9 | A<br>1.0 | | A<br>2.7 | A<br>2.7 | A<br>2.8 | | A<br>2.7 | A<br>2.8 | |

*(1) Free-flow movement*

*(2) LOS for TWSC intersections is defined by the average intersection delay (all movements) - used for application of PennDOT's LOS criteria. Intersection LOS for TWSC is NOT defined by the HCM6 as it masks deficiencies for minor movements*

*Italics denotes proposed movements*

# Table 6: Detailed Level of Service (Unsignalized)

11. Wood Avenue (SR 2017) & US 22 East On-Ramp

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Wood Avenue (SR 2017) | EB | Left | B | B | B | *N/A* | B | B | *N/A* | B | B | B | *N/A* | B | B | *N/A* |
| | | | 11.6 | 11.6 | 11.8 | | 11.8 | 11.9 | | 10.9 | 11.0 | 11.0 | | 11.1 | 11.1 | |
| | | Thru | (1) | (1) | (1) | | (1) | (1) | | (1) | (1) | (1) | | (1) | (1) | |
| | WB | Thru | (1) | (1) | (1) | | (1) | (1) | | (1) | (1) | (1) | | (1) | (1) | |
| | | Right | (1) | (1) | (1) | | (1) | (1) | | (1) | (1) | (1) | | (1) | (1) | |
| PennDOT Overall (2) | | | A | A | A | | A | A | | A | A | A | | A | A | |
| | | | 0.7 | 0.7 | 0.8 | | 0.7 | 0.8 | | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | |

*(1) Free-flow movement*

*(2) LOS for TWSC intersections is defined by the average intersection delay (all movements) - used for application of PennDOT's LOS criteria. Intersection LOS for TWSC is NOT defined by the HCM6 as it masks deficiencies for minor movements*

*Italics denotes proposed movements*

# Table 6: Detailed Level of Service (Unsignalized)

12. Wood Avenue (SR 2017) & US 22 East Off-Ramp

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| US 22 East Off-Ramp | NB | Right | C<br>15.0 | C<br>15.2 | C<br>15.4 | N/A | C<br>15.6 | C<br>15.8 | N/A | C<br>17.5 | C<br>17.9 | C<br>18.6 | N/A | C<br>18.7 | C<br>19.4 | N/A |
| Wood Avenue (SR 2017) | EB | Thru | (1) | (1) | (1) | | (1) | (1) | | (1) | (1) | (1) | | (1) | (1) | |
| | WB | Thru | (1) | (1) | (1) | | (1) | (1) | | (1) | (1) | (1) | | (1) | (1) | |
| PennDOT Overall (2) | | | A<br>4.1 | A<br>4.1 | A<br>4.1 | | A<br>4.3 | A<br>4.2 | | A<br>4.9 | A<br>5.0 | A<br>5.0 | | A<br>5.2 | A<br>5.3 | |

*(1) Free-flow movement*
*(2) LOS for TWSC intersections is defined by the average intersection delay (all movements) - used for application of PennDOT's LOS criteria. Intersection LOS for TWSC is NOT defined by the HCM6 as it masks deficiencies for minor movements*
*Italics denotes proposed movements*

# Table 6: Detailed Level of Service (Signalized)

5. Wood Avenue (SR 2017) & N. 13th Street (SR 2019)

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| N. 13th Street (SR 2019) | NB | Left | D<br>50.1 | D<br>50.7 | D<br>54.0 | | D<br>53.1 | E<br>56.6 | | D<br>36.0 | D<br>36.1 | D<br>36.6 | | D<br>36.6 | D<br>36.9 | |
| | | Thru Right | C<br>22.1 | C<br>22.2 | C<br>22.3 | | C<br>22.4 | C<br>22.6 | | C<br>31.2 | C<br>31.6 | C<br>31.9 | | C<br>32.5 | C<br>32.8 | |
| | SB | Left | D<br>50.7 | D<br>50.8 | D<br>50.8 | | D<br>51.2 | D<br>50.9 | | D<br>41.5 | D<br>41.5 | D<br>42.0 | | D<br>42.0 | D<br>42.4 | |
| | | Thru | C<br>28.8 | C<br>28.9 | C<br>29.0 | | C<br>29.2 | C<br>29.3 | | D<br>50.6 | D<br>51.8 | D<br>53.4 | | E<br>55.3 | E<br>56.8 | |
| | | Right | D<br>52.9 | D<br>53.9 | E<br>56.3 | | E<br>57.2 | E<br>60.3 | | F<br>242.0 | F<br>250.3 | F<br>266.9 | | F<br>274.2 | F<br>287.9 | |
| Wood Avenue (SR 2017) | EB | Left | C<br>25.3 | C<br>25.4 | C<br>25.4 | N/A | C<br>25.7 | C<br>25.7 | N/A | C<br>25.7 | C<br>26.0 | C<br>28.5 | N/A | C<br>27.9 | C<br>30.5 | N/A |
| | | Thru | B<br>19.3 | B<br>19.3 | B<br>19.3 | | B<br>19.3 | B<br>19.3 | | B<br>12.1 | B<br>12.1 | B<br>12.2 | | B<br>12.2 | B<br>12.2 | |
| | | Right | B<br>18.0 | B<br>18.0 | B<br>18.0 | | B<br>18.0 | B<br>17.9 | | B<br>11.2 | B<br>11.3 | B<br>11.3 | | B<br>11.3 | B<br>11.3 | |
| | WB | Left | D<br>40.4 | D<br>40.4 | D<br>40.5 | | D<br>40.5 | D<br>40.4 | | C<br>32.0 | C<br>32.1 | C<br>32.6 | | C<br>32.7 | C<br>33.1 | |
| | | Thru | D<br>41.3 | D<br>41.4 | D<br>41.4 | | D<br>41.4 | D<br>41.2 | | C<br>32.6 | C<br>32.8 | C<br>33.2 | | C<br>33.4 | C<br>33.8 | |
| | | Right | D<br>43.0 | D<br>43.0 | D<br>43.0 | | D<br>43.1 | D<br>42.8 | | C<br>33.7 | C<br>33.8 | C<br>34.3 | | C<br>34.5 | C<br>34.9 | |
| PennDOT Overall | | | D<br>35.5 | D<br>35.8 | D<br>36.7 | | D<br>36.8 | D<br>37.7 | | E<br>60.7 | E<br>62.2 | E<br>65.5 | | E<br>66.7 | E<br>69.5 | |

# Table 6: Detailed Level of Service (Signalized)

6. S 25th Street (SR 2012) & Wood Avenue (SR 2024) / US 22 East Ramp

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| S. 25th Street (SR 2012) | NB | Left | E<br>67.8 | D<br>49.0 | D<br>48.8 | | D<br>48.9 | D<br>48.7 | | F<br>80.7 | D<br>51.8 | D<br>51.8 | | D<br>52.0 | D<br>52.0 | |
| | | Thru | C<br>25.3 | C<br>22.5 | C<br>24.0 | | C<br>23.2 | C<br>24.7 | | C<br>29.8 | D<br>35.1 | D<br>35.7 | | D<br>37.3 | D<br>37.3 | |
| | | Right | B<br>15.6 | B<br>13.9 | B<br>14.9 | | B<br>14.1 | B<br>15.0 | | B<br>17.6 | B<br>19.2 | B<br>19.4 | | B<br>19.5 | B<br>19.6 | |
| | SB | Left | E<br>56.7 | D<br>50.6 | D<br>50.2 | | D<br>50.6 | D<br>50.2 | | E<br>59.1 | D<br>49.3 | D<br>49.3 | | D<br>49.3 | D<br>49.3 | |
| | | Thru | C<br>31.3 | C<br>28.5 | C<br>30.4 | | C<br>29.6 | C<br>31.6 | | C<br>29.7 | C<br>34.3 | C<br>34.8 | | D<br>35.8 | D<br>35.8 | |
| | | Right | B<br>19.7 | B<br>18.1 | B<br>19.0 | N/A | B<br>18.4 | B<br>19.3 | N/A | C<br>20.6 | C<br>22.5 | C<br>22.7 | N/A | C<br>22.8 | C<br>22.8 | N/A |
| US 22 East Ramps | EB | Left Thru | D<br>44.7 | D<br>45.7 | D<br>47.3 | | D<br>45.9 | D<br>47.4 | | E<br>57.0 | D<br>46.7 | D<br>49.5 | | D<br>47.4 | D<br>51.7 | |
| | | Right | D<br>36.9 | D<br>36.2 | C<br>34.9 | | D<br>35.9 | C<br>34.7 | | C<br>31.7 | C<br>29.1 | C<br>28.9 | | C<br>28.9 | C<br>28.9 | |
| Wood Avenue (SR 2024) | WB | Left | C<br>28.0 | C<br>32.1 | C<br>31.8 | | C<br>32.3 | C<br>31.9 | | C<br>28.5 | C<br>25.6 | C<br>27.1 | | C<br>25.9 | C<br>27.9 | |
| | | Thru Right | C<br>21.1 | C<br>23.1 | C<br>22.2 | | C<br>22.9 | C<br>22.0 | | C<br>20.3 | B<br>18.7 | B<br>18.5 | | B<br>18.5 | B<br>18.5 | |
| PennDOT Overall | | | C<br>31.6 | C<br>29.4 | C<br>30.6 | | C<br>29.9 | C<br>31.1 | | D<br>35.4 | C<br>34.8 | D<br>35.7 | | D<br>36.0 | D<br>36.8 | |

# Table 6: Detailed Level of Service (Signalized)

7. Northampton Street (SR 0248) & Wood Avenue (SR 2024)

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Wood Avenue (SR 2024) | NB | Left | D | D | D | N/A | D | D | N/A | D | D | D | N/A | D | D | N/A |
| | | Thru Right | 43.2 | 43.2 | 42.0 | | 43.1 | 41.9 | | 41.0 | 41.0 | 40.3 | | 40.8 | 40.1 | |
| | SB | Left | D | D | D | | D | D | | D | D | D | | D | D | |
| | | Thru Right | 42.9 | 42.9 | 40.0 | | 42.7 | 39.9 | | 35.6 | 35.6 | 35.5 | | 35.2 | 35.2 | |
| Northampton Street (SR 0248) | EB | Left | A | A | A | | A | A | | B | B | B | | B | B | |
| | | | 7.7 | 7.7 | 9.5 | | 8.0 | 9.9 | | 11.0 | 11.1 | 13.2 | | 11.6 | 13.7 | |
| | | Thru Right | A | A | A | | A | A | | A | A | A | | A | A | |
| | | | 4.2 | 4.2 | 5.1 | | 4.3 | 5.2 | | 6.3 | 6.3 | 6.9 | | 6.5 | 7.2 | |
| | WB | Left | A | A | A | | A | A | | A | A | B | | A | B | |
| | | | 6.5 | 6.5 | 7.7 | | 6.7 | 7.9 | | 9.5 | 9.6 | 11.1 | | 10.0 | 11.4 | |
| | | Thru Right | A | A | A | | A | A | | A | A | A | | A | A | |
| | | | 4.8 | 4.9 | 6.0 | | 5.0 | 6.2 | | 7.4 | 7.4 | 8.2 | | 7.7 | 8.5 | |
| PennDOT Overall | | | B | B | B | | B | B | | B | B | B | | B | B | |
| | | | 18.7 | 18.7 | 19.6 | | 18.8 | 19.7 | | 17.5 | 17.5 | 18.8 | | 17.6 | 18.9 | |

# Table 6: Detailed Level of Service (Signalized)

8. Northampton Street (SR 0248) & S. 25th Street (SR 2012) / Nazareth Road (SR 0248)

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| S. 25th Street (SR 2012) | NB | Left | A | A | A | | A | A | | A | A | A | | A | A | |
| | | | 4.6 | 4.9 | 5.0 | | 5.0 | 5.2 | | 6.9 | 7.1 | 7.6 | | 7.4 | 7.9 | |
| | | Thru Thru Right | B | A | B | | B | B | | B | B | B | | B | B | |
| | | | 10.4 | 10.0 | 10.2 | | 10.1 | 10.4 | | 16.5 | 16.7 | 17.7 | | 17.1 | 18.1 | |
| Nazareth Road (SR 0248) | SB | Left | A | A | A | | A | A | | A | A | A | | A | A | |
| | | | 4.4 | 4.6 | 4.9 | | 4.7 | 5.0 | | 7.7 | 7.9 | 8.6 | | 8.3 | 9.0 | |
| | | Thru Right | B | B | B | | B | B | | B | B | B | | B | B | |
| | | | 10.1 | 10.2 | 10.5 | | 10.5 | 10.8 | | 13.2 | 13.8 | 14.6 | | 14.3 | 15.1 | |
| Northampton Street | EB | Thru | D | D | D | N/A | D | D | N/A | D | D | D | N/A | D | D | N/A |
| | | | 41.1 | 40.6 | 40.2 | | 40.4 | 40.1 | | 36.5 | 36.3 | 35.3 | | 36.1 | 35.1 | |
| | | Right | C | C | C | | C | C | | C | C | C | | C | C | |
| | | | 30.3 | 30.1 | 29.7 | | 29.9 | 29.5 | | 26.9 | 26.3 | 25.5 | | 26.2 | 25.3 | |
| Northampton Street (SR 0248) | WB | Thru | D | D | D | | D | D | | D | D | D | | D | D | |
| | | | 43.0 | 42.4 | 41.8 | | 42.3 | 41.7 | | 37.9 | 37.8 | 36.9 | | 37.7 | 36.7 | |
| | | Right | C | C | C | | C | C | | C | C | C | | C | C | |
| | | | 29.3 | 30.2 | 30.2 | | 30.1 | 30.2 | | 25.0 | 25.0 | 24.5 | | 24.8 | 24.4 | |
| PennDOT Overall | | | B | B | B | | B | B | | B | B | B | | B | B | |
| | | | 15.9 | 15.9 | 16.0 | | 16.0 | 16.2 | | 18.1 | 18.3 | 18.8 | | 18.6 | 19.1 | |

# Table 6: Detailed Level of Service (Signalized)

9. Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Nazareth Road (SR 0248) | NB | Thru | B | B | B | N/A | B | B | N/A | C | D | D | N/A | D | D | N/A |
| | | | 17.1 | 17.2 | 17.4 | | 17.7 | 17.9 | | 33.6 | 37.3 | 38.6 | | 38.7 | 40.2 | |
| | | Thru Right | B | B | B | | B | B | | D | D | D | | D | D | |
| | | | 18.4 | 18.5 | 18.7 | | 19.1 | 19.4 | | 37.1 | 42.2 | 44.2 | | 44.2 | 46.8 | |
| | SB | Left Thru | B | B | B | | B | B | | C | C | C | | C | C | |
| | | | 10.6 | 10.8 | 11.0 | | 11.4 | 11.6 | | 25.5 | 28.9 | 29.2 | | 30.4 | 33.3 | |
| | | Thru | A | A | A | | B | B | | C | C | C | | C | C | |
| | | | 9.7 | 9.8 | 10.0 | | 10.2 | 10.4 | | 21.3 | 23.5 | 23.7 | | 24.4 | 25.8 | |
| | | Right | A | A | A | | A | A | | B | B | B | | B | B | |
| | | | 8.9 | 9.0 | 9.1 | | 9.3 | 9.5 | | 17.7 | 19.0 | 19.1 | | 19.4 | 19.5 | |
| Sales Street (SR 2040) | EB | Left Thru Right | C | C | C | | C | C | | C | C | C | | C | C | |
| | | | 32.2 | 32.1 | 32.1 | | 31.9 | 31.8 | | 22.7 | 21.0 | 21.1 | | 21.0 | 21.0 | |
| US 22 West Ramps | WB | Left Thru Right | D | D | D | | D | D | | D | D | D | | D | D | |
| | | | 40.4 | 40.6 | 40.6 | | 41.0 | 41.0 | | 50.8 | 43.4 | 43.4 | | 45.1 | 45.4 | |
| PennDOT Overall | | | B | B | B | | C | C | | C | C | C | | D | D | |
| | | | 19.7 | 19.8 | 19.9 | | 20.2 | 20.3 | | 33.4 | 33.8 | 34.5 | | 35.1 | 36.4 | |

# Table 6: Detailed Level of Service (Signalized)

10. Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue

| Peak Hour | | | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Park Avenue | NB | Left | A | A | A | | A | A | | A | A | A | | A | A | |
| | | Thru Right | 5.8 | 5.8 | 5.9 | | 5.9 | 5.9 | | 6.5 | 6.5 | 6.6 | | 6.5 | 6.5 | |
| Tatamy Road | SB | Left | A | A | A | | A | A | | A | A | A | | A | A | |
| | | Thru Right | 6.7 | 6.8 | 6.8 | | 6.9 | 6.9 | | 8.0 | 8.0 | 8.1 | | 8.1 | 8.1 | |
| Mall Entrance Driveway | EB | Left | B | B | B | | B | B | | B | B | B | | B | B | |
| | | | 10.8 | 10.8 | 10.9 | | 10.9 | 10.9 | | 13.5 | 13.6 | 13.9 | | 14.1 | 14.3 | |
| | | Thru Right | A | A | A | | A | A | | A | A | A | | A | A | |
| | | | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 6.9 | 7.0 | 7.1 | | 7.2 | 7.2 | |
| Hackett Avenue (SR 2017) | WB | Left | A | A | A | | A | A | | A | A | A | | A | A | |
| | | | 8.7 | 8.7 | 8.8 | | 8.7 | 8.8 | | 9.4 | 9.5 | 9.6 | | 9.7 | 9.8 | |
| | | Thru Right | A | A | A | | A | A | | A | B | B | | B | B | |
| | | | 8.4 | 8.4 | 8.5 | | 8.5 | 8.5 | | 9.9 | 10.0 | 10.3 | | 10.5 | 10.6 | |
| PennDOT Overall | | | A | A | A | | A | A | | A | A | A | | A | A | |
| | | | 6.8 | 6.8 | 6.9 | | 6.9 | 6.9 | | 8.3 | 8.4 | 8.5 | | 8.5 | 8.6 | |

N/A

# Table 7: 95th Percentile Queue Lengths

1. Hackett Avenue (SR 2017) & Proposed Site Access Driveway

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Proposed Site Access Driveway | SB | *Left* | N/A | | N/A | N/A | 1 | 1 | N/A | 1 | 1 | N/A | N/A | 6 | 6 | N/A | 6 | 6 |
| Hackett Avenue (SR 2017) | EB | *Left* Thru | | *1,575'* | | | 1 | 1 | | 1 | 1 | | | 0 | 0 | | 0 | 0 |
| | WB | Thru | | *630'* | | | 0 | 0 | | 0 | 0 | | | 0 | 0 | | 0 | 0 |
| | | *Right* | | 200' | | | | 0 | | | 0 | | | | 0 | | | 0 |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

2. Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Hackett Avenue (SR 2017) | SB | Left | *2,280'* | *645'* | 53 | 54 | 80 | 51 | 59 | 87 | 55 | 150 | 157 | 258 | 118 | 175 | 283 | 130 |
| | | Right | | 150' | | | | 5 | | | 6 | | | | 10 | | | 10 |
| Wood Avenue (SR 2024) | EB | Left Thru | *240'* | | 3 | 3 | 4 | 4 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Wood Avenue (SR 2017) | WB | Thru | *805'* | *416'* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | *Right* | | 175' | | | | 0 | | | 0 | | | | 0 | | | 0 |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

# Table 7: 95th Percentile Queue Lengths

3. Wood Avenue (SR 2017) & Proposed Site Access Driveway

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Proposed Site Access Driveway | SB | *Left* | N/A | | N/A | N/A | 3 | 3 | N/A | 4 | 3 | N/A | N/A | 15 | 15 | N/A | 16 | 16 |
| | | *Right* | | | | | | | | | | | | | | | | |
| Wood Avenue (SR 2017) | EB | *Left* | | 200' | | | 2 | 5 | | 2 | 5 | | | 1 | 3 | | 1 | 3 |
| | | Thru | | *416'* | | | | 0 | | | 0 | | | | 0 | | | 0 |
| | WB | Thru | | *405'* | | | 0 | 0 | | 0 | 0 | | | 0 | 0 | | 0 | 0 |
| | | *Right* | | 200' | | | | | | | | | | | | | | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

4. Wood Avenue (SR 2017) & US 22 West Ramps

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| US 22 West Ramps | SB | Left | 150' | | 4 | 4 | 4 | | 4 | 4 | | 17 | 17 | 19 | | 18 | 20 | |
| | | Right | *240'* | | 9 | 9 | 11 | | 9 | 12 | | 34 | 34 | 37 | | 36 | 39 | |
| Wood Avenue (SR 2017) | EB | Thru | *1,018'* | *586'* | 0 | 0 | 0 | *N/A* | 0 | 0 | *N/A* | 0 | 0 | 0 | *N/A* | 0 | 0 | *N/A* |
| | WB | Thru | *537'* | | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | |
| | | Right | *537'* | | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 7: 95th Percentile Queue Lengths

5. Wood Avenue (SR 2017) & N. 13th Street (SR 2019)

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| N. 13th Street (SR 2019) | NB | Left | 230' | | 187 | 189 | 202 | | 199 | 210 | | 133 | 134 | 140 | | 141 | 145 | |
| | | Thru Right | *230'* | | 99 | 100 | 100 | | 103 | 104 | | 142 | 145 | 146 | | 153 | 155 | |
| | SB | Left | 105' | | 70 | 70 | 70 | | 73 | 73 | | 71 | 72 | 73 | | 74 | 75 | |
| | | Thru | *1,115'* | | 126 | 127 | 127 | | 132 | 132 | | 192 | 195 | 199 | | 206 | 209 | |
| | | Right | 285' | | 334 | 339 | 351 | | 356 | 370 | | 623 | 638 | 669 | | 685 | 709 | |
| Wood Avenue (SR 2017) | EB | Left | 115' | | 277 | 279 | 281 | *N/A* | 287 | 288 | *N/A* | 242 | 245 | 254 | *N/A* | 255 | 263 | *N/A* |
| | | Thru | *115'* | | 112 | 113 | 114 | | 116 | 117 | | 85 | 86 | 89 | | 89 | 92 | |
| | | Right | 155' | | 35 | 36 | 36 | | 36 | 36 | | 32 | 32 | 33 | | 33 | 34 | |
| | WB | Left Thru | 105' | | 160 | 164 | 166 | | 167 | 170 | | 119 | 121 | 124 | | 126 | 128 | |
| | | Thru | *460'* | | 112 | 113 | 114 | | 116 | 117 | | 85 | 86 | 90 | | 89 | 93 | |
| | | Right | *50'* | | 35 | 36 | 36 | | 36 | 37 | | 32 | 32 | 34 | | 33 | 35 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

# Table 7: 95th Percentile Queue Lengths

6. S 25th Street (SR 2012) & Wood Avenue (SR 2024) / US 22 East Ramp

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| S. 25th Street (SR 2012) | NB | Left | 300' | | 150 | 122 | 122 | | 125 | 124 | | 129 | 96 | 96 | | 98 | 98 | |
| | | Thru | *378'* | | 396 | 372 | 384 | | 385 | 398 | | 451 | 480 | 484 | | 504 | 504 | |
| | | Right | 420' | | 55 | 52 | 60 | | 53 | 61 | | 62 | 64 | 67 | | 66 | 69 | |
| | SB | Left | 265' | | 11 | 10 | 10 | | 10 | 10 | | 30 | 26 | 26 | | 27 | 27 | |
| | | Thru | *630'* | | 368 | 351 | 362 | | 364 | 375 | | 359 | 380 | 382 | | 395 | 395 | |
| | | Right | 280' | | 70 | 66 | 68 | N/A | 68 | 70 | N/A | 94 | 98 | 99 | N/A | 101 | 101 | N/A |
| US 22 East Ramps | EB | Left Thru | *1,075'* | | 228 | 231 | 260 | | 236 | 264 | | 373 | 337 | 359 | | 344 | 372 | |
| | | Right | *975'* | | 88 | 87 | 85 | | 88 | 86 | | 93 | 87 | 87 | | 88 | 88 | |
| Wood Avenue (SR 2024) | WB | Left | 400' | | 164 | 179 | 180 | | 182 | 182 | | 106 | 98 | 112 | | 101 | 116 | |
| | | Thru Right | *630'* | | 19 | 20 | 20 | | 20 | 20 | | 29 | 27 | 27 | | 27 | 27 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

# Table 7: 95th Percentile Queue Lengths

7. Northampton Street (SR 0248) & Wood Avenue (SR 2024)

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Wood Avenue (SR 2024) | NB | Left Thru | *330'* | | 208 | 208 | 246 | | 213 | 250 | | 275 | 276 | 293 | | 281 | 297 | |
| | | Right | 130' | | 208 | 208 | 246 | | 213 | 250 | | 275 | 276 | 293 | | 281 | 297 | |
| | SB | Left Thru Right | *4,800'* | | 215 | 216 | 222 | | 220 | 227 | | 145 | 147 | 193 | | 148 | 194 | |
| Northampton Street (SR 0248) | EB | Left | *510'* | | 23 | 23 | 37 | N/A | 25 | 39 | N/A | 31 | 31 | 41 | N/A | 33 | 43 | N/A |
| | | Thru Right | *510'* | | 63 | 63 | 74 | | 67 | 77 | | 117 | 118 | 127 | | 124 | 132 | |
| | WB | Left | 135' | | 20 | 20 | 22 | | 21 | 23 | | 39 | 40 | 43 | | 41 | 45 | |
| | | Thru Right | *335'* | | 94 | 95 | 115 | | 100 | 121 | | 165 | 167 | 182 | | 176 | 191 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

# Table 7: 95th Percentile Queue Lengths

8. Northampton Street (SR 0248) & S. 25th Street (SR 2012) / Nazareth Road (SR 0248)

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| S. 25th Street (SR 2012) | NB | Left | 250' | | 18 | 19 | 19 | | 20 | 20 | | 19 | 20 | 21 | | 20 | 21 | |
| | | Thru | 250' | | 128 | 125 | 128 | | 129 | 132 | | 207 | 209 | 215 | | 216 | 222 | |
| | | Thru Right | *615'* | | 128 | 125 | 128 | | 129 | 132 | | 206 | 209 | 215 | | 215 | 221 | |
| Nazareth Road (SR 0248) | SB | Left | *325'* | | 38 | 39 | 45 | | 41 | 46 | | 88 | 89 | 98 | | 94 | 103 | |
| | | Thru Right | 335' | | 214 | 218 | 221 | N/A | 225 | 228 | N/A | 285 | 294 | 304 | N/A | 306 | 316 | N/A |
| Northampton Street | EB | Thru Right | *310'* | | 91 | 92 | 95 | | 94 | 97 | | 111 | 112 | 112 | | 114 | 114 | |
| | | | *310'* | | 78 | 78 | 77 | | 79 | 78 | | 58 | 58 | 57 | | 60 | 59 | |
| Northampton Street (SR 0248) | WB | Thru | *500'* | | 135 | 135 | 136 | | 138 | 139 | | 156 | 157 | 162 | | 161 | 165 | |
| | | Right | *500'* | | 147 | 150 | 157 | | 154 | 160 | | 219 | 220 | 232 | | 223 | 236 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 7: 95th Percentile Queue Lengths

9. Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Nazareth Road (SR 0248) | NB | Thru | *355' x 2* | | 221 | 223 | 226 | | 231 | 234 | | 372 | 389 | 403 | | 402 | 417 | |
| | | Thru Right | | | 232 | 234 | 237 | | 243 | 246 | | 400 | 423 | 442 | | 440 | 462 | |
| | SB | Left Thru | *922'* | | 142 | 143 | 148 | | 151 | 156 | | 252 | 266 | 269 | | 276 | 285 | |
| | | Thru Right | | | 142 | 144 | 149 | *N/A* | 152 | 157 | *N/A* | 250 | 260 | 263 | *N/A* | 267 | 271 | *N/A* |
| Sales Street (SR 2040) | EB | Left Thru Right | *160'* | | 175 | 176 | 179 | | 179 | 182 | | 125 | 120 | 122 | | 122 | 124 | |
| US 22 West Ramps | WB | Left Thru Right | *295'* | | 282 | 284 | 285 | | 291 | 291 | | 572 | 532 | 532 | | 551 | 553 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 7: 95th Percentile Queue Lengths

10. Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Park Avenue | NB | Left Thru Right | *375'* | | 21 | 22 | 22 | N/A | 23 | 23 | N/A | 32 | 33 | 34 | N/A | 34 | 34 | N/A |
| Tatamy Road | SB | Left Thru Right | *1,300'* | | 37 | 38 | 39 | | 40 | 41 | | 63 | 64 | 65 | | 66 | 68 | |
| Mall Entrance | EB | Left | 50' | | 0 | 0 | 0 | | 0 | 0 | | 9 | 9 | 9 | | 9 | 10 | |
| | | Thru Right | *625'* | | 0 | 0 | 0 | | 0 | 0 | | 2 | 2 | 2 | | 2 | 2 | |
| Hackett Avenue (SR 2017) | WB | Left | 120' | | 4 | 4 | 4 | | 4 | 4 | | 13 | 13 | 14 | | 14 | 15 | |
| | | Thru Right | *770'* | | 18 | 18 | 18 | | 18 | 18 | | 42 | 43 | 46 | | 47 | 49 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 7: 95th Percentile Queue Lengths

11. Wood Avenue (SR 2017) & US 22 East On Ramp

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Wood Avenue (SR 2017) | EB | Left | 50' | 230' | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | | Thru Thru | *570'* | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | WB | Thru Thru | *118'* | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Right | *90'* | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

12. Wood Avenue (SR 2017) & US 22 East Off Ramp

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| US 22 East Off-Ramp | NB | Right | 760' | | 97 | 99 | 101 | | 105 | 107 | | 121 | 125 | 131 | | 134 | 140 | |
| Wood Avenue (SR 2017) | EB | Thru Thru | *325'* | | 0 | 0 | 0 | *N/A* | 0 | 0 | *N/A* | 0 | 0 | 0 | *N/A* | 0 | 0 | *N/A* |
| | WB | Thru Thru | *205'* | | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 8: 50th Percentile Queue Lengths

5. Wood Avenue (SR 2017) & N. 13th Street (SR 2019)

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| N. 13th Street (SR 2019) | NB | Left | 230' | | 104 | 105 | 114 | | 112 | 120 | | 74 | 75 | 78 | | 78 | 81 | |
| | | Thru Right | *230'* | | 55 | 56 | 56 | | 57 | 58 | | 79 | 80 | 81 | | 85 | 86 | |
| | SB | Left | 105' | | 39 | 39 | 39 | | 41 | 40 | | 39 | 40 | 41 | | 41 | 42 | |
| | | Thru | *1,115'* | | 70 | 71 | 71 | | 73 | 73 | | 107 | 110 | 112 | | 117 | 120 | |
| | | Right | 285' | | 214 | 218 | 228 | | 231 | 243 | | 382 | 392 | 411 | | 420 | 435 | |
| Wood Avenue (SR 2017) | EB | Left | 115' | | 170 | 172 | 173 | N/A | 177 | 179 | N/A | 144 | 146 | 153 | N/A | 153 | 160 | N/A |
| | | Thru | *115'* | | 62 | 63 | 63 | | 64 | 65 | | 47 | 48 | 49 | | 50 | 51 | |
| | | Right | 155' | | 19 | 20 | 20 | | 20 | 20 | | 18 | 18 | 18 | | 18 | 19 | |
| | WB | Left Thru | 105' | | 89 | 91 | 92 | | 93 | 95 | | 66 | 67 | 69 | | 70 | 71 | |
| | | Thru | *460'* | | 112 | 113 | 114 | | 116 | 117 | | 85 | 86 | 90 | | 89 | 93 | |
| | | Right | *50'* | | 35 | 36 | 36 | | 36 | 37 | | 32 | 32 | 34 | | 33 | 35 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 8: 50th Percentile Queue Lengths

6. S 25th Street (SR 2012) & Wood Avenue (SR 2024) / US 22 East Ramp

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| S. 25th Street (SR 2012) | NB | Left | 300' | | 84 | 68 | 68 | | 69 | 69 | | 72 | 53 | 53 | | 54 | 54 | |
| | | Thru | *378'* | | 263 | 244 | 254 | | 254 | 264 | | 307 | 331 | 334 | | 350 | 350 | |
| | | Right | 420' | | 31 | 29 | 33 | | 30 | 34 | | 34 | 36 | 37 | | 37 | 38 | |
| | SB | Left | 265' | | 6 | 6 | 6 | | 6 | 6 | | 17 | 14 | 14 | | 15 | 15 | |
| | | Thru | *630'* | | 241 | 227 | 236 | | 237 | 246 | | 234 | 250 | 252 | | 262 | 262 | |
| | | Right | 280' | | 39 | 37 | 38 | N/A | 38 | 39 | N/A | 52 | 55 | 55 | N/A | 56 | 56 | N/A |
| US 22 East Ramps | EB | Left Thru | *1,075'* | | 133 | 135 | 157 | | 139 | 160 | | 245 | 216 | 234 | | 222 | 244 | |
| | | Right | *975'* | | 49 | 48 | 47 | | 49 | 48 | | 51 | 48 | 48 | | 49 | 49 | |
| Wood Avenue (SR 2024) | WB | Left | 400' | | 91 | 99 | 100 | | 101 | 101 | | 59 | 55 | 62 | | 56 | 65 | |
| | | Thru Right | *630'* | | 11 | 11 | 11 | | 11 | 11 | | 16 | 15 | 15 | | 15 | 15 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

# Table 8: 50th Percentile Queue Lengths

7. Northampton Street (SR 0248) & Wood Avenue (SR 2024)

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Wood Avenue (SR 2024) | NB | Left Thru | *330'* | | 118 | 119 | 147 | | 122 | 150 | | 169 | 169 | 182 | | 173 | 186 | |
| | | Right | 130' | | 118 | 119 | 147 | | 122 | 150 | | 169 | 169 | 182 | | 173 | 186 | |
| | SB | Left Thru Right | *4,800'* | | 124 | 124 | 129 | | 127 | 133 | | 80 | 82 | 108 | | 82 | 109 | |
| Northampton Street (SR 0248) | EB | Left | *510'* | | 13 | 13 | 20 | N/A | 14 | 22 | N/A | 17 | 17 | 23 | N/A | 18 | 24 | N/A |
| | | Thru Right | *510'* | | 35 | 35 | 41 | | 37 | 43 | | 65 | 66 | 71 | | 69 | 74 | |
| | WB | Left | 135' | | 11 | 11 | 12 | | 12 | 13 | | 22 | 22 | 24 | | 23 | 25 | |
| | | Thru Right | *335'* | | 52 | 53 | 64 | | 56 | 67 | | 92 | 93 | 101 | | 98 | 106 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 8: 50th Percentile Queue Lengths

8. Northampton Street (SR 0248) & S. 25th Street (SR 2012) / Nazareth Road (SR 0248)

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| S. 25th Street (SR 2012) | NB | Left | 250' | | 10 | 10 | 11 | | 11 | 11 | | 11 | 11 | 12 | | 11 | 12 | |
| | | Thru | 250' | | 71 | 70 | 71 | | 72 | 73 | | 118 | 120 | 124 | | 124 | 129 | |
| | | Thru Right | *615'* | | 71 | 70 | 71 | | 72 | 73 | | 117 | 119 | 124 | | 124 | 128 | |
| Nazareth Road (SR 0248) | SB | Left | *325'* | | 21 | 22 | 25 | | 23 | 26 | | 49 | 50 | 55 | | 52 | 57 | |
| | | Thru Right | 335' | | 123 | 126 | 129 | *N/A* | 131 | 134 | *N/A* | 176 | 183 | 191 | *N/A* | 192 | 200 | *N/A* |
| Northampton Street | EB | Thru | *310'* | | 51 | 51 | 53 | | 52 | 54 | | 62 | 62 | 62 | | 63 | 63 | |
| | | Right | *310'* | | 43 | 43 | 43 | | 44 | 44 | | 32 | 32 | 32 | | 33 | 33 | |
| Northampton Street (SR 0248) | WB | Thru | *500'* | | 75 | 75 | 76 | | 77 | 77 | | 87 | 87 | 90 | | 89 | 92 | |
| | | Right | *500'* | | 82 | 84 | 87 | | 86 | 89 | | 127 | 127 | 136 | | 130 | 139 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 8: 50th Percentile Queue Lengths

9. Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Nazareth Road (SR 0248) | NB | Thru | *355' x 2* | | 128 | 129 | 132 | | 135 | 137 | | 244 | 257 | 268 | | 267 | 280 | |
| | | Thru Right | | | 136 | 138 | 140 | | 144 | 147 | | 266 | 284 | 300 | | 298 | 316 | |
| | SB | Left Thru | *922'* | | 79 | 80 | 82 | | 84 | 86 | | 151 | 162 | 164 | | 169 | 176 | |
| | | Thru Right | | | 79 | 80 | 83 | *N/A* | 85 | 87 | *N/A* | 150 | 157 | 159 | *N/A* | 163 | 166 | *N/A* |
| Sales Street (SR 2040) | EB | Left Thru Right | *160'* | | 97 | 98 | 99 | | 99 | 101 | | 69 | 67 | 68 | | 68 | 69 | |
| US 22 West Ramps | WB | Left Thru Right | *295'* | | 174 | 176 | 176 | | 181 | 181 | | 406 | 373 | 373 | | 389 | 391 | |

*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

## Table 8: 50th Percentile Queue Lengths

10. Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue

| Peak Hour | | | Existing Storage (1) | Proposed Storage (2) | Weekday AM Peak Hour | | | | | | | Weekday PM Peak Hour | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | | | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | | 2023 | 2025 Buildout Year | | | 2030 Horizon Year | | |
| Scenario | | | | | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP | Existing | WO/Dev | WD | WD + IMP | WO/Dev | WD | WD + IMP |
| Park Avenue | NB | Left Thru Right | *375'* | | 12 | 12 | 12 | | 13 | 13 | | 18 | 18 | 19 | | 19 | 19 | |
| Tatamy Road | SB | Left Thru Right | *1,300'* | | 21 | 21 | 22 | | 22 | 23 | | 35 | 35 | 36 | | 37 | 38 | |
| Mall Entrance | EB | Left | 50' | | 0 | 0 | 0 | N/A | 0 | 0 | N/A | 5 | 5 | 5 | N/A | 5 | 5 | N/A |
| | | Thru Right | *625'* | | 0 | 0 | 0 | | 0 | 0 | | 1 | 1 | 1 | | 1 | 1 | |
| Hackett Avenue (SR 2017) | WB | Left | 120' | | 2 | 2 | 2 | | 2 | 2 | | 7 | 7 | 8 | | 8 | 8 | |
| | | Thru Right | *770'* | | 10 | 10 | 10 | | 10 | 10 | | 23 | 24 | 25 | | 26 | 27 | |

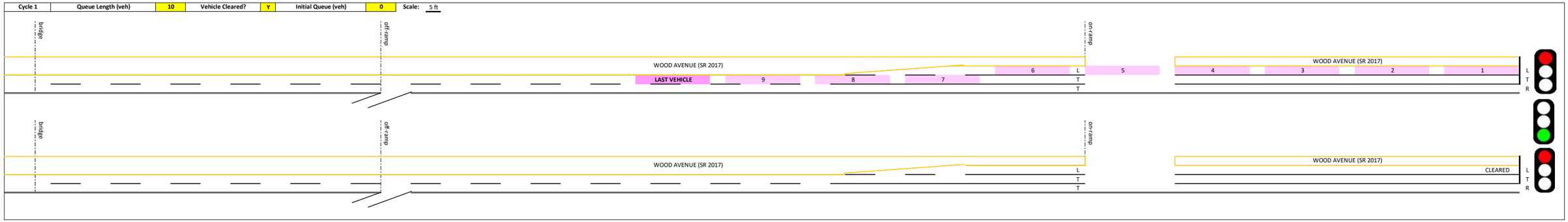
*(1) Distance to adjacent intersection is shown in italics.*
*(2) Proposed storage OR distance to adjacent intersection if modified from existing.*

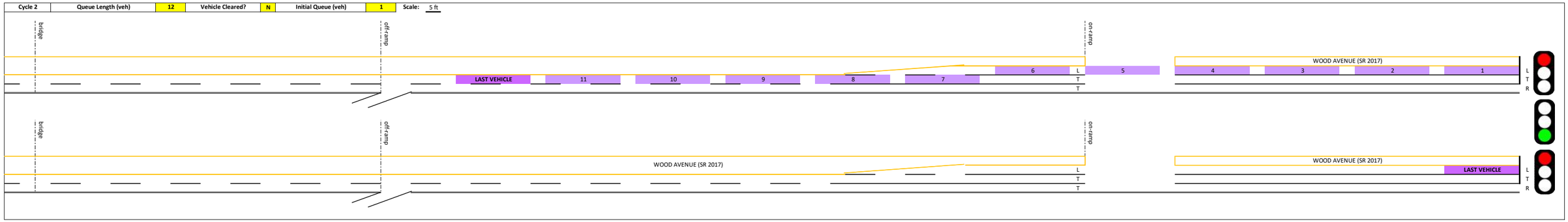
# APPENDIX H

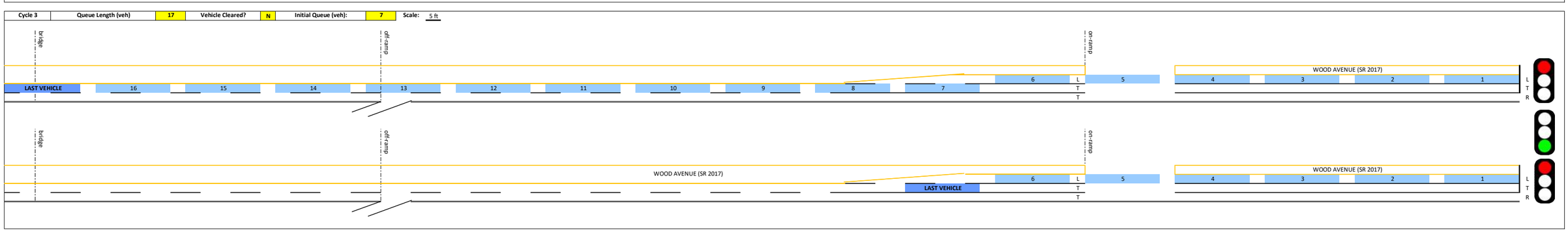
## *Field Observations and Photos*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue

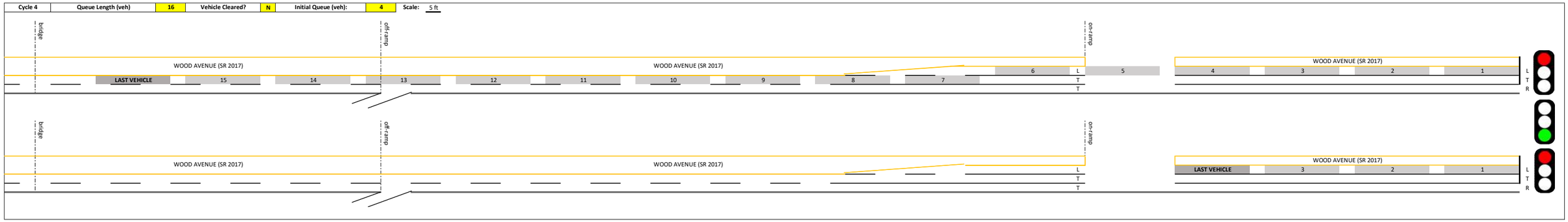
Initial Queue Observations
3:15 PM - 3:30 PM
12/14/2023

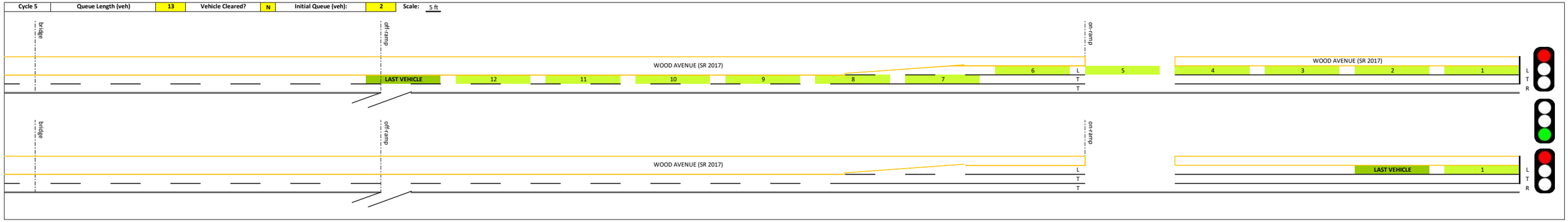


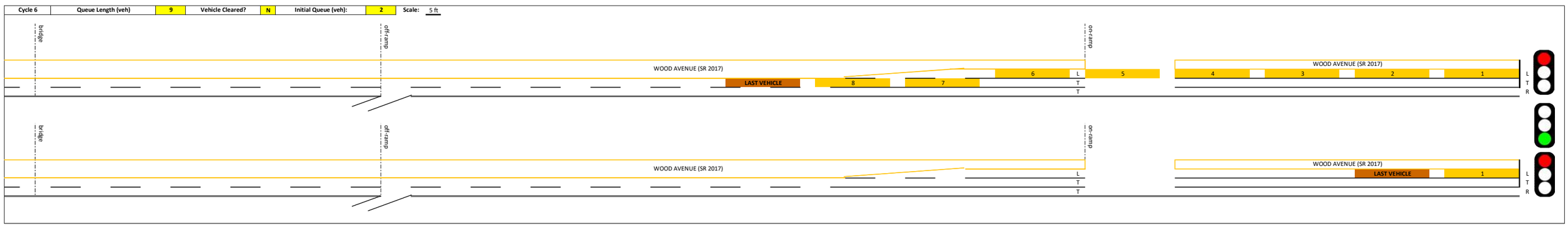



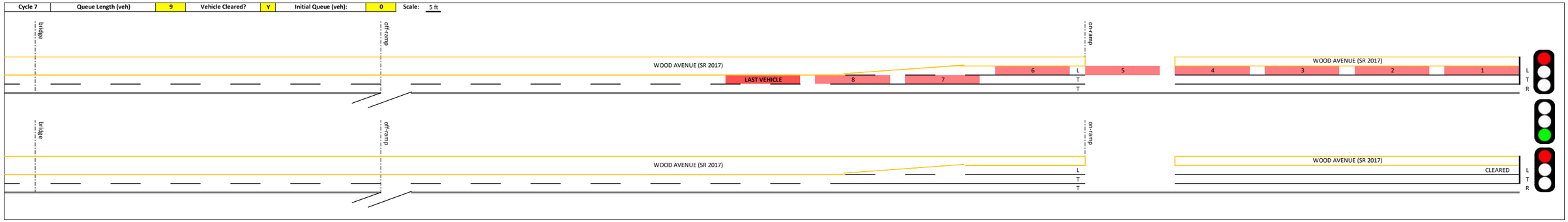
Initial Queue Observations
3:15 PM - 3:30 PM
12/14/2023

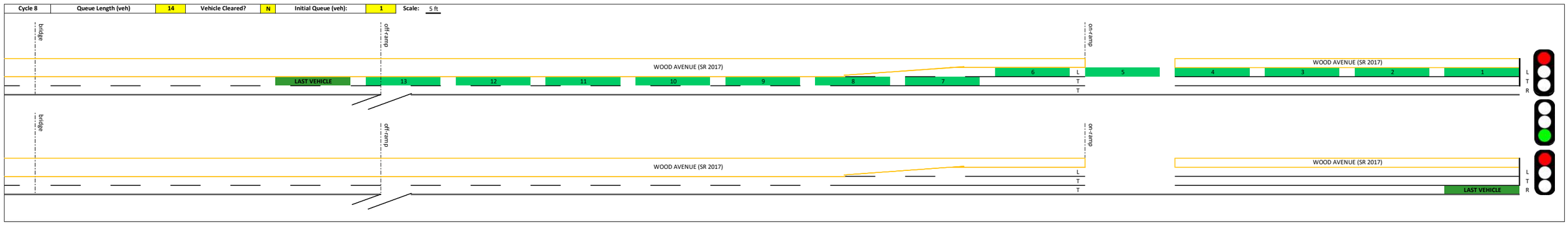


Initial Queue Observations
3:15 PM - 3:30 PM
12/14/2023




| | |
|---|---|
| Average Queue Length (veh) | 13 |
| Average Initial Queue (veh): | 2 |

| | |
|---|---|
| Average Car Length | 25' |

$d_3 = I1 + 7(d_2)$

*where*

| | | |
|---|---|---|
| 7 | = | Max. # of Veh. Observed in Initial Queue |
| $d_2$ | = | Incremental Delay [s] |
| $d_3$ | = | Initial Queue Delay [s] |
| I1 | = | Start-up Lost Time [s] |

| 2023 EX PM | | | |
|---|---|---|---|
| $d_2$ = | 0.90 | $d_3$ = | 8.80 |
| I1 = | 2.50 | **$d_3$ =** | **8.8** |

| 2025 WO PM | | | |
|---|---|---|---|
| $d_2$ = | 0.93 | $d_3$ = | 9.01 |
| I1 = | 2.50 | **$d_3$ =** | **9.0** |

| 2025 WD PM | | | |
|---|---|---|---|
| $d_2$ = | 1.24 | $d_3$ = | 11.18 |
| I1 = | 2.50 | **$d_3$ =** | **11.2** |

| 2030 WO PM | | | |
|---|---|---|---|
| $d_2$ = | 1.14 | $d_3$ = | 10.48 |
| I1 = | 2.50 | **$d_3$ =** | **10.5** |

| 2030 WD PM | | | |
|---|---|---|---|
| $d_2$ = | 1.46 | $d_3$ = | 12.72 |
| I1 = | 2.50 | **$d_3$ =** | **12.7** |

## Unsignalized Field Measurements

| # | Intersection | Approach Lane Width | | | | Grade % | | | | Speed limit (mph) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NB | SB | EB | WB | NB | SB | EB | WB | NB | SB | EB | WB |
| 1 | Hackett Ave (SR 2017) & Proposed Site Access Driveway | N/A | N/A | 12' | 12' | N/A | N/A | 5.0% | -5.0% | N/A | N/A | 40 | 40 |
| 2 | Hackett Ave (SR 2017) & Wood Ave (SR 2017)/ (SR 2024) | N/A | 12' | 12' | 12' | N/A | 5.0% | -1.0% | 1.0% | N/A | 40 | 35 | 35 |
| 3 | Wood Ave (SR 2017) & Proposed Site Access Driveway | N/A | N/A | 12' | 12' | N/A | N/A | 0% | 0% | N/A | N/A | 35 | 35 |
| 4 | Wood Ave (SR 2017) & US 22 West Ramps | N/A | 14' | 12' | 24' | N/A | 5% | -5% | -4% | N/A | 35 | 35 | 35 |
| 11 | Wood Ave (SR 2017) & US 22 East On-Ramp | N/A | N/A | 36' | 23' | N/A | N/A | -3% | 3% | N/A | N/A | 35 | 35 |
| 12 | Wood Ave (SR 2017) & US 22 East Off-Ramp | 29' | N/A | 26' | 27' | -4% | N/A | -3% | -4% | 35 | N/A | 35 | 35 |

12/14/2023

Wood Ave (SR 2017) WB Approach 200' from Hackett Ave (SR 2017)

Wood Ave (SR 2017) WB Approach 50' from Hackett Avenue (SR 2017)

Hackett Ave (SR 2017) EB Approach 200’ from Wood Ave

Hackett Ave (SR 2017) EB Approach 50’ from Wood Ave

Wood Ave (SR 2024) NB Approach 200' from Hackett Ave

Wood Ave (SR 2024) NB Approach 50' from Hackett Ave

# APPENDIX I

## *Concept Plans*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Avenue

# PROPOSED WAREHOUSE DEVELOPMENT AT 1525 WOOD AVENUE

*ROADWAY IMPROVEMENT CONCEPT PLAN - SR 2017*

*WILSON BOROUGH/PALMER TOWNSHIP/EASTON CITY, NORTHAMPTON COUNTY*

Proposed Asphalt Pavement

Proposed Mast Arm w/Overhead Lane Use Control Signing

KCI TECHNOLOGIES

KCI TECHNOLOGIES

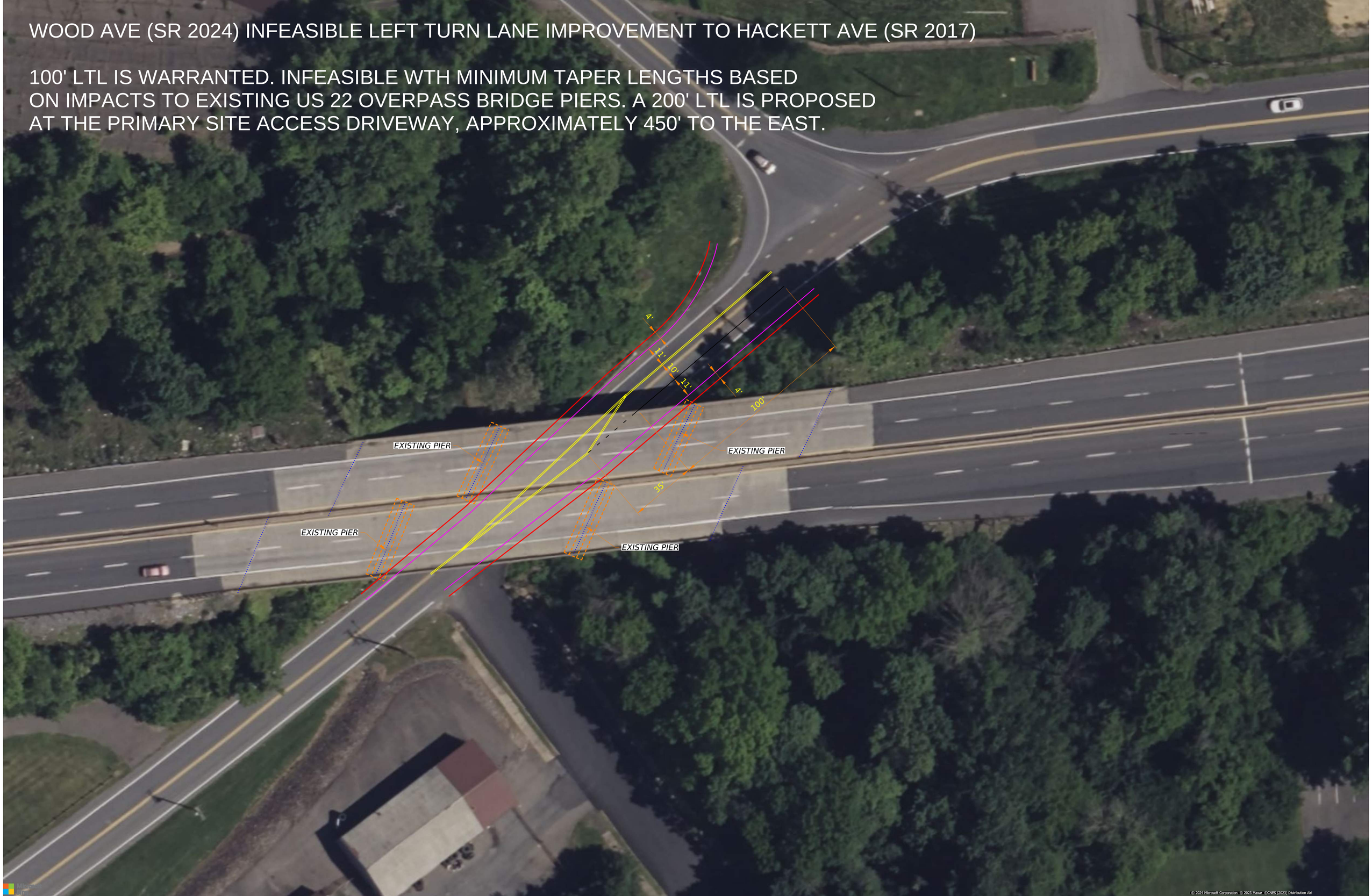
| | | | |
|---|---|---|---|
| **SUBJECT** | 1525 Wood Ave Cost Estimate | | |
| **JOB NUMBER** | 222209756 | | |
| **DESIGN** | MEF | **DATE** | 12/21/2023 |
| **CHECK** | | **DATE** | |

## COST ESTIMATE - 1525 Wood Ave

| ITEM NUMBER | ROADWAY ITEMS | UNIT | QUANTITY | UNIT COST | TOTAL |
|---|---|---|---|---|---|
| 0203-0001 | CLASS 1 EXCAVATION | CY | 1894 | $35 | $66,290.00 |
| 0203-0006 | SAW CUTTING | LF | 2358 | $7 | $16,506.00 |
| 0313-0424 | SUPERPAVE ASPHALT MIXTURE DESIGN, BASE COURSE, PG 64S-22, 0.3 TO < 3 MILLION ESALs, 25.0 MM MIX, 5" DEPTH | SY | 4697 | $35 | $164,395.00 |
| 0350-0108 | SUBBASE 8" DEPTH (NO. 2A) | SY | 4697 | $20 | $93,940.00 |
| 0413-0245 | SUPERPAVE ASPHALT MIXTURE DESIGN, WEARING COURSE, PG 64S-22, 0.3 < 3 MILLION ESALS, 9.5 MM MIX, 1.5" DEPTH, SRL-H | SY | 7929 | $16 | $126,864.00 |
| 0460-0001 | BITUMINOUS TACK COAT | SY | 14091 | $0.20 | $2,818.20 |
| 0491-0012 | MILLING OF ASPHALT PAVEMENT SURFACE, 1 1/2" DEPTH, MILLED MATERIAL RETAINED BY CONTRACTOR | SY | 3232 | $6 | $19,392.00 |
| 0610-7002 | 6" PAVEMENT BASE DRAIN | LF | 2030 | $15 | $30,450.00 |
| 0630-0041 | PLAIN CEMENT CONCRETE CURB | LF | 384 | $80 | $30,720.00 |
| 0633-0225 | PLAIN CONCRETE MOUNTABLE CURB, TYPE B | LF | 250 | $50 | $12,500.00 |
| 0931-0001 | POST MOUNTED SIGNS, TYPE B | SF | 13 | $40 | $520.00 |
| 0936-0200 | STRUCTURE MOUNTED FLAT SHEET ALUMINUM SIGNS | SF | 15 | $56 | $840.00 |
| 4951-0135 | TRAFFIC SIGNAL SUPPORT, 35' MAST ARM INSTALLATION | EA | 1 | $15,000 | $15,000.00 |
| 0960-0222 | WHITE HOT THERMOPLASTIC LEGEND, "RIGHT ARROW", 12' - 0" X 3' - 0" | EA | 12 | $100 | $1,200.00 |
| 0960-0224 | WHITE HOT THERMOPLASTIC LEGEND, "LEFT ARROW", 12' - 0" X 3' - 0" | EA | 8 | $100 | $800.00 |
| 0962-1000 | 4" WHITE WATERBORNE PAVEMENT MARKINGS | LF | 3174 | $0.10 | $317.40 |
| 0962-1001 | 6" WHITE WATERBORNE PAVEMENT MARKINGS | LF | 475 | $0.15 | $71.25 |
| 0962-1004 | 24" WHITE WATERBORNE PAVEMENT MARKINGS | LF | 280 | $25 | $7,000.00 |
| 0962-1005 | 4" YELLOW WATERBORNE PAVEMENT MARKINGS | LF | 2956 | $0.10 | $295.60 |
| 0963-0001 | PAVEMENT MARKING REMOVAL | SF | 28 | $10 | $280.00 |
| | **SUBTOTAL** | | | | **$590,199.45** |
| | Mobilization | | | **10%** | **$59,019.95** |
| | Traffic Control | | | **15%** | **$88,529.92** |
| | Drainage/PCSM | | | **25%** | **$147,549.86** |
| | E&S | | | **5%** | **$29,509.97** |
| | **SUBTOTAL** | | | | **$914,809.15** |
| | **CONTINGENCY** | | | 10% | **$91,480.91** |
| | **ROUNDED TOTAL** | | | | **$1,006,290** |

WOOD AVE (SR 2024) INFEASIBLE LEFT TURN LANE IMPROVEMENT TO HACKETT AVE (SR 2017)

100' LTL IS WARRANTED. INFEASIBLE WTH MINIMUM TAPER LENGTHS BASED ON IMPACTS TO EXISTING US 22 OVERPASS BRIDGE PIERS. A 200' LTL IS PROPOSED AT THE PRIMARY SITE ACCESS DRIVEWAY, APPROXIMATELY 450' TO THE EAST.

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# APPENDIX J

## *PTV Vistro 2024 Reports*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

# PTV Vistro 2024 Reports

## *Existing Conditions (2023) – Weekday AM*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

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Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro Scenario 2 2023 EX AM

Report File: C:\...\2023 Existing AM.pdf 6/17/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Two-way stop | HCM 7th Edition | SB Left | 0.365 | 20.3 | C |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Two-way stop | HCM 7th Edition | SB Left | 0.047 | 12.5 | B |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Signalized | HCM 7th Edition | SB Right | 0.647 | 35.5 | D |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Signalized | HCM 7th Edition | NB Left | 0.598 | 31.6 | C |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Signalized | HCM 7th Edition | NB Thru | 0.339 | 18.7 | B |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Signalized | HCM 7th Edition | WB Thru | 0.389 | 15.9 | B |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Signalized | HCM 7th Edition | WB Left | 0.567 | 19.7 | B |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Signalized | HCM 7th Edition | EB Left | 0.404 | 6.8 | A |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Two-way stop | HCM 7th Edition | EB Left | 0.220 | 11.6 | B |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Two-way stop | HCM 7th Edition | NB Thru | 0.584 | 15.0 | C |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**

**Intersection 2: Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 20.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.365 |

**Intersection Setup**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.01 | | 0.01 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 128 | 42 | 61 | 153 | 235 | 115 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 2.00 | 5.00 | 5.00 | 6.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 128 | 42 | 61 | 153 | 235 | 115 |
| Peak Hour Factor | 0.9040 | 0.9040 | 0.9040 | 0.9040 | 0.9040 | 0.9040 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 35 | 12 | 17 | 42 | 65 | 32 |
| Total Analysis Volume [veh/h] | 142 | 46 | 67 | 169 | 260 | 127 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.37 | 0.06 | 0.08 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 20.29 | 16.00 | 9.23 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | C | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 2.11 | 2.11 | 0.12 | 0.12 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 52.76 | 52.76 | 2.90 | 2.90 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 19.24 | | 2.62 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.22 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 4: Wood Avenue (SR 2017) & US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.047 |

**Intersection Setup**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | |  | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.05 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 23 | 89 | 0 | 300 | 209 | 659 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 3.00 | 2.00 | 4.00 | 2.00 | 1.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 23 | 89 | 0 | 300 | 209 | 659 |
| Peak Hour Factor | 0.9760 | 0.9760 | 1.0000 | 0.9760 | 0.9760 | 0.9760 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 23 | 0 | 77 | 54 | 169 |
| Total Analysis Volume [veh/h] | 24 | 91 | 0 | 307 | 214 | 675 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.05 | 0.11 | 0.00 | 0.00 | 0.00 | 0.01 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 12.45 | 9.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.15 | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 3.72 | 8.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.30 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.90 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Wood Avenue (SR 2017) & N. 13th Street (SR 2019)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.647 |

**Intersection Setup**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 12.00 | 11.00 | 12.00 | 15.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 20.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 105.00 | 100.00 | 285.00 | 115.00 | 100.00 | 100.00 | 100.00 | 100.00 | 75.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.09 | | | 0.10 | | | -0.05 | | | -0.02 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 152 | 125 | 5 | 57 | 137 | 615 | 363 | 163 | 123 | 6 | 226 | 65 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 3.00 | 0.00 | 4.00 | 7.00 | 3.00 | 4.00 | 2.00 | 1.00 | 0.00 | 1.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 324 | 0 | 0 | 69 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 152 | 125 | 4 | 57 | 137 | 291 | 363 | 163 | 54 | 6 | 226 | 65 |
| Peak Hour Factor | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 41 | 33 | 1 | 15 | 37 | 78 | 97 | 44 | 14 | 2 | 60 | 17 |
| Total Analysis Volume [veh/h] | 162 | 134 | 4 | 61 | 146 | 311 | 388 | 174 | 58 | 6 | 241 | 69 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 7 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 11 | 27 | 0 | 11 | 27 | 0 | 18 | 52 | 0 | 10 | 28 | 0 |
| Amber [s] | 4.5 | 4.5 | 0.0 | 4.5 | 4.5 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 19 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 3.5 | 3.5 | 0.0 | 3.5 | 3.5 | 0.0 | 2.5 | 2.5 | 0.0 | 4.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | | No | |
| Maximum Recall | No | Yes | | No | Yes | | No | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | C | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 | 0.00 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 12 | 33 | 7 | 28 | 28 | 37 | 37 | 37 | 13 | 13 |
| g / C, Green / Cycle | 0.13 | 0.35 | 0.07 | 0.30 | 0.30 | 0.39 | 0.39 | 0.39 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.08 | 0.05 | 0.11 | 0.25 | 0.28 | 0.10 | 0.04 | 0.10 | 0.10 |
| s, saturation flow rate [veh/h] | 1686 | 1747 | 1305 | 1328 | 1224 | 1403 | 1771 | 1517 | 1647 | 1568 |
| c, Capacity [veh/h] | 215 | 619 | 92 | 395 | 364 | 580 | 699 | 598 | 270 | 219 |
| d1, Uniform Delay [s] | 39.65 | 21.29 | 42.68 | 26.11 | 31.15 | 23.91 | 19.14 | 17.94 | 38.33 | 38.70 |
| k, delay calibration | 0.22 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 10.45 | 0.83 | 7.98 | 2.65 | 21.76 | 1.34 | 0.18 | 0.07 | 2.08 | 4.27 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.75 | 0.22 | 0.66 | 0.37 | 0.85 | 0.67 | 0.25 | 0.10 | 0.59 | 0.71 |
| d, Delay for Lane Group [s/veh] | 50.10 | 22.12 | 50.65 | 28.75 | 52.90 | 25.25 | 19.32 | 18.01 | 40.41 | 42.96 |
| Lane Group LOS | D | C | D | C | D | C | B | B | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 4.16 | 2.20 | 1.56 | 2.79 | 8.56 | 6.80 | 2.49 | 0.78 | 3.56 | 3.62 |
| 50th-Percentile Queue Length [ft/ln] | 103.88 | 55.12 | 39.01 | 69.85 | 214.07 | 169.99 | 62.27 | 19.47 | 89.10 | 90.45 |
| 95th-Percentile Queue Length [veh/ln] | 7.48 | 3.97 | 2.81 | 5.03 | 13.36 | 11.08 | 4.48 | 1.40 | 6.42 | 6.51 |
| 95th-Percentile Queue Length [ft/ln] | 186.99 | 99.22 | 70.21 | 125.72 | 334.04 | 276.90 | 112.09 | 35.05 | 160.39 | 162.81 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 50.10 | 22.12 | 22.12 | 50.65 | 28.75 | 52.90 | 25.25 | 19.32 | 18.01 | 40.41 | 41.33 | 42.96 |
| Movement LOS | D | C | C | D | C | D | C | B | B | D | D | D |
| d_A, Approach Delay [s/veh] | 37.23 | | | 45.83 | | | 22.91 | | | 41.67 | | |
| Approach LOS | D | | | D | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 35.51 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.647 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.15 | 7.79 | 6.42 | 15.37 | 32.74 | 13.21 | 5.92 | 1.97 | 15.86 | 15.46 |
| Stops [stops/h] | 158.91 | 84.32 | 59.67 | 106.84 | 327.46 | 260.02 | 95.25 | 29.78 | 136.30 | 138.36 |
| Fuel consumption [US gal/h] | 3.20 | 1.55 | 1.32 | 2.24 | 7.06 | 4.45 | 1.63 | 0.51 | 2.95 | 2.99 |
| CO [g/h] | 223.34 | 108.52 | 92.43 | 156.83 | 493.39 | 311.26 | 113.68 | 35.78 | 205.88 | 209.24 |
| NOx [g/h] | 43.45 | 21.11 | 17.98 | 30.51 | 96.00 | 60.56 | 22.12 | 6.96 | 40.06 | 40.71 |
| VOC [g/h] | 51.76 | 25.15 | 21.42 | 36.35 | 114.35 | 72.14 | 26.35 | 8.29 | 47.72 | 48.49 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.71 | 36.71 | 36.71 | 36.71 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.172 | 3.046 | 2.754 | 2.222 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 574 | 574 | 1105 | 595 |
| d_b, Bicycle Delay [s] | 23.94 | 23.94 | 9.43 | 23.23 |
| l_b,int, Bicycle LOS Score for Intersection | 2.056 | 2.949 | 2.696 | 1.820 |
| Bicycle LOS | B | C | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 6: S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 31.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.598 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 | 12.00 | 13.00 | 12.00 | 14.00 | 11.00 | 13.00 | 23.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 300.00 | 100.00 | 420.00 | 265.00 | 100.00 | 280.00 | 100.00 | 100.00 | 100.00 | 400.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 350.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 40.00 | | | 35.00 | | |
| Grade [%] | -0.06 | | | 0.05 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 96 | 503 | 144 | 7 | 409 | 183 | 78 | 117 | 301 | 179 | 15 | 22 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 7.00 | 15.00 | 0.00 | 6.00 | 1.00 | 3.00 | 4.00 | 15.00 | 8.00 | 0.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 60 | 0 | 0 | 92 | 0 | 0 | 218 | 0 | 0 | 11 |
| Total Hourly Volume [veh/h] | 96 | 503 | 84 | 7 | 409 | 91 | 78 | 117 | 83 | 179 | 15 | 11 |
| Peak Hour Factor | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 26 | 137 | 23 | 2 | 111 | 25 | 21 | 32 | 23 | 49 | 4 | 3 |
| Total Analysis Volume [veh/h] | 104 | 547 | 91 | 8 | 445 | 99 | 85 | 127 | 90 | 195 | 16 | 12 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 88.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 7 | 36 | 0 | 7 | 36 | 0 | 0 | 17 | 0 | 18 | 41 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 6 | 0 | 0 | 6 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 50.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 35.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 13 | 42 | 0 | 13 | 42 | 0 | 0 | 23 | 0 | 24 | 47 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 3 | 3 | 0 | 3 | 3 | 0 | 0 | 3 | 0 | 3 | 3 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | | No | | No | No | |
| Maximum Recall | No | Yes | | No | Yes | | | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 |
| g_i, Effective Green Time [s] | 8 | 48 | 48 | 2 | 42 | 42 | 19 | 19 | 37 | 37 |
| g / C, Green / Cycle | 0.08 | 0.48 | 0.48 | 0.02 | 0.41 | 0.41 | 0.19 | 0.19 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.32 | 0.07 | 0.01 | 0.29 | 0.07 | 0.15 | 0.06 | 0.15 | 0.02 |
| s, saturation flow rate [veh/h] | 1686 | 1700 | 1349 | 1540 | 1532 | 1363 | 1432 | 1405 | 1307 | 1728 |
| c, Capacity [veh/h] | 132 | 806 | 640 | 25 | 632 | 562 | 316 | 261 | 422 | 626 |
| d1, Uniform Delay [s] | 46.16 | 20.77 | 15.11 | 49.61 | 24.83 | 19.00 | 40.39 | 36.12 | 25.70 | 21.09 |
| k, delay calibration | 0.26 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.19 | 0.11 | 0.31 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 21.65 | 4.56 | 0.47 | 7.07 | 6.48 | 0.68 | 4.30 | 0.78 | 2.27 | 0.03 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.79 | 0.68 | 0.14 | 0.32 | 0.70 | 0.18 | 0.67 | 0.34 | 0.46 | 0.04 |
| d, Delay for Lane Group [s/veh] | 67.81 | 25.34 | 15.57 | 56.68 | 31.30 | 19.68 | 44.69 | 36.90 | 27.98 | 21.12 |
| Lane Group LOS | E | C | B | E | C | B | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.34 | 10.51 | 1.23 | 0.25 | 9.62 | 1.55 | 5.33 | 1.95 | 3.65 | 0.43 |
| 50th-Percentile Queue Length [ft/ln] | 83.61 | 262.70 | 30.76 | 6.21 | 240.52 | 38.77 | 133.18 | 48.87 | 91.37 | 10.78 |
| 95th-Percentile Queue Length [veh/ln] | 6.02 | 15.82 | 2.21 | 0.45 | 14.71 | 2.79 | 9.11 | 3.52 | 6.58 | 0.78 |
| 95th-Percentile Queue Length [ft/ln] | 150.49 | 395.61 | 55.37 | 11.18 | 367.69 | 69.79 | 227.80 | 87.97 | 164.47 | 19.40 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 67.81 | 25.34 | 15.57 | 56.68 | 31.30 | 19.68 | 44.69 | 44.69 | 36.90 | 27.98 | 21.12 | 21.12 |
| Movement LOS | E | C | B | E | C | B | D | D | D | C | C | C |
| d_A, Approach Delay [s/veh] | 30.09 | | | 29.59 | | | 42.37 | | | 27.11 | | |
| Approach LOS | C | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 31.61 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.598 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.96 | 52.39 | 8.72 | 1.10 | 61.38 | 13.65 | 15.74 | 6.68 | 27.64 | 3.97 |
| Stops [stops/h] | 118.03 | 370.87 | 43.43 | 8.77 | 339.55 | 54.74 | 188.01 | 68.99 | 128.99 | 15.22 |
| Fuel consumption [US gal/h] | 2.70 | 7.61 | 0.95 | 0.20 | 7.73 | 1.33 | 4.34 | 1.59 | 3.13 | 0.39 |
| CO [g/h] | 188.89 | 531.70 | 66.21 | 14.00 | 540.18 | 92.87 | 303.26 | 111.34 | 219.05 | 26.99 |
| NOx [g/h] | 36.75 | 103.45 | 12.88 | 2.72 | 105.10 | 18.07 | 59.00 | 21.66 | 42.62 | 5.25 |
| VOC [g/h] | 43.78 | 123.23 | 15.34 | 3.24 | 125.19 | 21.52 | 70.28 | 25.80 | 50.77 | 6.25 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 10.0 | 10.0 | 8.0 | 8.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 41.49 | 41.49 | 43.31 | 43.31 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.807 | 2.873 | 2.626 | 2.239 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 706 | 706 | 333 | 804 |
| d_b, Bicycle Delay [s] | 21.35 | 21.35 | 35.42 | 18.24 |
| l_b,int, Bicycle LOS Score for Intersection | 2.883 | 2.622 | 2.418 | 1.946 |
| Bicycle LOS | C | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 7: Northampton Street (SR 0248) & Wood Avenue (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.339 |

**Intersection Setup**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 17.00 | 12.00 | 22.00 | 10.00 | 10.00 | 10.00 | 11.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.01 | | | -0.03 | | | -0.05 | | | 0.06 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | No | | | Yes | | |

**Volumes**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 22 | 90 | 186 | 13 | 124 | 50 | 51 | 204 | 17 | 49 | 288 | 11 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 8.00 | 6.00 | 8.00 | 2.00 | 12.00 | 6.00 | 4.00 | 0.00 | 6.00 | 3.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 128 | 0 | 0 | 8 | 0 | 0 | 1 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 22 | 90 | 58 | 13 | 124 | 42 | 51 | 204 | 16 | 49 | 288 | 11 |
| Peak Hour Factor | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 25 | 16 | 4 | 35 | 12 | 14 | 57 | 4 | 14 | 81 | 3 |
| Total Analysis Volume [veh/h] | 25 | 101 | 65 | 15 | 139 | 47 | 57 | 228 | 18 | 55 | 322 | 12 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 16.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 36 | 0 | 0 | 36 | 0 | 0 | 52 | 0 | 0 | 52 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 12 | 0 | 0 | 12 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 0 | 42 | 0 | 0 | 58 | 0 | 0 | 58 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | Yes | | | Yes | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 16 | 16 | 74 | 74 | 74 | 74 |
| g / C, Green / Cycle | 0.16 | 0.16 | 0.74 | 0.74 | 0.74 | 0.74 |
| (v / s)_i Volume / Saturation Flow Rate | 0.12 | 0.12 | 0.06 | 0.14 | 0.06 | 0.22 |
| s, saturation flow rate [veh/h] | 1566 | 1695 | 1012 | 1720 | 964 | 1539 |
| c, Capacity [veh/h] | 285 | 303 | 705 | 1280 | 704 | 1145 |
| d1, Uniform Delay [s] | 40.47 | 40.39 | 7.44 | 3.82 | 6.26 | 4.18 |
| k, delay calibration | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.73 | 2.49 | 0.22 | 0.33 | 0.22 | 0.65 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.67 | 0.66 | 0.08 | 0.19 | 0.08 | 0.29 |
| d, Delay for Lane Group [s/veh] | 43.20 | 42.88 | 7.67 | 4.15 | 6.48 | 4.83 |
| Lane Group LOS | D | D | A | A | A | A |
| Critical Lane Group | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 4.74 | 4.95 | 0.51 | 1.39 | 0.44 | 2.09 |
| 50th-Percentile Queue Length [ft/ln] | 118.39 | 123.77 | 12.78 | 34.76 | 11.07 | 52.37 |
| 95th-Percentile Queue Length [veh/ln] | 8.30 | 8.60 | 0.92 | 2.50 | 0.80 | 3.77 |
| 95th-Percentile Queue Length [ft/ln] | 207.61 | 214.99 | 23.00 | 62.57 | 19.93 | 94.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 43.20 | 43.20 | 43.20 | 42.88 | 42.88 | 42.88 | 7.67 | 4.15 | 4.15 | 6.48 | 4.83 | 4.83 |
| Movement LOS | D | D | D | D | D | D | A | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 43.20 | | | 42.88 | | | 4.82 | | | 5.06 | | |
| Approach LOS | D | | | D | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 18.73 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.339 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 27.07 | 214.34 | 6.73 | 29.05 | 14.87 | 90.32 |
| Stops [stops/h] | 170.48 | 178.23 | 18.40 | 50.05 | 15.95 | 75.42 |
| Fuel consumption [US gal/h] | 3.55 | 12.08 | 0.46 | 1.71 | 0.80 | 4.68 |
| CO [g/h] | 248.19 | 844.12 | 32.31 | 119.27 | 56.10 | 327.06 |
| NOx [g/h] | 48.29 | 164.23 | 6.29 | 23.20 | 10.91 | 63.63 |
| VOC [g/h] | 57.52 | 195.63 | 7.49 | 27.64 | 13.00 | 75.80 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 16.0 | 16.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.28 | 35.28 | 0.00 | 39.61 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.192 | 1.961 | 0.000 | 2.190 |
| Crosswalk LOS | B | A | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 720 | 720 | 1040 | 1040 |
| d_b, Bicycle Delay [s] | 20.48 | 20.48 | 11.52 | 11.52 |
| l_b,int, Bicycle LOS Score for Intersection | 2.086 | 1.904 | 2.061 | 2.201 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 8: Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 15.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.389 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 13.00 | 12.00 | 20.00 | 12.00 | 12.00 | 11.00 | 13.00 | 12.00 | 12.00 | 13.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 40.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.02 | | | -0.02 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 86 | 530 | 1 | 178 | 437 | 72 | 0 | 85 | 140 | 0 | 121 | 244 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 7.00 | 0.00 | 3.00 | 3.00 | 6.00 | 2.00 | 8.00 | 1.00 | 2.00 | 6.00 | 4.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 53 | 0 | 0 | 83 |
| Total Hourly Volume [veh/h] | 86 | 530 | 1 | 178 | 437 | 44 | 0 | 85 | 87 | 0 | 121 | 161 |
| Peak Hour Factor | 0.9640 | 0.9640 | 0.9640 | 0.9640 | 0.9640 | 0.9640 | 1.0000 | 0.9640 | 0.9640 | 1.0000 | 0.9640 | 0.9640 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 22 | 137 | 0 | 46 | 113 | 11 | 0 | 22 | 23 | 0 | 31 | 42 |
| Total Analysis Volume [veh/h] | 89 | 550 | 1 | 185 | 453 | 46 | 0 | 88 | 90 | 0 | 126 | 167 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 2.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Overlap | Permiss | Permiss | Overlap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 5 | 0 | 8 | 1 |
| Auxiliary Signal Groups | | | | | | | | | 4,5 | | | 1,8 |
| Maximum Green [s] | 13 | 45 | 0 | 13 | 45 | 0 | 0 | 24 | 13 | 0 | 24 | 13 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Walk [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 40.0 | 40.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 19 | 51 | 0 | 19 | 51 | 0 | 0 | 30 | 19 | 0 | 30 | 19 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 3 | 3 | 0 | 3 | 3 | 0 | 0 | 7 | 3 | 0 | 7 | 3 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 |
| Minimum Recall | No | No | | No | No | | | No | No | | No | No |
| Maximum Recall | No | Yes | | No | Yes | | | No | No | | No | No |
| Pedestrian Recall | No | No | | No | No | | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | R | C | R |
|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| g_i, Effective Green Time [s] | 77 | 60 | 60 | 77 | 64 | 13 | 26 | 13 | 30 |
| g / C, Green / Cycle | 0.77 | 0.60 | 0.60 | 0.77 | 0.64 | 0.13 | 0.26 | 0.13 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.16 | 0.16 | 0.18 | 0.28 | 0.05 | 0.06 | 0.07 | 0.11 |
| s, saturation flow rate [veh/h] | 1012 | 1702 | 1700 | 1008 | 1799 | 1688 | 1579 | 1716 | 1542 |
| c, Capacity [veh/h] | 758 | 1016 | 1015 | 818 | 1155 | 220 | 391 | 224 | 452 |
| d1, Uniform Delay [s] | 4.29 | 9.69 | 9.69 | 3.70 | 8.87 | 39.88 | 29.99 | 40.80 | 28.03 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.28 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.32 | 0.66 | 0.66 | 0.64 | 1.18 | 1.17 | 0.30 | 2.21 | 1.31 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.12 | 0.27 | 0.27 | 0.23 | 0.43 | 0.40 | 0.23 | 0.56 | 0.37 |
| d, Delay for Lane Group [s/veh] | 4.61 | 10.35 | 10.35 | 4.35 | 10.05 | 41.05 | 30.28 | 43.01 | 29.34 |
| Lane Group LOS | A | B | B | A | B | D | C | D | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.40 | 2.84 | 2.84 | 0.84 | 4.93 | 2.03 | 1.73 | 3.00 | 3.26 |
| 50th-Percentile Queue Length [ft/ln] | 10.01 | 71.03 | 70.99 | 20.95 | 123.18 | 50.66 | 43.27 | 75.02 | 81.55 |
| 95th-Percentile Queue Length [veh/ln] | 0.72 | 5.11 | 5.11 | 1.51 | 8.57 | 3.65 | 3.12 | 5.40 | 5.87 |
| 95th-Percentile Queue Length [ft/ln] | 18.02 | 127.85 | 127.79 | 37.72 | 214.19 | 91.19 | 77.89 | 135.04 | 146.79 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 4.61 | 10.35 | 10.35 | 4.35 | 10.05 | 10.05 | 0.00 | 41.05 | 30.28 | 0.00 | 43.01 | 29.34 |
| Movement LOS | A | B | B | A | B | B | | D | C | | D | C |
| d_A, Approach Delay [s/veh] | 9.55 | | | 8.51 | | | 35.61 | | | 35.22 | | |
| Approach LOS | A | | | A | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 15.93 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.389 | | | | | | | | | | | |

**Emissions**

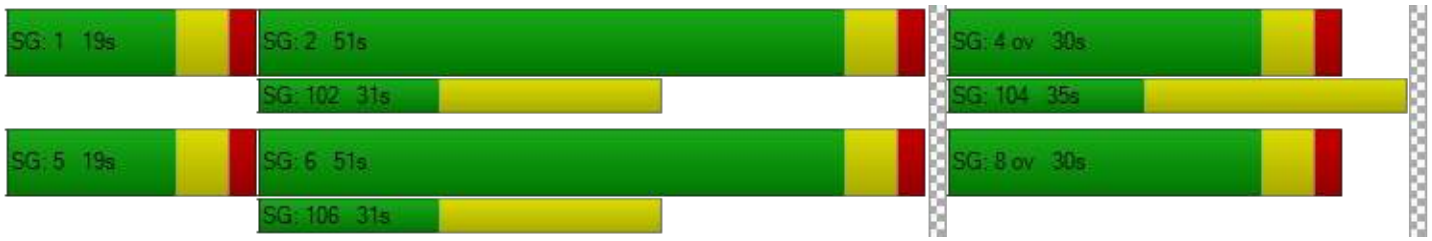
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 12.28 | 38.01 | 37.99 | 15.02 | 40.51 | 6.17 | 6.31 | 14.88 | 19.72 |
| Stops [stops/h] | 14.42 | 102.28 | 102.23 | 30.18 | 177.38 | 72.95 | 62.31 | 108.03 | 117.43 |
| Fuel consumption [US gal/h] | 0.66 | 2.80 | 2.80 | 1.00 | 4.21 | 1.52 | 1.26 | 2.48 | 2.63 |
| CO [g/h] | 46.12 | 195.61 | 195.50 | 69.77 | 294.56 | 106.18 | 88.34 | 173.51 | 183.97 |
| NOx [g/h] | 8.97 | 38.06 | 38.04 | 13.57 | 57.31 | 20.66 | 17.19 | 33.76 | 35.79 |
| VOC [g/h] | 10.69 | 45.33 | 45.31 | 16.17 | 68.27 | 24.61 | 20.47 | 40.21 | 42.64 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 19.0 | 0.0 | 18.0 | 18.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.81 | 0.00 | 33.62 | 33.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.466 | 0.000 | 2.296 | 2.596 |
| Crosswalk LOS | B | F | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 900 | 900 | 480 | 480 |
| d_b, Bicycle Delay [s] | 15.13 | 15.13 | 28.88 | 28.88 |
| l_b,int, Bicycle LOS Score for Intersection | 2.088 | 2.734 | 1.941 | 2.180 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 9: Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.567 |

**Intersection Setup**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 13.00 | 13.00 | 12.00 | 12.00 | 12.00 | 18.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 25.00 | | | 35.00 | | |
| Grade [%] | 0.04 | | | -0.04 | | | -0.01 | | | 0.01 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | No | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 392 | 404 | 71 | 521 | 34 | 48 | 122 | 1 | 118 | 80 | 112 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 7.00 | 9.00 | 3.00 | 4.00 | 0.00 | 2.00 | 1.00 | 0.00 | 2.00 | 1.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 133 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 48 |
| Total Hourly Volume [veh/h] | 0 | 392 | 271 | 71 | 521 | 32 | 48 | 122 | 1 | 118 | 80 | 64 |
| Peak Hour Factor | 1.0000 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 107 | 74 | 19 | 142 | 9 | 13 | 33 | 0 | 32 | 22 | 17 |
| Total Analysis Volume [veh/h] | 0 | 427 | 295 | 77 | 568 | 35 | 52 | 133 | 1 | 129 | 87 | 70 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 7 | 53 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 165.0 | 165.0 | 0.0 | 0.0 | -5.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 6.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 46 | 0 | 13 | 59 | 0 | 0 | 41 | 0 | 0 | 41 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | Yes | No | | | No | | | No | |
| Maximum Recall | | Yes | | No | Yes | | | No | | | No | |
| Pedestrian Recall | | No | | No | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | C | C | C | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 2.50 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 52 | 52 | 65 | 65 | 25 | 25 |
| g / C, Green / Cycle | 0.52 | 0.52 | 0.65 | 0.65 | 0.25 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.23 | 0.26 | 0.27 | 0.22 | 0.13 | 0.21 |
| s, saturation flow rate [veh/h] | 1570 | 1372 | 1215 | 1558 | 1461 | 1334 |
| c, Capacity [veh/h] | 813 | 710 | 761 | 1010 | 414 | 389 |
| d1, Uniform Delay [s] | 15.09 | 15.77 | 8.81 | 7.98 | 31.43 | 36.19 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.17 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.76 | 2.59 | 1.82 | 0.94 | 0.76 | 4.24 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.44 | 0.51 | 0.44 | 0.34 | 0.45 | 0.74 |
| d, Delay for Lane Group [s/veh] | 16.85 | 18.36 | 10.63 | 8.92 | 32.19 | 40.44 |
| Lane Group LOS | B | B | B | A | C | D |
| Critical Lane Group | No | Yes | Yes | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 5.11 | 5.44 | 3.15 | 3.16 | 3.89 | 6.96 |
| 50th-Percentile Queue Length [ft/ln] | 127.87 | 136.03 | 78.72 | 78.92 | 97.35 | 174.01 |
| 95th-Percentile Queue Length [veh/ln] | 8.82 | 9.27 | 5.67 | 5.68 | 7.01 | 11.29 |
| 95th-Percentile Queue Length [ft/ln] | 220.60 | 231.67 | 141.70 | 142.05 | 175.24 | 282.18 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 17.08 | 18.36 | 10.63 | 9.69 | 8.92 | 32.19 | 32.19 | 32.19 | 40.44 | 40.44 | 40.44 |
| Movement LOS | | B | B | B | A | A | C | C | C | D | D | D |
| d_A, Approach Delay [s/veh] | 17.60 | | | 9.75 | | | 32.19 | | | 40.44 | | |
| Approach LOS | B | | | A | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 19.69 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.567 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 29.31 | 29.31 | 24.29 | 25.50 | 7.89 | 19.71 |
| Stops [stops/h] | 184.14 | 195.88 | 113.36 | 113.64 | 140.19 | 250.58 |
| Fuel consumption [US gal/h] | 4.10 | 4.32 | 2.70 | 2.66 | 2.11 | 4.99 |
| CO [g/h] | 286.34 | 302.16 | 188.83 | 186.08 | 147.54 | 348.75 |
| NOx [g/h] | 55.71 | 58.79 | 36.74 | 36.20 | 28.71 | 67.85 |
| VOC [g/h] | 66.36 | 70.03 | 43.76 | 43.13 | 34.19 | 80.83 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 9.0 | 9.0 | 9.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 0.00 | 41.41 | 41.41 | 41.41 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 0.000 | 2.630 | 1.847 | 2.599 | |
| Crosswalk LOS | F | B | A | B | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 800 | 1060 | 700 | 700 | |
| d_b, Bicycle Delay [s] | 18.00 | 11.05 | 21.13 | 21.13 | |
| l_b,int, Bicycle LOS Score for Intersection | 2.265 | 2.122 | 1.867 | 2.111 | |
| Bicycle LOS | B | B | A | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 10: Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 6.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.404 |

**Intersection Setup**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 11.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 11.00 | 11.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 120.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 25.00 | | | 40.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 244 | 38 | 138 | 280 | 6 | 1 | 0 | 0 | 31 | 4 | 146 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 10.00 | 6.00 | 1.00 | 5.00 | 17.00 | 100.00 | 0.00 | 0.00 | 13.00 | 25.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Total Hourly Volume [veh/h] | 0 | 244 | 35 | 138 | 280 | 6 | 1 | 0 | 0 | 31 | 4 | 138 |
| Peak Hour Factor | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 64 | 9 | 36 | 73 | 2 | 0 | 0 | 0 | 8 | 1 | 36 |
| Total Analysis Volume [veh/h] | 0 | 256 | 37 | 145 | 294 | 6 | 1 | 0 | 0 | 33 | 4 | 145 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 38 | 0 | 0 | 38 | 0 | 0 | 13 | 0 | 0 | 13 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 9 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 |
| Detector Location [ft] | 0.0 | 210.0 | 0.0 | 0.0 | 210.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 6.0 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 26 | 26 | 26 | 26 | 26 | 26 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |
| g_i, Effective Green Time [s] | 11 | 11 | 7 | 7 | 7 | 7 |
| g / C, Green / Cycle | 0.41 | 0.41 | 0.28 | 0.28 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.17 | 0.28 | 0.00 | 0.00 | 0.03 | 0.12 |
| s, saturation flow rate [veh/h] | 1687 | 1573 | 264 | 1800 | 1292 | 1233 |
| c, Capacity [veh/h] | 828 | 827 | 300 | 513 | 528 | 351 |
| d1, Uniform Delay [s] | 5.53 | 6.17 | 10.79 | 0.00 | 8.69 | 7.62 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.26 | 0.55 | 0.00 | 0.00 | 0.05 | 0.81 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.35 | 0.54 | 0.00 | 0.00 | 0.06 | 0.42 |
| d, Delay for Lane Group [s/veh] | 5.78 | 6.71 | 10.79 | 0.00 | 8.74 | 8.43 |
| Lane Group LOS | A | A | B | A | A | A |
| Critical Lane Group | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.47 | 0.83 | 0.00 | 0.00 | 0.09 | 0.39 |
| 50th-Percentile Queue Length [ft/ln] | 11.83 | 20.65 | 0.11 | 0.00 | 2.29 | 9.81 |
| 95th-Percentile Queue Length [veh/ln] | 0.85 | 1.49 | 0.01 | 0.00 | 0.17 | 0.71 |
| 95th-Percentile Queue Length [ft/ln] | 21.29 | 37.17 | 0.19 | 0.00 | 4.13 | 17.66 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 5.78 | 5.78 | 5.78 | 6.71 | 6.71 | 6.71 | 10.79 | 0.00 | 0.00 | 8.74 | 8.43 | 8.43 |
| Movement LOS | A | A | A | A | A | A | B | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 5.78 | | | 6.71 | | | 10.79 | | | 8.48 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 6.77 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.404 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 44.49 | 64.43 | 0.11 | 0.00 | 28.61 | 129.19 |
| Stops [stops/h] | 65.34 | 114.05 | 0.59 | 0.00 | 12.66 | 54.20 |
| Fuel consumption [US gal/h] | 2.53 | 3.92 | 0.01 | 0.00 | 1.21 | 5.42 |
| CO [g/h] | 176.99 | 274.12 | 0.65 | 0.00 | 84.44 | 378.55 |
| NOx [g/h] | 34.43 | 53.33 | 0.13 | 0.00 | 16.43 | 73.65 |
| VOC [g/h] | 41.02 | 63.53 | 0.15 | 0.00 | 19.57 | 87.73 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 4.36 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.037 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2915 | 2915 | 997 | 997 |
| d_b, Bicycle Delay [s] | 2.73 | 2.73 | 3.28 | 3.28 |
| l_b,int, Bicycle LOS Score for Intersection | 2.048 | 2.294 | 1.561 | 1.873 |
| Bicycle LOS | B | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 11: Wood Avenue (SR 2017) & US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.220 |

**Intersection Setup**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 50.00 | 0.00 |
| Speed [mph] | 30.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | -0.03 | | 0.03 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 113 | 656 | 872 | 191 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 0.00 | 3.00 | 1.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 113 | 656 | 872 | 191 |
| Peak Hour Factor | 1.0000 | 1.0000 | 0.9180 | 0.9180 | 0.9180 | 0.9180 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 31 | 179 | 237 | 52 |
| Total Analysis Volume [veh/h] | 0 | 0 | 123 | 715 | 950 | 208 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.22 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 11.59 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.22 | 0.07 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 5.50 | 1.83 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 1.70 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.71 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 12: Wood Avenue (SR 2017) & US 22 East Off-Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 15.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.584 |

**Intersection Setup**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Thru | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | -0.04 | | -0.03 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 446 | 323 | 0 | 0 | 872 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 1.00 | 2.00 | 2.00 | 1.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 446 | 323 | 0 | 0 | 872 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 124 | 90 | 0 | 0 | 242 |
| Total Analysis Volume [veh/h] | 0 | 496 | 359 | 0 | 0 | 969 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.58 | 0.00 | 0.00 | 0.00 | 0.01 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 15.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | A | | | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 3.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 96.84 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 15.02 | | 0.00 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.08 | | | | | |
| Intersection LOS | C | | | | | |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 2 2023 EX AM

Report File: C:\...\2023 Existing AM.pdf
6/17/2024

## Turning Movement Volume: Summary

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | 128 | 42 | 61 | 153 | 235 | 115 | 734 |

| ID | Intersection Name | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | 23 | 89 | 300 | 209 | 659 | 1280 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | 152 | 125 | 5 | 57 | 137 | 615 | 363 | 163 | 123 | 6 | 226 | 65 | 2037 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | 96 | 503 | 144 | 7 | 409 | 183 | 78 | 117 | 301 | 179 | 15 | 22 | 2054 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | 22 | 90 | 186 | 13 | 124 | 50 | 51 | 204 | 17 | 49 | 288 | 11 | 1105 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012) /Nazareth Road (SR 0248) | 86 | 530 | 1 | 178 | 437 | 72 | 85 | 140 | 121 | 244 | 1894 |

| ID | Intersection Name | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | 392 | 404 | 71 | 521 | 34 | 48 | 122 | 1 | 118 | 80 | 112 | 1903 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | 0 | 244 | 38 | 138 | 280 | 6 | 1 | 0 | 0 | 31 | 4 | 146 | 888 |

| ID | Intersection Name | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|
| | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | 113 | 656 | 872 | 191 | 1832 |

| ID | Intersection Name | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|
| | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | 446 | 323 | 872 | 1641 |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Report File: C:\...\2023 Existing AM.pdf

Scenario 2 2023 EX AM
6/17/2024

## Turning Movement Volume: Detail

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Final Base | 128 | 42 | 61 | 153 | 235 | 115 | 734 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **128** | **42** | **61** | **153** | **235** | **115** | **734** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Final Base | 23 | 89 | 300 | 209 | 659 | 1280 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **23** | **89** | **300** | **209** | **659** | **1280** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Final Base | 152 | 125 | 5 | 57 | 137 | 615 | 363 | 163 | 123 | 6 | 226 | 65 | 2037 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **152** | **125** | **5** | **57** | **137** | **615** | **363** | **163** | **123** | **6** | **226** | **65** | **2037** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Final Base | 96 | 503 | 144 | 7 | 409 | 183 | 78 | 117 | 301 | 179 | 15 | 22 | 2054 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **96** | **503** | **144** | **7** | **409** | **183** | **78** | **117** | **301** | **179** | **15** | **22** | **2054** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Final Base | 22 | 90 | 186 | 13 | 124 | 50 | 51 | 204 | 17 | 49 | 288 | 11 | 1105 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **22** | **90** | **186** | **13** | **124** | **50** | **51** | **204** | **17** | **49** | **288** | **11** | **1105** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Final Base | 86 | 530 | 1 | 178 | 437 | 72 | 85 | 140 | 121 | 244 | 1894 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **86** | **530** | **1** | **178** | **437** | **72** | **85** | **140** | **121** | **244** | **1894** |

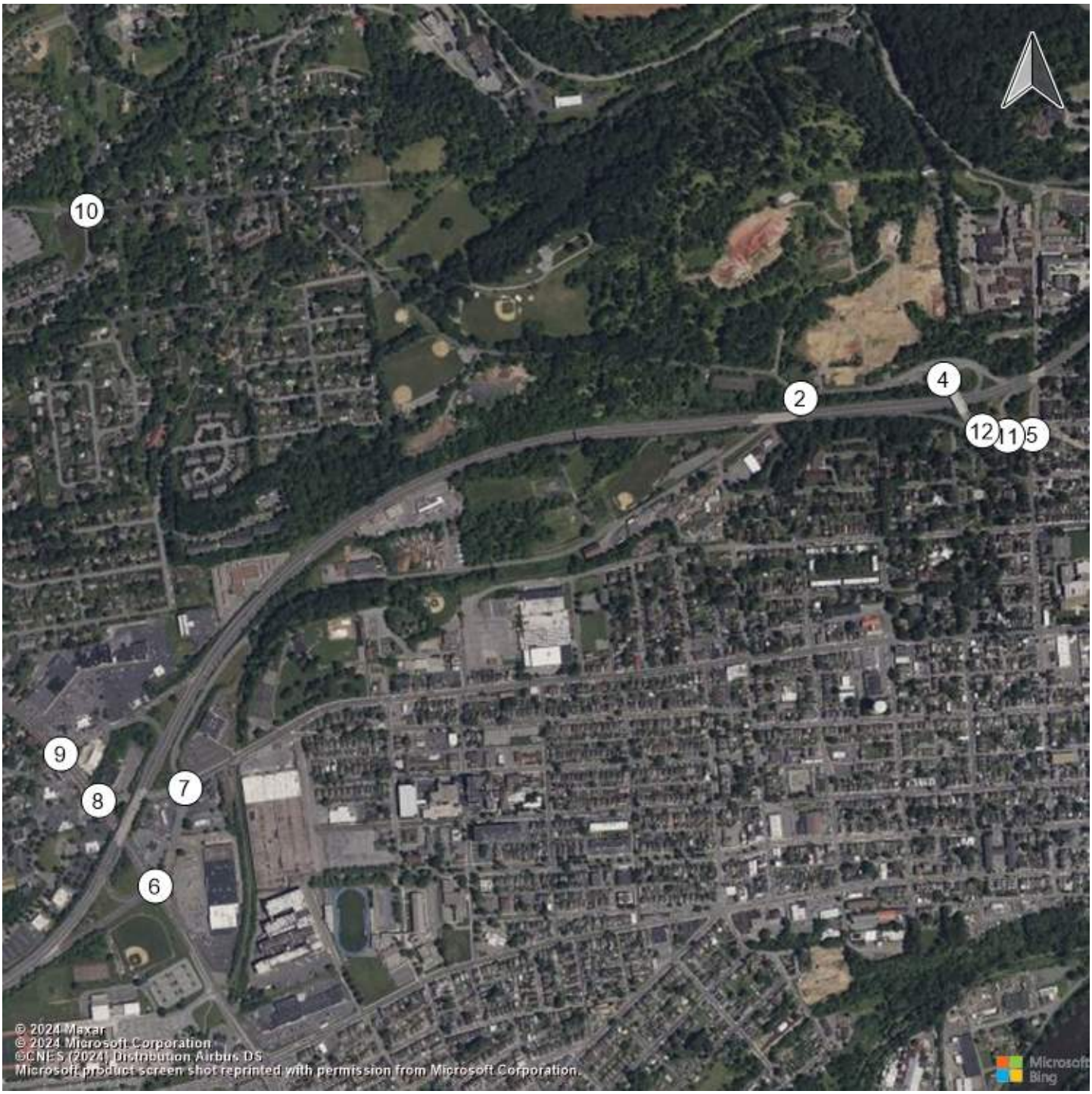
| ID | Intersection Name | Volume Type | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Final Base | 392 | 404 | 71 | 521 | 34 | 48 | 122 | 1 | 118 | 80 | 112 | 1903 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **392** | **404** | **71** | **521** | **34** | **48** | **122** | **1** | **118** | **80** | **112** | **1903** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Final Base | 0 | 244 | 38 | 138 | 280 | 6 | 1 | 0 | 0 | 31 | 4 | 146 | 888 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **0** | **244** | **38** | **138** | **280** | **6** | **1** | **0** | **0** | **31** | **4** | **146** | **888** |

| ID | Intersection Name | Volume Type | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Final Base | 113 | 656 | 872 | 191 | 1832 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **113** | **656** | **872** | **191** | **1832** |

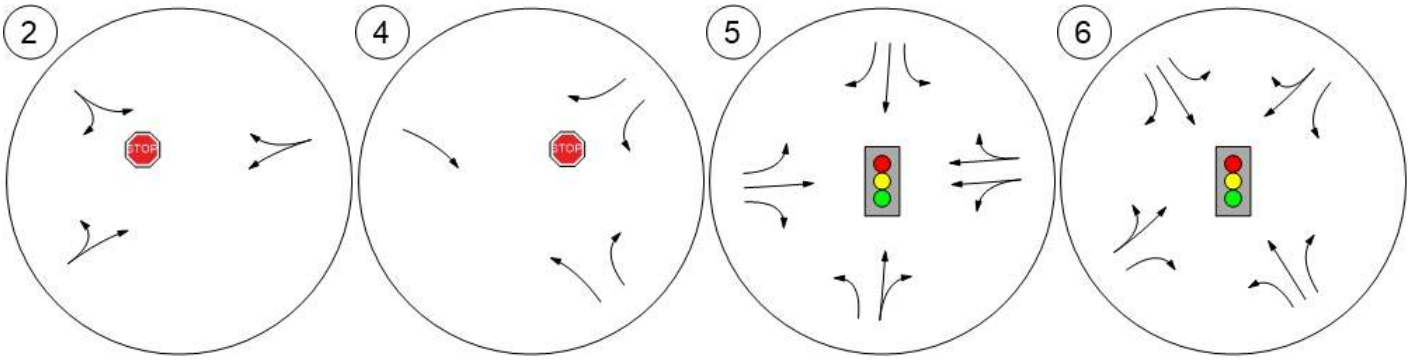
| ID | Intersection Name | Volume Type | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|---|
| | | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Final Base | 446 | 323 | 872 | 1641 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 |
| | | **Future Total** | **446** | **323** | **872** | **1641** |

Report Figure 1: Study Intersections

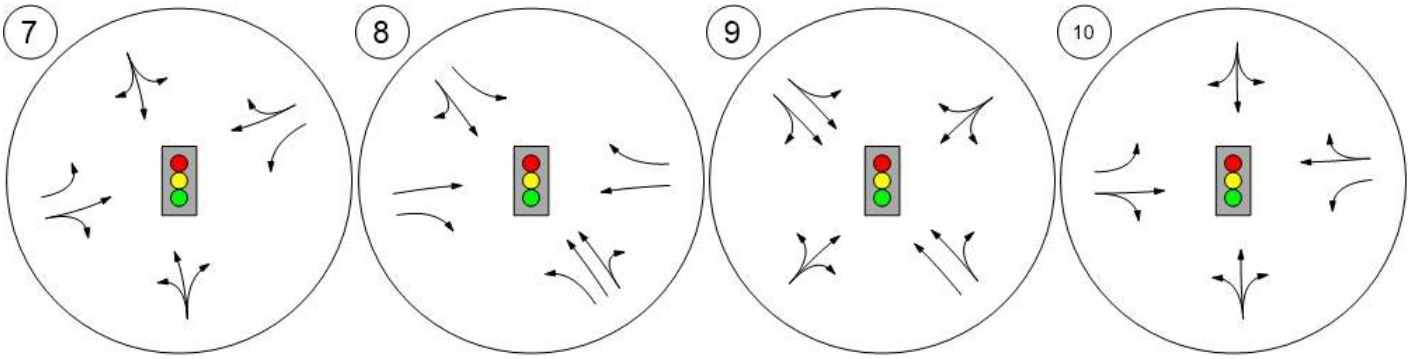


Report Figure 2: Lane Configuration and Traffic Control

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

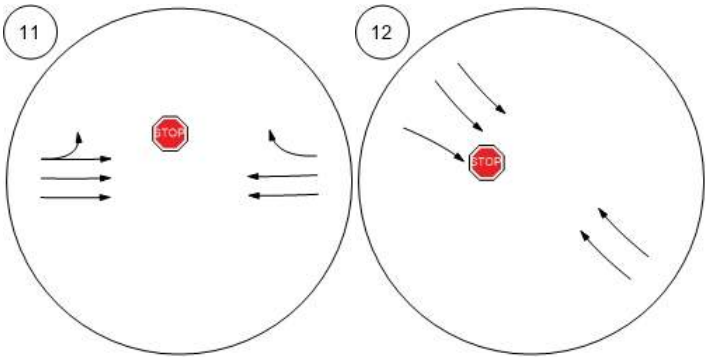



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



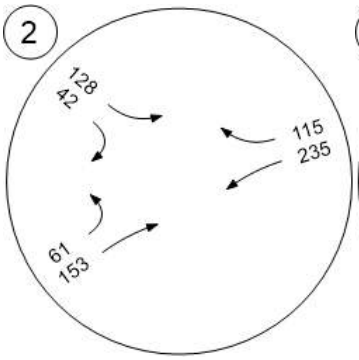
Report Figure 2: Lane Configuration and Traffic Control

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

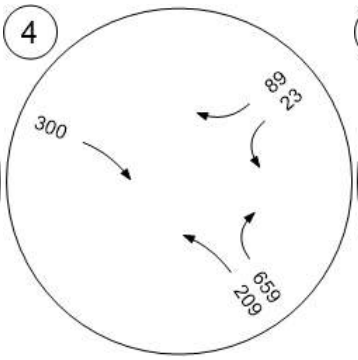


Report Figure 3a: Traffic Volume - Base Volume

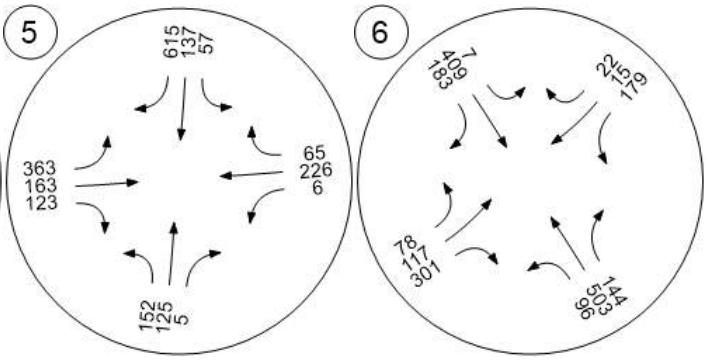
Hackett Avenue (SR 2017) &



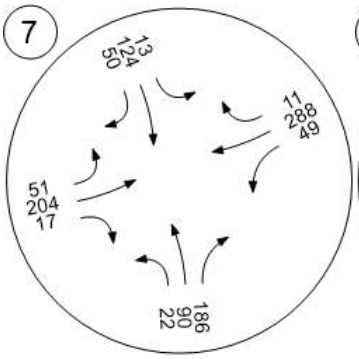

Wood Avenue (SR 2017) & U



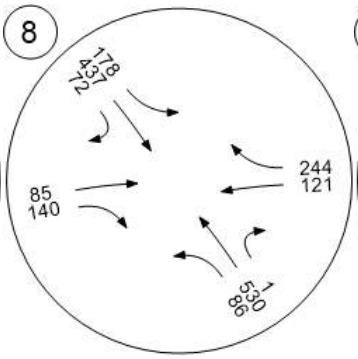

Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W



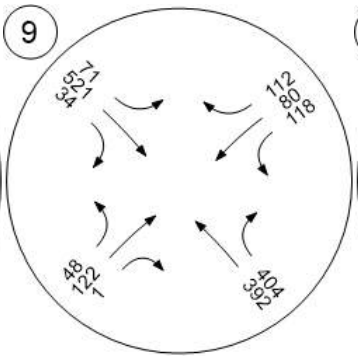

Northampton Street (SR 024



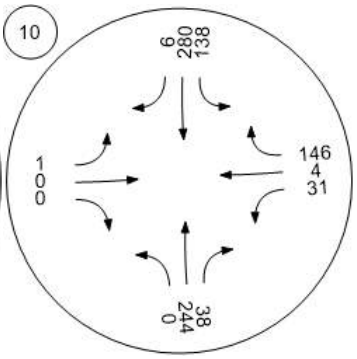

Northampton Street (SR 024




Nazareth Road (SR 0248) &

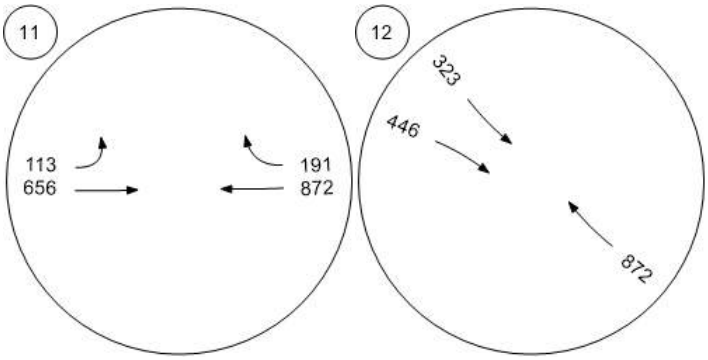



Hackett Avenue (SR 2017) /



Report Figure 3a: Traffic Volume - Base Volume

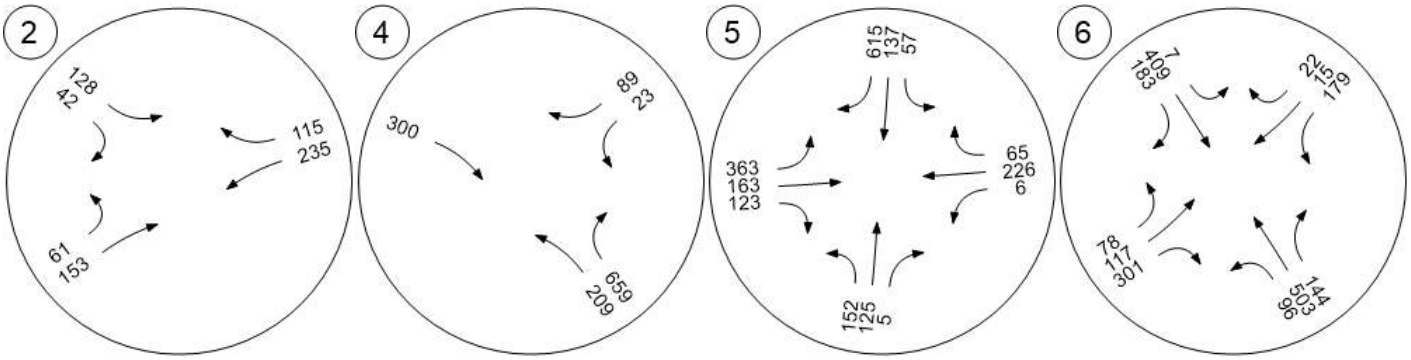
Wood Avenue (SR 2017) & U



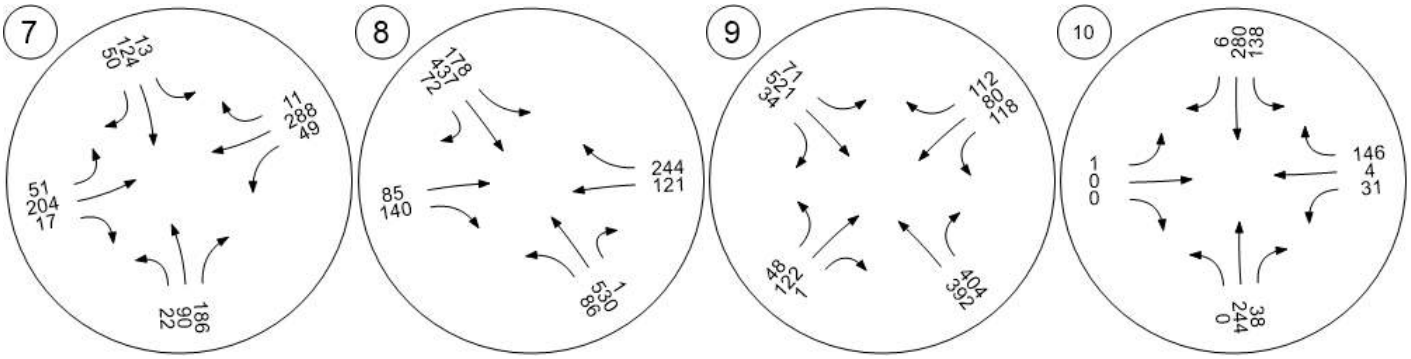

Wood Avenue (SR 2017) & U

Report Figure 3c: Traffic Volume - Future Background Volume

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

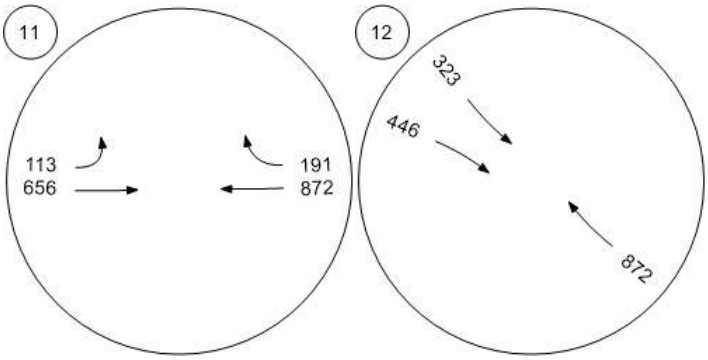



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



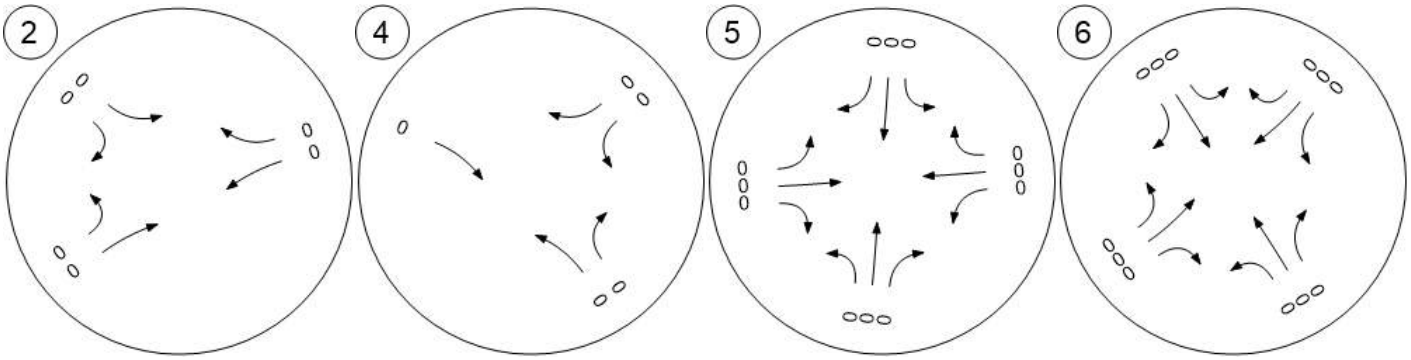
Report Figure 3c: Traffic Volume - Future Background Volume

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

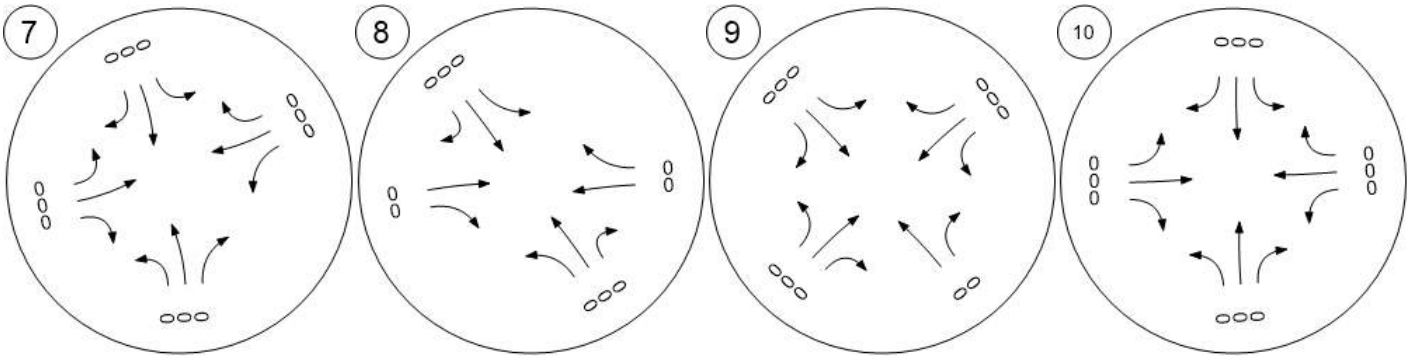


Report Figure 3d: Traffic Volume - Net New Site Trips

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

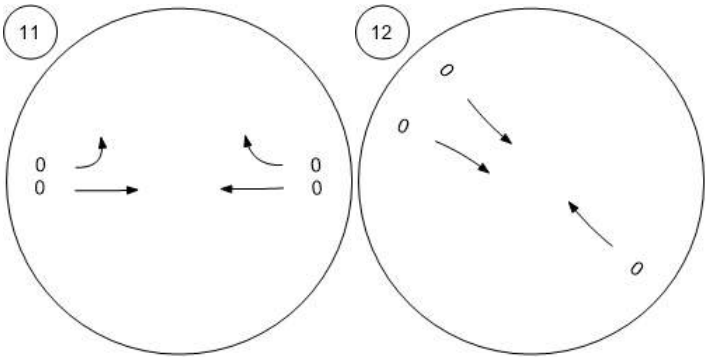



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



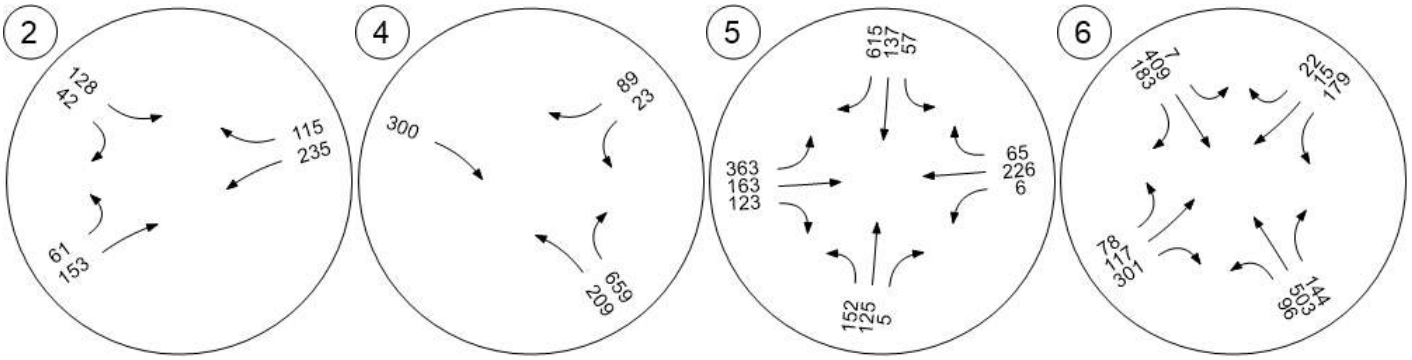
Report Figure 3d: Traffic Volume - Net New Site Trips

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

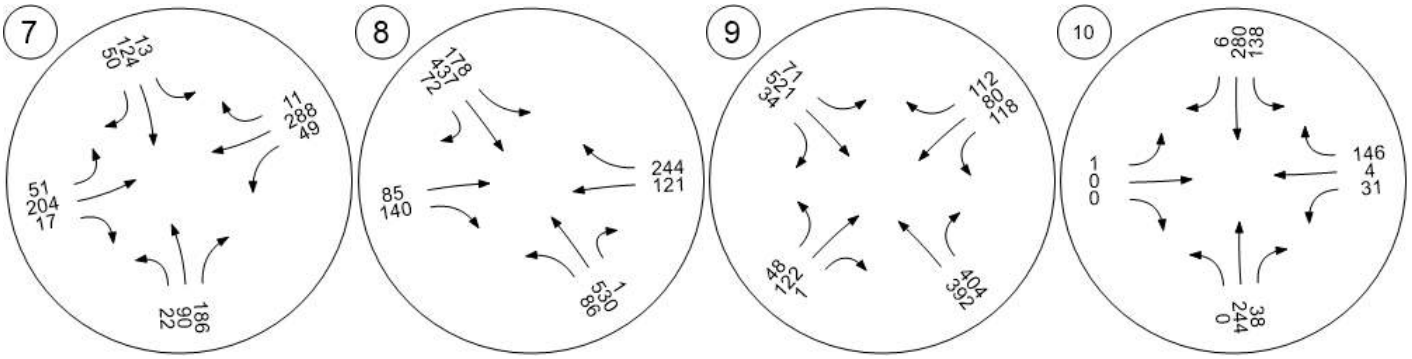


Report Figure 3f: Traffic Volume - Future Total Volume

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

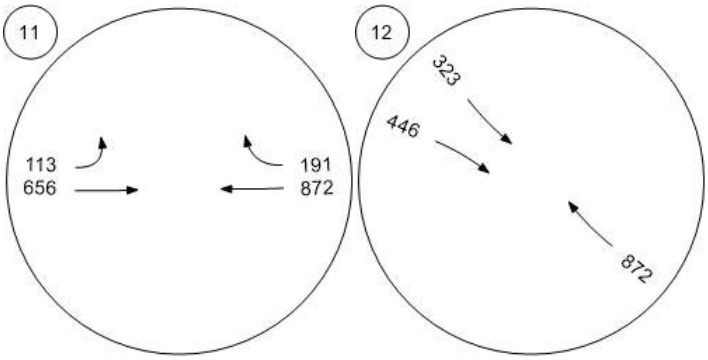



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



Report Figure 3f: Traffic Volume - Future Total Volume

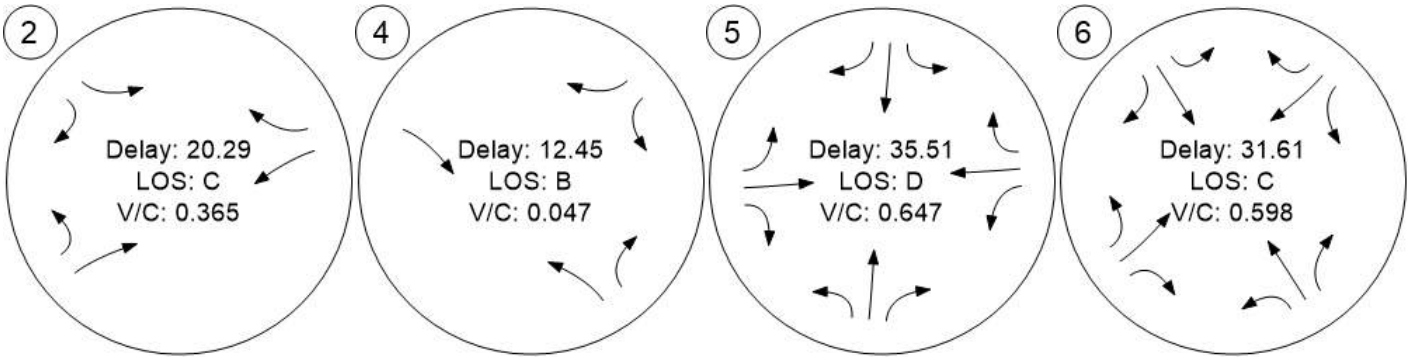
Wood Avenue (SR 2017) & U



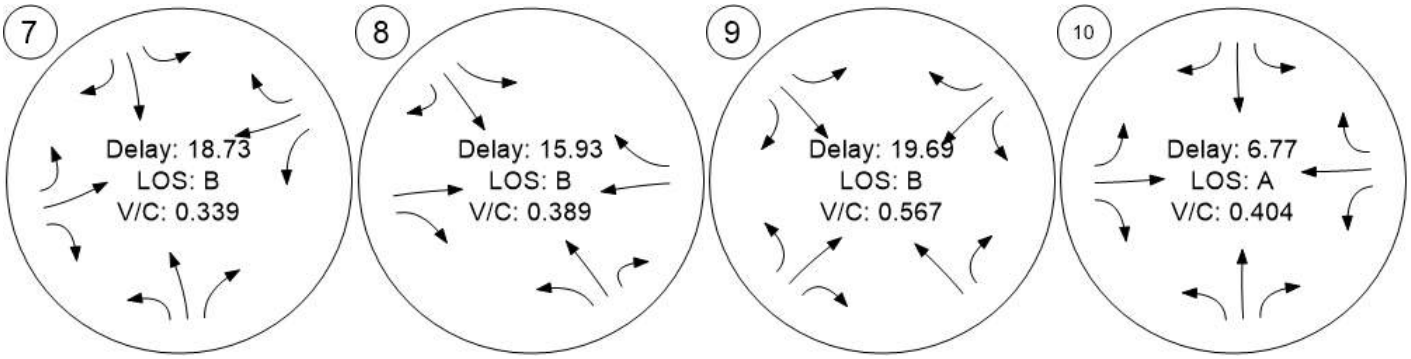

Wood Avenue (SR 2017) & U

Report Figure 4: Traffic Conditions

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

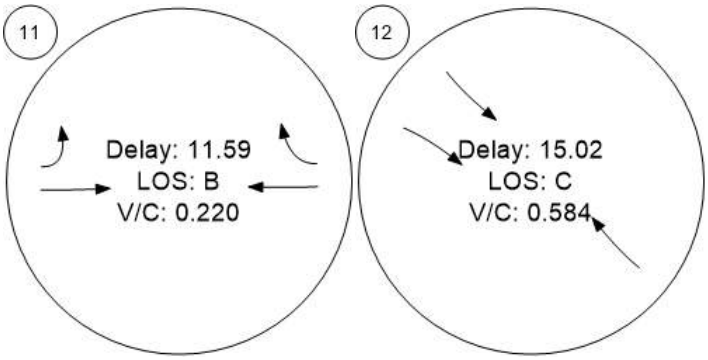



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



Report Figure 4: Traffic Conditions

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U



# PTV Vistro 2024 Reports

## *Existing Conditions (2023) – Weekday PM*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

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Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 4 2023 EX PM

Report File: C:\...\2023 Existing PM.pdf
6/17/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Two-way stop | HCM 7th Edition | SB Left | 0.668 | 50.4 | F |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Two-way stop | HCM 7th Edition | SB Left | 0.187 | 17.7 | C |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Signalized | HCM 7th Edition | SB Right | 0.660 | 60.7 | E |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Signalized | HCM 7th Edition | NB Left | 0.637 | 35.4 | D |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Signalized | HCM 7th Edition | NB Thru | 0.441 | 17.5 | B |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Signalized | HCM 7th Edition | WB Thru | 0.475 | 18.1 | B |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Signalized | HCM 7th Edition | WB Left | 0.805 | 33.4 | C |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Signalized | HCM 7th Edition | EB Left | 0.514 | 8.3 | A |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Two-way stop | HCM 7th Edition | EB Left | 0.133 | 10.9 | B |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Two-way stop | HCM 7th Edition | NB Thru | 0.647 | 17.4 | C |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**

**Intersection 2: Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 50.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.668 |

**Intersection Setup**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.01 | | 0.01 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 151 | 62 | 98 | 204 | 246 | 233 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 2.00 | 2.00 | 2.00 | 3.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 151 | 62 | 98 | 204 | 246 | 233 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 41 | 17 | 27 | 56 | 68 | 64 |
| Total Analysis Volume [veh/h] | 166 | 68 | 108 | 224 | 270 | 256 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.67 | 0.10 | 0.14 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 50.44 | 41.51 | 9.77 | 0.00 | 0.00 | 0.00 |
| Movement LOS | F | E | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 6.00 | 6.00 | 0.19 | 0.19 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 150.04 | 150.04 | 4.78 | 4.78 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 47.85 | | 3.18 | | 0.00 | |
| Approach LOS | E | | A | | A | |
| d_I, Intersection Delay [s/veh] | 11.22 | | | | | |
| Intersection LOS | F | | | | | |

**Intersection Level Of Service Report**
**Intersection 4: Wood Avenue (SR 2017) & US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 17.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.187 |

**Intersection Setup**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.05 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 61 | 235 | 0 | 357 | 248 | 534 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 100.00 | 3.00 | 2.00 | 1.00 | 4.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 61 | 235 | 0 | 357 | 248 | 534 |
| Peak Hour Factor | 0.9440 | 0.9440 | 1.0000 | 0.9440 | 0.9440 | 0.9440 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 16 | 62 | 0 | 95 | 66 | 141 |
| Total Analysis Volume [veh/h] | 65 | 249 | 0 | 378 | 263 | 566 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.19 | 0.31 | 0.00 | 0.00 | 0.00 | 0.01 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 17.75 | 11.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.68 | 1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 16.95 | 33.62 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 12.87 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.66 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Wood Avenue (SR 2017) & N. 13th Street (SR 2019)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 60.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.660 |

**Intersection Setup**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 12.00 | 11.00 | 12.00 | 15.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 20.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 105.00 | 100.00 | 285.00 | 115.00 | 100.00 | 100.00 | 100.00 | 100.00 | 75.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.09 | | | 0.10 | | | -0.05 | | | -0.02 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 153 | 154 | 17 | 74 | 171 | 479 | 459 | 195 | 148 | 6 | 231 | 57 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.00 | 5.00 | 13.00 | 7.00 | 2.00 | 5.00 | 2.00 | 2.00 | 3.00 | 0.00 | 1.00 | 14.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 206 | 0 | 0 | 71 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 153 | 154 | 16 | 74 | 171 | 273 | 459 | 195 | 77 | 6 | 231 | 57 |
| Peak Hour Factor | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 40 | 40 | 4 | 19 | 44 | 71 | 119 | 50 | 20 | 2 | 60 | 15 |
| Total Analysis Volume [veh/h] | 158 | 159 | 17 | 77 | 177 | 283 | 475 | 202 | 80 | 6 | 239 | 59 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 7 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 21 | 49 | 0 | 10 | 22 | 0 |
| Amber [s] | 4.5 | 4.5 | 0.0 | 4.5 | 4.5 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 19 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 3.5 | 3.5 | 0.0 | 3.5 | 3.5 | 0.0 | 2.5 | 2.5 | 0.0 | 4.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | | No | |
| Maximum Recall | No | Yes | | No | Yes | | No | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | C | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 | 77 |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 | 0.00 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 10 | 17 | 7 | 13 | 13 | 37 | 37 | 37 | 12 | 12 |
| g / C, Green / Cycle | 0.13 | 0.21 | 0.09 | 0.17 | 0.17 | 0.48 | 0.48 | 0.48 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.10 | 0.06 | 0.13 | 0.24 | 0.33 | 0.11 | 0.05 | 0.09 | 0.10 |
| s, saturation flow rate [veh/h] | 1659 | 1699 | 1265 | 1399 | 1199 | 1454 | 1771 | 1493 | 1636 | 1581 |
| c, Capacity [veh/h] | 224 | 364 | 112 | 235 | 201 | 748 | 845 | 713 | 295 | 238 |
| d1, Uniform Delay [s] | 32.01 | 26.65 | 34.25 | 30.70 | 32.22 | 15.98 | 11.94 | 11.17 | 30.56 | 30.88 |
| k, delay calibration | 0.11 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.01 | 4.52 | 7.26 | 19.89 | 209.73 | 0.90 | 0.14 | 0.07 | 1.42 | 2.77 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.70 | 0.48 | 0.69 | 0.75 | 1.41 | 0.63 | 0.24 | 0.11 | 0.52 | 0.63 |
| d, Delay for Lane Group [s/veh] | 36.01 | 31.17 | 41.52 | 50.59 | 241.95 | 25.68 | 12.08 | 11.24 | 31.97 | 33.65 |
| Lane Group LOS | D | C | D | D | F | C | B | B | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 2.95 | 3.16 | 1.58 | 4.29 | 15.30 | 5.74 | 1.89 | 0.70 | 2.65 | 2.71 |
| 50th-Percentile Queue Length [ft/ln] | 73.85 | 79.05 | 39.45 | 107.28 | 382.47 | 143.54 | 47.15 | 17.51 | 66.30 | 67.72 |
| 95th-Percentile Queue Length [veh/ln] | 5.32 | 5.69 | 2.84 | 7.69 | 24.90 | 9.67 | 3.39 | 1.26 | 4.77 | 4.88 |
| 95th-Percentile Queue Length [ft/ln] | 132.94 | 142.29 | 71.01 | 192.22 | 622.61 | 241.79 | 84.87 | 31.51 | 119.34 | 121.89 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.01 | 31.17 | 31.17 | 41.52 | 50.59 | 241.95 | 25.68 | 12.08 | 11.24 | 31.97 | 32.62 | 33.65 |
| Movement LOS | D | C | C | D | D | F | C | B | B | C | C | C |
| d_A, Approach Delay [s/veh] | 33.46 | | | 150.14 | | | 20.52 | | | 32.80 | | |
| Approach LOS | C | | | F | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 60.72 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.660 | | | | | | | | | | | |

**Emissions**

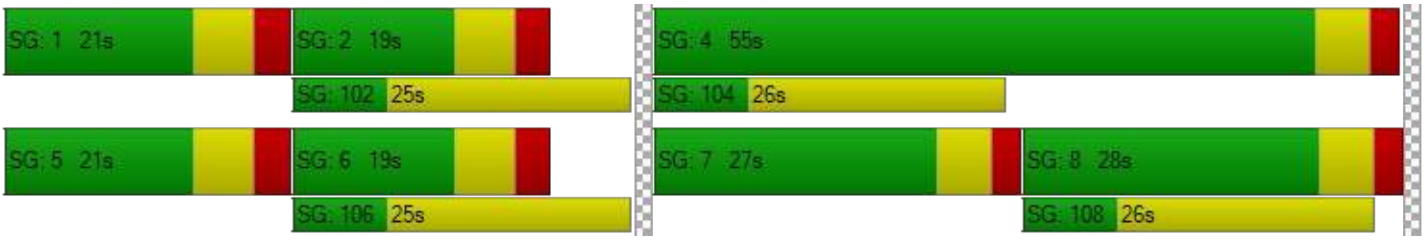
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 8.92 | 9.94 | 8.11 | 18.63 | 29.79 | 16.17 | 6.88 | 2.72 | 15.17 | 14.95 |
| Stops [stops/h] | 137.42 | 147.09 | 73.41 | 199.63 | 711.69 | 267.10 | 87.73 | 32.57 | 123.37 | 126.01 |
| Fuel consumption [US gal/h] | 2.53 | 2.60 | 1.51 | 4.03 | 20.42 | 5.11 | 1.42 | 0.53 | 2.50 | 2.55 |
| CO [g/h] | 176.95 | 181.86 | 105.66 | 281.94 | 1427.34 | 356.97 | 99.16 | 37.18 | 174.92 | 178.28 |
| NOx [g/h] | 34.43 | 35.38 | 20.56 | 54.86 | 277.71 | 69.45 | 19.29 | 7.23 | 34.03 | 34.69 |
| VOC [g/h] | 41.01 | 42.15 | 24.49 | 65.34 | 330.80 | 82.73 | 22.98 | 8.62 | 40.54 | 41.32 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.48 | 28.48 | 28.48 | 28.48 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.195 | 2.900 | 2.746 | 2.219 |
| Crosswalk LOS | B | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 310 | 310 | 1266 | 569 |
| d_b, Bicycle Delay [s] | 27.62 | 27.62 | 5.21 | 19.82 |
| l_b,int, Bicycle LOS Score for Intersection | 2.112 | 2.786 | 2.926 | 1.810 |
| Bicycle LOS | B | C | C | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 6: S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.637 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 | 12.00 | 13.00 | 12.00 | 14.00 | 11.00 | 13.00 | 23.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 300.00 | 100.00 | 420.00 | 265.00 | 100.00 | 280.00 | 100.00 | 100.00 | 100.00 | 400.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 350.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 40.00 | | | 35.00 | | |
| Grade [%] | -0.06 | | | 0.05 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 77 | 556 | 215 | 21 | 429 | 207 | 138 | 180 | 318 | 125 | 30 | 34 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 3.00 | 5.00 | 0.00 | 1.00 | 1.00 | 0.00 | 2.00 | 3.00 | 2.00 | 0.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 125 | 0 | 0 | 83 | 0 | 0 | 218 | 0 | 0 | 23 |
| Total Hourly Volume [veh/h] | 77 | 556 | 90 | 21 | 429 | 124 | 138 | 180 | 100 | 125 | 30 | 11 |
| Peak Hour Factor | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 143 | 23 | 5 | 110 | 32 | 35 | 46 | 26 | 32 | 8 | 3 |
| Total Analysis Volume [veh/h] | 79 | 572 | 93 | 22 | 441 | 128 | 142 | 185 | 103 | 129 | 31 | 11 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 95.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 5 | 42 | 0 | 5 | 42 | 0 | 0 | 23 | 0 | 10 | 39 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 6 | 0 | 0 | 6 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 50.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 35.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 11 | 48 | 0 | 11 | 48 | 0 | 0 | 29 | 0 | 16 | 45 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 3 | 3 | 0 | 3 | 3 | 0 | 0 | 3 | 0 | 3 | 3 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | | No | | No | No | |
| Maximum Recall | No | Yes | | No | Yes | | | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 |
| g_i, Effective Green Time [s] | 6 | 46 | 46 | 3 | 43 | 43 | 26 | 26 | 40 | 40 |
| g / C, Green / Cycle | 0.06 | 0.44 | 0.44 | 0.03 | 0.41 | 0.41 | 0.25 | 0.25 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.33 | 0.06 | 0.01 | 0.28 | 0.09 | 0.24 | 0.07 | 0.10 | 0.02 |
| s, saturation flow rate [veh/h] | 1672 | 1756 | 1469 | 1540 | 1603 | 1363 | 1362 | 1554 | 1252 | 1777 |
| c, Capacity [veh/h] | 96 | 781 | 653 | 43 | 665 | 565 | 390 | 389 | 327 | 681 |
| d1, Uniform Delay [s] | 48.46 | 23.78 | 17.12 | 49.86 | 24.57 | 19.65 | 40.12 | 31.31 | 25.56 | 20.26 |
| k, delay calibration | 0.27 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.44 | 0.11 | 0.42 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 32.20 | 6.01 | 0.46 | 9.22 | 5.15 | 0.93 | 16.89 | 0.36 | 2.95 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.82 | 0.73 | 0.14 | 0.51 | 0.66 | 0.23 | 0.84 | 0.26 | 0.39 | 0.06 |
| d, Delay for Lane Group [s/veh] | 80.66 | 29.80 | 17.58 | 59.09 | 29.72 | 20.58 | 57.01 | 31.67 | 28.51 | 20.29 |
| Lane Group LOS | F | C | B | E | C | C | E | C | C | C |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.86 | 12.28 | 1.37 | 0.67 | 9.35 | 2.10 | 9.79 | 2.06 | 2.36 | 0.64 |
| 50th-Percentile Queue Length [ft/ln] | 71.55 | 307.11 | 34.20 | 16.68 | 233.82 | 52.42 | 244.66 | 51.45 | 59.01 | 15.98 |
| 95th-Percentile Queue Length [veh/ln] | 5.15 | 18.03 | 2.46 | 1.20 | 14.37 | 3.77 | 14.92 | 3.70 | 4.25 | 1.15 |
| 95th-Percentile Queue Length [ft/ln] | 128.80 | 450.81 | 61.56 | 30.02 | 359.21 | 94.36 | 372.92 | 92.61 | 106.21 | 28.76 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 80.66 | 29.80 | 17.58 | 59.09 | 29.72 | 20.58 | 57.01 | 57.01 | 31.67 | 28.51 | 20.29 | 20.29 |
| Movement LOS | F | C | B | E | C | C | E | E | C | C | C | C |
| d_A, Approach Delay [s/veh] | 33.67 | | | 28.83 | | | 50.94 | | | 26.49 | | |
| Approach LOS | C | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 35.39 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.637 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 7.57 | 54.79 | 8.91 | 3.03 | 60.82 | 17.65 | 24.27 | 7.65 | 18.29 | 5.95 |
| Stops [stops/h] | 99.07 | 425.22 | 47.35 | 23.09 | 323.76 | 72.58 | 338.75 | 71.24 | 81.70 | 22.12 |
| Fuel consumption [US gal/h] | 2.33 | 8.75 | 1.03 | 0.55 | 7.42 | 1.75 | 7.99 | 1.64 | 2.06 | 0.57 |
| CO [g/h] | 162.87 | 611.93 | 71.88 | 38.71 | 518.69 | 122.67 | 558.53 | 114.46 | 143.98 | 39.62 |
| NOx [g/h] | 31.69 | 119.06 | 13.98 | 7.53 | 100.92 | 23.87 | 108.67 | 22.27 | 28.01 | 7.71 |
| VOC [g/h] | 37.75 | 141.82 | 16.66 | 8.97 | 120.21 | 28.43 | 129.44 | 26.53 | 33.37 | 9.18 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 10.0 | 10.0 | 8.0 | 8.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 42.48 | 42.48 | 44.31 | 44.31 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.893 | 2.954 | 2.656 | 2.272 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 808 | 808 | 442 | 750 |
| d_b, Bicycle Delay [s] | 18.48 | 18.48 | 31.54 | 20.31 |
| l_b,int, Bicycle LOS Score for Intersection | 2.993 | 2.672 | 2.629 | 1.880 |
| Bicycle LOS | C | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 7: Northampton Street (SR 0248) & Wood Avenue (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 17.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.441 |

**Intersection Setup**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 17.00 | 12.00 | 22.00 | 10.00 | 10.00 | 10.00 | 11.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.01 | | | -0.03 | | | -0.05 | | | 0.06 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | No | | | Yes | | |

**Volumes**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 37 | 133 | 231 | 16 | 73 | 78 | 58 | 299 | 31 | 80 | 395 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 5.00 | 4.00 | 0.00 | 3.00 | 12.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 8.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 137 | 0 | 0 | 26 | 0 | 0 | 5 | 0 | 0 | 2 |
| Total Hourly Volume [veh/h] | 37 | 133 | 94 | 16 | 73 | 52 | 58 | 299 | 26 | 80 | 395 | 13 |
| Peak Hour Factor | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 10 | 35 | 24 | 4 | 19 | 14 | 15 | 78 | 7 | 21 | 103 | 3 |
| Total Analysis Volume [veh/h] | 39 | 138 | 98 | 17 | 76 | 54 | 60 | 311 | 27 | 83 | 411 | 14 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 66.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 38 | 0 | 0 | 38 | 0 | 0 | 50 | 0 | 0 | 50 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 12 | 0 | 0 | 12 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 44 | 0 | 0 | 44 | 0 | 0 | 56 | 0 | 0 | 56 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | Yes | | | Yes | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 20 | 20 | 70 | 70 | 70 | 70 |
| g / C, Green / Cycle | 0.20 | 0.20 | 0.70 | 0.70 | 0.70 | 0.70 |
| (v / s)_i Volume / Saturation Flow Rate | 0.17 | 0.09 | 0.06 | 0.19 | 0.09 | 0.27 |
| s, saturation flow rate [veh/h] | 1619 | 1595 | 977 | 1760 | 928 | 1568 |
| c, Capacity [veh/h] | 370 | 364 | 611 | 1226 | 623 | 1093 |
| d1, Uniform Delay [s] | 38.07 | 34.85 | 10.69 | 5.69 | 9.07 | 6.31 |
| k, delay calibration | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.97 | 0.72 | 0.32 | 0.56 | 0.44 | 1.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.74 | 0.40 | 0.10 | 0.28 | 0.13 | 0.39 |
| d, Delay for Lane Group [s/veh] | 41.04 | 35.57 | 11.01 | 6.25 | 9.51 | 7.35 |
| Lane Group LOS | D | D | B | A | A | A |
| Critical Lane Group | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 6.74 | 3.22 | 0.68 | 2.60 | 0.86 | 3.67 |
| 50th-Percentile Queue Length [ft/ln] | 168.52 | 80.44 | 16.98 | 64.91 | 21.56 | 91.77 |
| 95th-Percentile Queue Length [veh/ln] | 11.00 | 5.79 | 1.22 | 4.67 | 1.55 | 6.61 |
| 95th-Percentile Queue Length [ft/ln] | 274.97 | 144.79 | 30.56 | 116.84 | 38.81 | 165.18 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 41.04 | 41.04 | 41.04 | 35.57 | 35.57 | 35.57 | 11.01 | 6.25 | 6.25 | 9.51 | 7.35 | 7.35 |
| Movement LOS | D | D | D | D | D | D | B | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 41.04 | | | 35.57 | | | 6.97 | | | 7.70 | | |
| Approach LOS | D | | | D | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 17.47 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.441 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 38.98 | 156.75 | 7.08 | 39.91 | 22.44 | 114.92 |
| Stops [stops/h] | 242.67 | 115.83 | 24.45 | 93.47 | 31.04 | 132.15 |
| Fuel consumption [US gal/h] | 4.98 | 8.56 | 0.55 | 2.58 | 1.29 | 6.31 |
| CO [g/h] | 348.13 | 598.16 | 38.22 | 180.55 | 90.10 | 441.12 |
| NOx [g/h] | 67.73 | 116.38 | 7.44 | 35.13 | 17.53 | 85.83 |
| VOC [g/h] | 80.68 | 138.63 | 8.86 | 41.84 | 20.88 | 102.23 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 16.0 | 16.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.28 | 35.28 | 0.00 | 39.61 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.273 | 1.995 | 0.000 | 2.263 |
| Crosswalk LOS | B | A | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 760 | 760 | 1000 | 1000 |
| d_b, Bicycle Delay [s] | 19.22 | 19.22 | 12.50 | 12.50 |
| l_b,int, Bicycle LOS Score for Intersection | 2.239 | 1.845 | 2.225 | 2.401 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 8: Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.475 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 13.00 | 12.00 | 20.00 | 12.00 | 12.00 | 11.00 | 13.00 | 12.00 | 12.00 | 13.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 40.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.02 | | | -0.02 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 69 | 644 | 8 | 282 | 549 | 36 | 0 | 113 | 94 | 0 | 153 | 356 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 3.00 | 0.00 | 0.00 | 1.00 | 5.00 | 2.00 | 2.00 | 3.00 | 2.00 | 4.00 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 23 | 0 | 0 | 85 |
| Total Hourly Volume [veh/h] | 69 | 644 | 8 | 282 | 549 | 22 | 0 | 113 | 71 | 0 | 153 | 271 |
| Peak Hour Factor | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 1.0000 | 0.9800 | 0.9800 | 1.0000 | 0.9800 | 0.9800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 164 | 2 | 72 | 140 | 6 | 0 | 29 | 18 | 0 | 39 | 69 |
| Total Analysis Volume [veh/h] | 70 | 657 | 8 | 288 | 560 | 22 | 0 | 115 | 72 | 0 | 156 | 277 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 2.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Overlap | Permiss | Permiss | Overlap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 5 | 0 | 8 | 1 |
| Auxiliary Signal Groups | | | | | | | | | 4,5 | | | 1,8 |
| Maximum Green [s] | 16 | 31 | 0 | 16 | 31 | 0 | 0 | 35 | 16 | 0 | 35 | 16 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Walk [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 40.0 | 40.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 22 | 37 | 0 | 22 | 37 | 0 | 0 | 41 | 22 | 0 | 41 | 22 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 3 | 3 | 0 | 3 | 3 | 0 | 0 | 7 | 3 | 0 | 7 | 3 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 |
| Minimum Recall | No | No | | No | No | | | No | No | | No | No |
| Maximum Recall | No | Yes | | No | Yes | | | No | No | | No | No |
| Pedestrian Recall | No | No | | No | No | | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | R | C | R |
|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| g_i, Effective Green Time [s] | 72 | 50 | 50 | 72 | 60 | 18 | 30 | 18 | 40 |
| g / C, Green / Cycle | 0.72 | 0.50 | 0.50 | 0.72 | 0.60 | 0.18 | 0.30 | 0.18 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.19 | 0.19 | 0.28 | 0.32 | 0.06 | 0.05 | 0.09 | 0.18 |
| s, saturation flow rate [veh/h] | 931 | 1758 | 1750 | 1031 | 1845 | 1772 | 1554 | 1744 | 1579 |
| c, Capacity [veh/h] | 623 | 883 | 879 | 761 | 1114 | 322 | 444 | 317 | 612 |
| d1, Uniform Delay [s] | 6.49 | 15.29 | 15.29 | 6.26 | 11.45 | 35.80 | 26.73 | 36.76 | 22.73 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.48 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.37 | 1.23 | 1.24 | 1.43 | 1.75 | 0.67 | 0.17 | 1.18 | 2.31 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.11 | 0.38 | 0.38 | 0.38 | 0.52 | 0.36 | 0.16 | 0.49 | 0.45 |
| d, Delay for Lane Group [s/veh] | 6.86 | 16.52 | 16.53 | 7.69 | 13.20 | 36.46 | 26.90 | 37.94 | 25.04 |
| Lane Group LOS | A | B | B | A | B | D | C | D | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.43 | 4.71 | 4.69 | 1.95 | 7.04 | 2.47 | 1.28 | 3.47 | 5.06 |
| 50th-Percentile Queue Length [ft/ln] | 10.69 | 117.67 | 117.25 | 48.76 | 176.07 | 61.84 | 32.12 | 86.66 | 126.53 |
| 95th-Percentile Queue Length [veh/ln] | 0.77 | 8.27 | 8.24 | 3.51 | 11.39 | 4.45 | 2.31 | 6.24 | 8.75 |
| 95th-Percentile Queue Length [ft/ln] | 19.24 | 206.63 | 206.03 | 87.77 | 284.87 | 111.31 | 57.81 | 155.99 | 218.77 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 6.86 | 16.52 | 16.53 | 7.69 | 13.20 | 13.20 | 0.00 | 36.46 | 26.90 | 0.00 | 37.94 | 25.04 |
| Movement LOS | A | B | B | A | B | B | | D | C | | D | C |
| d_A, Approach Delay [s/veh] | 15.60 | | | 11.38 | | | 32.78 | | | 29.69 | | |
| Approach LOS | B | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 18.14 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.475 | | | | | | | | | | | |

**Emissions**

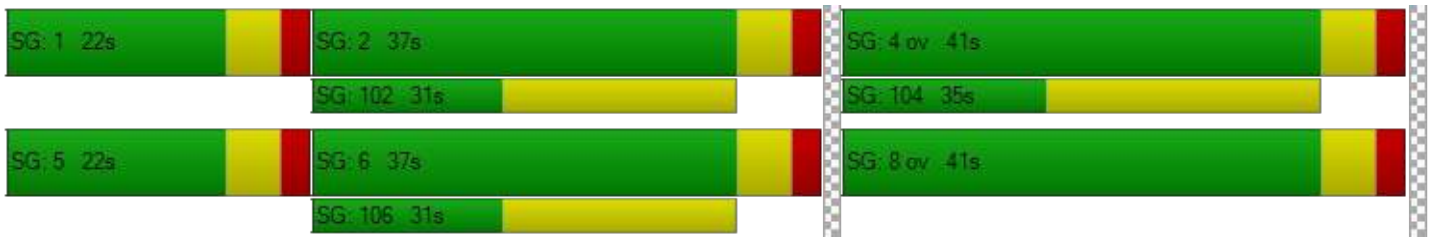
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.65 | 45.95 | 45.77 | 23.38 | 47.25 | 8.07 | 5.05 | 18.42 | 32.71 |
| Stops [stops/h] | 15.39 | 169.45 | 168.83 | 70.21 | 253.53 | 89.04 | 46.25 | 124.80 | 182.20 |
| Fuel consumption [US gal/h] | 0.58 | 4.15 | 4.13 | 1.98 | 5.75 | 1.83 | 0.93 | 2.85 | 4.03 |
| CO [g/h] | 40.65 | 289.80 | 288.71 | 138.27 | 401.69 | 127.95 | 65.32 | 198.87 | 281.58 |
| NOx [g/h] | 7.91 | 56.38 | 56.17 | 26.90 | 78.15 | 24.89 | 12.71 | 38.69 | 54.79 |
| VOC [g/h] | 9.42 | 67.16 | 66.91 | 32.05 | 93.10 | 29.65 | 15.14 | 46.09 | 65.26 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 19.0 | 0.0 | 18.0 | 18.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.81 | 0.00 | 33.62 | 33.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.484 | 0.000 | 2.213 | 2.730 |
| Crosswalk LOS | B | F | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 620 | 620 | 700 | 700 |
| d_b, Bicycle Delay [s] | 23.81 | 23.81 | 21.13 | 21.13 |
| l_b,int, Bicycle LOS Score for Intersection | 2.166 | 3.018 | 1.906 | 2.414 |
| Bicycle LOS | B | C | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 9: Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 33.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.805 |

**Intersection Setup**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 13.00 | 13.00 | 12.00 | 12.00 | 12.00 | 18.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 25.00 | | | 35.00 | | |
| Grade [%] | 0.04 | | | -0.04 | | | -0.01 | | | 0.01 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | No | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 594 | 405 | 55 | 645 | 39 | 79 | 69 | 6 | 218 | 176 | 250 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 4.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 134 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 108 |
| Total Hourly Volume [veh/h] | 0 | 594 | 271 | 55 | 645 | 37 | 79 | 69 | 5 | 218 | 176 | 142 |
| Peak Hour Factor | 1.0000 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 155 | 71 | 14 | 168 | 10 | 21 | 18 | 1 | 57 | 46 | 37 |
| Total Analysis Volume [veh/h] | 0 | 620 | 283 | 57 | 673 | 39 | 82 | 72 | 5 | 228 | 184 | 148 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 99.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 39 | 0 | 7 | 52 | 0 | 0 | 36 | 0 | 0 | 36 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 165.0 | 165.0 | 0.0 | 0.0 | -5.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 6.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 45 | 0 | 15 | 58 | 0 | 0 | 42 | 0 | 0 | 42 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | Yes | No | | | No | | | No | |
| Maximum Recall | | Yes | | No | Yes | | | No | | | No | |
| Pedestrian Recall | | No | | No | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | C | C | C | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 102 | 102 | 102 | 102 | 102 | 102 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 2.50 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 40 | 40 | 53 | 53 | 39 | 39 |
| g / C, Green / Cycle | 0.39 | 0.39 | 0.52 | 0.52 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.28 | 0.31 | 0.33 | 0.25 | 0.15 | 0.38 |
| s, saturation flow rate [veh/h] | 1641 | 1477 | 1113 | 1597 | 1074 | 1484 |
| c, Capacity [veh/h] | 643 | 579 | 512 | 832 | 463 | 615 |
| d1, Uniform Delay [s] | 26.00 | 27.14 | 17.16 | 15.66 | 22.24 | 31.81 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.47 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 6.29 | 9.97 | 8.30 | 2.02 | 0.44 | 18.97 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.70 | 0.78 | 0.72 | 0.48 | 0.34 | 0.91 |
| d, Delay for Lane Group [s/veh] | 32.28 | 37.11 | 25.46 | 17.68 | 22.67 | 50.78 |
| Lane Group LOS | C | D | C | B | C | D |
| Critical Lane Group | No | Yes | Yes | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 9.77 | 10.63 | 6.04 | 6.00 | 2.78 | 16.26 |
| 50th-Percentile Queue Length [ft/ln] | 244.31 | 265.81 | 150.94 | 149.90 | 69.43 | 406.43 |
| 95th-Percentile Queue Length [veh/ln] | 14.90 | 15.98 | 10.07 | 10.01 | 5.00 | 22.87 |
| 95th-Percentile Queue Length [ft/ln] | 372.48 | 399.50 | 251.68 | 250.29 | 124.98 | 571.74 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 33.59 | 37.11 | 25.46 | 21.25 | 17.68 | 22.67 | 22.67 | 22.67 | 50.78 | 50.78 | 50.78 |
| Movement LOS | | C | D | C | C | B | C | C | C | D | D | D |
| d_A, Approach Delay [s/veh] | 34.69 | | | 21.38 | | | 22.67 | | | 50.78 | | |
| Approach LOS | C | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 33.38 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.805 | | | | | | | | | | | |

**Emissions**

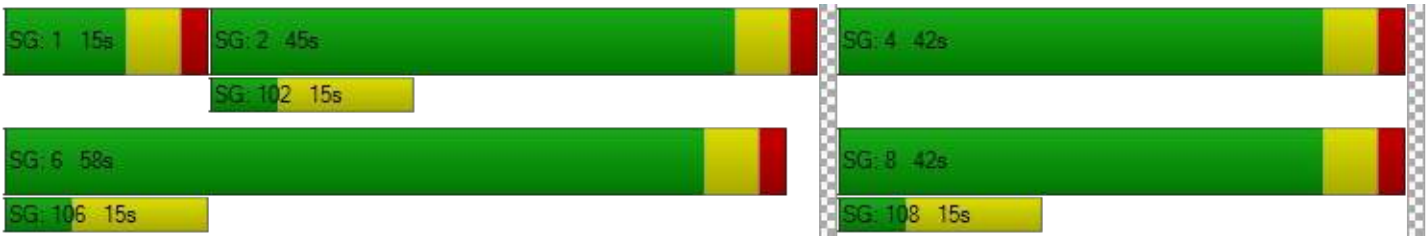
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 36.65 | 36.65 | 26.79 | 29.52 | 6.74 | 38.60 |
| Stops [stops/h] | 344.90 | 375.26 | 213.09 | 211.62 | 98.02 | 573.78 |
| Fuel consumption [US gal/h] | 7.67 | 8.41 | 4.95 | 4.59 | 1.41 | 11.57 |
| CO [g/h] | 535.93 | 587.76 | 345.94 | 320.60 | 98.76 | 808.95 |
| NOx [g/h] | 104.27 | 114.36 | 67.31 | 62.38 | 19.22 | 157.39 |
| VOC [g/h] | 124.21 | 136.22 | 80.18 | 74.30 | 22.89 | 187.48 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 9.0 | 9.0 | 9.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 0.00 | 42.40 | 42.40 | 42.40 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 0.000 | 2.820 | 1.880 | 2.783 | |
| Crosswalk LOS | F | C | A | C | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 765 | 1020 | 706 | 706 | |
| d_b, Bicycle Delay [s] | 19.46 | 12.25 | 21.35 | 21.35 | |
| l_b,int, Bicycle LOS Score for Intersection | 2.415 | 2.196 | 1.824 | 2.662 | |
| Bicycle LOS | B | B | A | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 10: Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.514 |

**Intersection Setup**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 11.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 11.00 | 11.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 120.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 25.00 | | | 40.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 256 | 32 | 163 | 270 | 26 | 32 | 10 | 3 | 76 | 24 | 236 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 6.00 | 0.00 | 1.00 | 3.00 | 0.00 | 3.00 | 0.00 | 0.00 | 1.00 | 13.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Total Hourly Volume [veh/h] | 0 | 256 | 28 | 163 | 270 | 26 | 32 | 10 | 3 | 76 | 24 | 228 |
| Peak Hour Factor | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 70 | 8 | 44 | 73 | 7 | 9 | 3 | 1 | 21 | 7 | 62 |
| Total Analysis Volume [veh/h] | 0 | 279 | 30 | 177 | 294 | 28 | 35 | 11 | 3 | 83 | 26 | 248 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 38 | 0 | 0 | 38 | 0 | 0 | 13 | 0 | 0 | 13 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 9 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 |
| Detector Location [ft] | 0.0 | 210.0 | 0.0 | 0.0 | 210.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 6.0 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 30 | 30 | 30 | 30 | 30 | 30 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |
| g_i, Effective Green Time [s] | 12 | 12 | 9 | 9 | 9 | 9 |
| g / C, Green / Cycle | 0.41 | 0.41 | 0.32 | 0.32 | 0.32 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.18 | 0.32 | 0.03 | 0.01 | 0.06 | 0.20 |
| s, saturation flow rate [veh/h] | 1727 | 1571 | 1096 | 1734 | 1411 | 1393 |
| c, Capacity [veh/h] | 830 | 809 | 316 | 555 | 569 | 446 |
| d1, Uniform Delay [s] | 6.26 | 7.26 | 13.35 | 6.92 | 9.31 | 8.55 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.28 | 0.77 | 0.15 | 0.02 | 0.12 | 1.38 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.37 | 0.62 | 0.11 | 0.03 | 0.15 | 0.61 |
| d, Delay for Lane Group [s/veh] | 6.54 | 8.03 | 13.51 | 6.94 | 9.43 | 9.93 |
| Lane Group LOS | A | A | B | A | A | A |
| Critical Lane Group | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.72 | 1.40 | 0.19 | 0.04 | 0.28 | 0.94 |
| 50th-Percentile Queue Length [ft/ln] | 17.99 | 34.92 | 4.87 | 1.10 | 7.02 | 23.43 |
| 95th-Percentile Queue Length [veh/ln] | 1.29 | 2.51 | 0.35 | 0.08 | 0.51 | 1.69 |
| 95th-Percentile Queue Length [ft/ln] | 32.37 | 62.86 | 8.76 | 1.98 | 12.64 | 42.18 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 6.54 | 6.54 | 6.54 | 8.03 | 8.03 | 8.03 | 13.51 | 6.94 | 6.94 | 9.43 | 9.93 | 9.93 |
| Movement LOS | A | A | A | A | A | A | B | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 6.54 | | | 8.03 | | | 11.63 | | | 9.81 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 8.32 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.514 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 46.92 | 72.25 | 3.78 | 1.51 | 71.96 | 237.57 |
| Stops [stops/h] | 87.52 | 169.95 | 23.69 | 5.36 | 34.16 | 114.02 |
| Fuel consumption [US gal/h] | 2.86 | 4.85 | 0.36 | 0.11 | 3.07 | 10.18 |
| CO [g/h] | 199.77 | 338.87 | 24.96 | 7.57 | 214.78 | 711.83 |
| NOx [g/h] | 38.87 | 65.93 | 4.86 | 1.47 | 41.79 | 138.50 |
| VOC [g/h] | 46.30 | 78.54 | 5.78 | 1.76 | 49.78 | 164.97 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 5.84 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.161 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2568 | 2568 | 879 | 879 |
| d_b, Bicycle Delay [s] | 1.19 | 1.19 | 4.65 | 4.65 |
| l_b,int, Bicycle LOS Score for Intersection | 2.076 | 2.383 | 1.640 | 2.162 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 11: Wood Avenue (SR 2017) & US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.133 |

**Intersection Setup**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 50.00 | 0.00 |
| Speed [mph] | 30.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | -0.03 | | 0.03 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 77 | 803 | 782 | 96 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 3.00 | 2.00 | 2.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 77 | 803 | 782 | 96 |
| Peak Hour Factor | 1.0000 | 1.0000 | 0.9430 | 0.9430 | 0.9430 | 0.9430 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 20 | 213 | 207 | 25 |
| Total Analysis Volume [veh/h] | 0 | 0 | 82 | 852 | 829 | 102 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.13 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 10.93 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.14 | 0.05 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 3.58 | 1.19 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.96 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.48 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 12: Wood Avenue (SR 2017) & US 22 East Off-Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 17.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.647 |

**Intersection Setup**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Thru | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | -0.04 | | -0.03 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 462 | 418 | 0 | 0 | 782 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 462 | 418 | 0 | 0 | 782 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 128 | 116 | 0 | 0 | 217 |
| Total Analysis Volume [veh/h] | 0 | 513 | 464 | 0 | 0 | 869 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.65 | 0.00 | 0.00 | 0.00 | 0.01 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 17.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | A | | | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 4.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 120.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 17.45 | | 0.00 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.85 | | | | | |
| Intersection LOS | C | | | | | |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 4 2023 EX PM

Report File: C:\...\2023 Existing PM.pdf
6/17/2024

## Turning Movement Volume: Summary

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | 151 | 62 | 98 | 204 | 246 | 233 | 994 |

| ID | Intersection Name | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | 61 | 235 | 357 | 248 | 534 | 1435 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | 153 | 154 | 17 | 74 | 171 | 479 | 459 | 195 | 148 | 6 | 231 | 57 | 2144 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | 77 | 556 | 215 | 21 | 429 | 207 | 138 | 180 | 318 | 125 | 30 | 34 | 2330 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | 37 | 133 | 231 | 16 | 73 | 78 | 58 | 299 | 31 | 80 | 395 | 15 | 1446 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012) /Nazareth Road (SR 0248) | 69 | 644 | 8 | 282 | 549 | 36 | 113 | 94 | 153 | 356 | 2304 |

| ID | Intersection Name | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | 594 | 405 | 55 | 645 | 39 | 79 | 69 | 6 | 218 | 176 | 250 | 2536 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | 0 | 256 | 32 | 163 | 270 | 26 | 32 | 10 | 3 | 76 | 24 | 236 | 1128 |

| ID | Intersection Name | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|
| | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | 77 | 803 | 782 | 96 | 1758 |

| ID | Intersection Name | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|
| | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | 462 | 418 | 782 | 1662 |

Proposed Warehouse at 1525 Wood Ave
Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 4 2023 EX PM
Report File: C:\...\2023 Existing PM.pdf
6/17/2024

## Turning Movement Volume: Detail

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Final Base | 151 | 62 | 98 | 204 | 246 | 233 | 994 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **151** | **62** | **98** | **204** | **246** | **233** | **994** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Final Base | 61 | 235 | 357 | 248 | 534 | 1435 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **61** | **235** | **357** | **248** | **534** | **1435** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Final Base | 153 | 154 | 17 | 74 | 171 | 479 | 459 | 195 | 148 | 6 | 231 | 57 | 2144 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **153** | **154** | **17** | **74** | **171** | **479** | **459** | **195** | **148** | **6** | **231** | **57** | **2144** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Final Base | 77 | 556 | 215 | 21 | 429 | 207 | 138 | 180 | 318 | 125 | 30 | 34 | 2330 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **77** | **556** | **215** | **21** | **429** | **207** | **138** | **180** | **318** | **125** | **30** | **34** | **2330** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Final Base | 37 | 133 | 231 | 16 | 73 | 78 | 58 | 299 | 31 | 80 | 395 | 15 | 1446 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **37** | **133** | **231** | **16** | **73** | **78** | **58** | **299** | **31** | **80** | **395** | **15** | **1446** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Final Base | 69 | 644 | 8 | 282 | 549 | 36 | 113 | 94 | 153 | 356 | 2304 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **69** | **644** | **8** | **282** | **549** | **36** | **113** | **94** | **153** | **356** | **2304** |

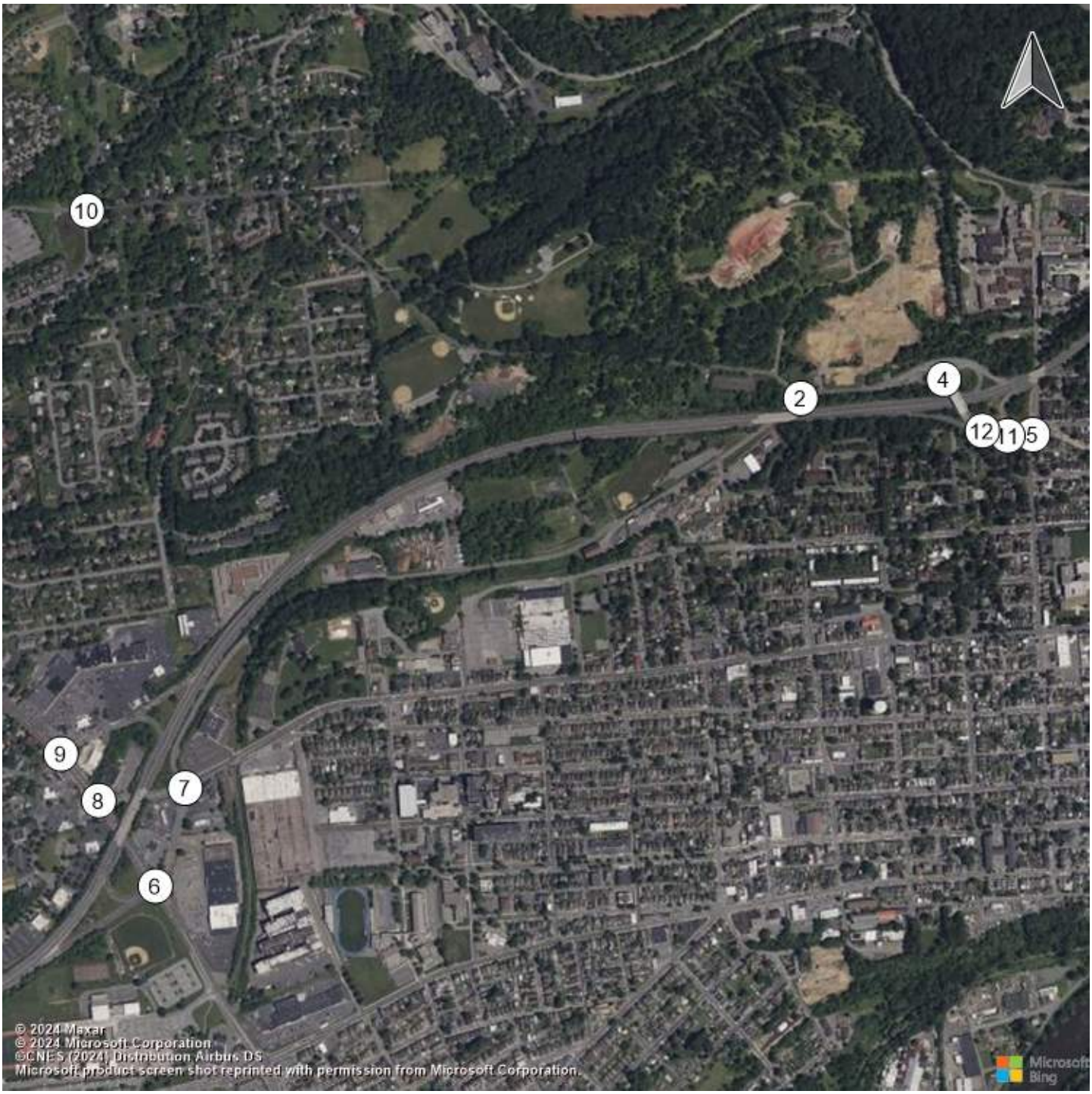
| ID | Intersection Name | Volume Type | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Final Base | 594 | 405 | 55 | 645 | 39 | 79 | 69 | 6 | 218 | 176 | 250 | 2536 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **594** | **405** | **55** | **645** | **39** | **79** | **69** | **6** | **218** | **176** | **250** | **2536** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Final Base | 0 | 256 | 32 | 163 | 270 | 26 | 32 | 10 | 3 | 76 | 24 | 236 | 1128 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **0** | **256** | **32** | **163** | **270** | **26** | **32** | **10** | **3** | **76** | **24** | **236** | **1128** |

| ID | Intersection Name | Volume Type | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Final Base | 77 | 803 | 782 | 96 | 1758 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **77** | **803** | **782** | **96** | **1758** |

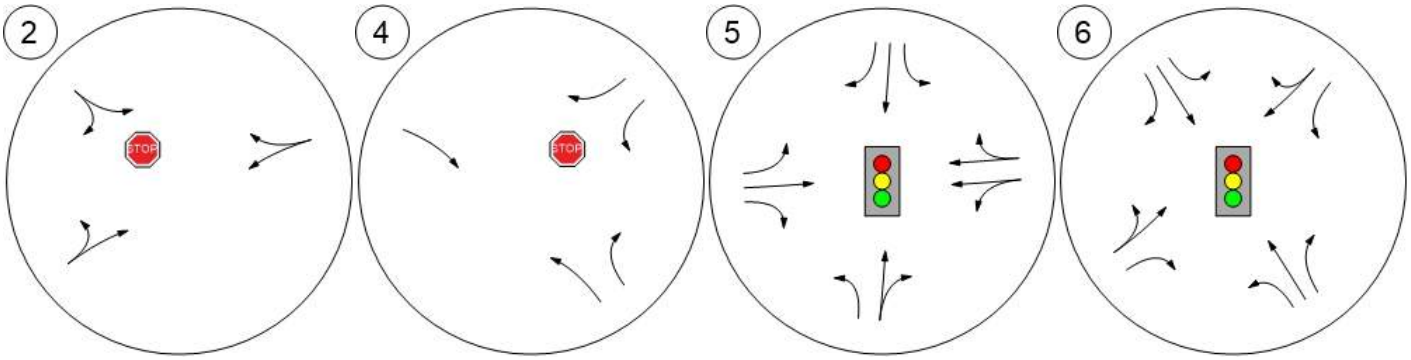
| ID | Intersection Name | Volume Type | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|---|
| | | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Final Base | 462 | 418 | 782 | 1662 |
| | | Growth Factor | 1.00 | 1.00 | 1.00 | - |
| | | In Process | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 |
| | | **Future Total** | **462** | **418** | **782** | **1662** |

Report Figure 1: Study Intersections

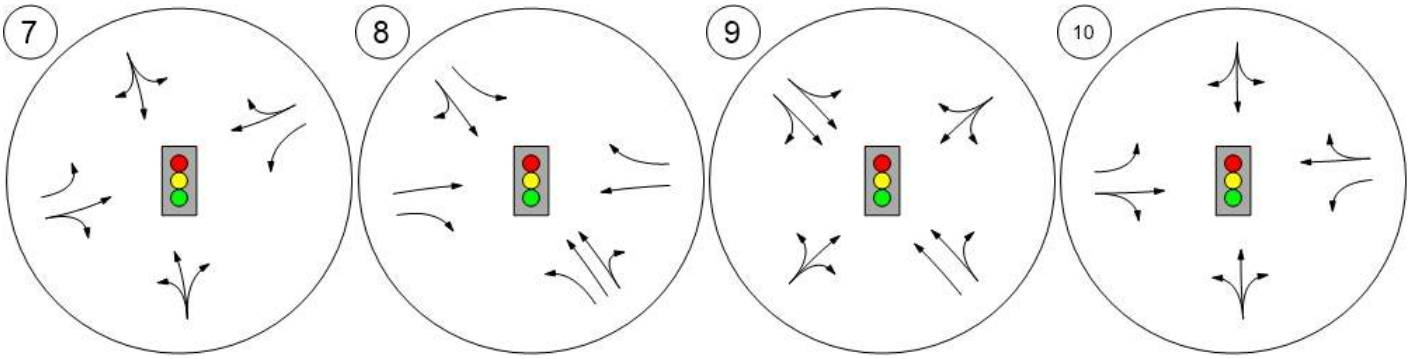


Report Figure 2: Lane Configuration and Traffic Control

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

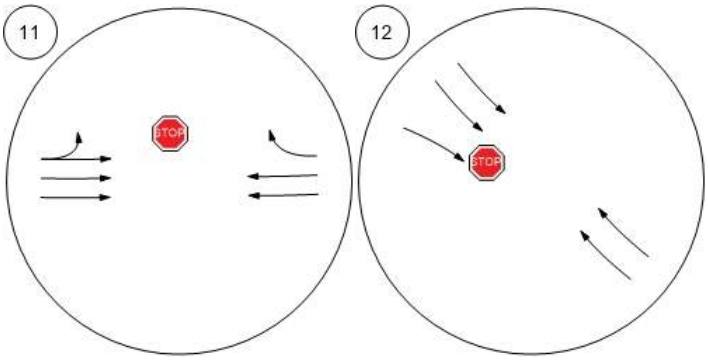



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



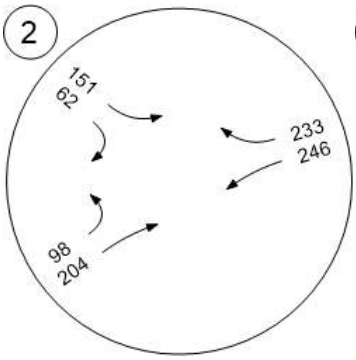
Report Figure 2: Lane Configuration and Traffic Control

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

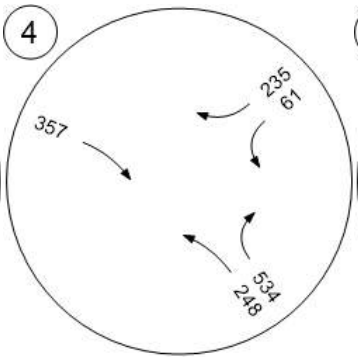


Report Figure 3a: Traffic Volume - Base Volume

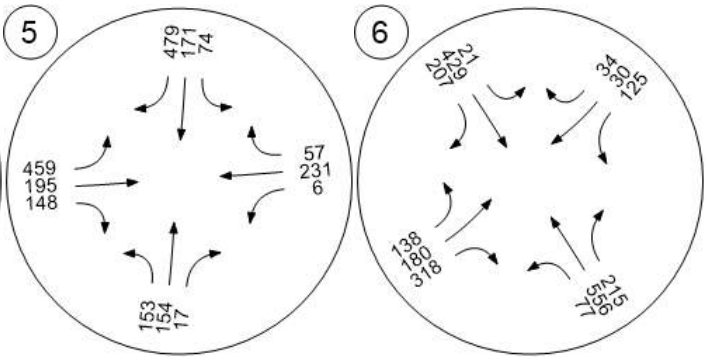
Hackett Avenue (SR 2017) &



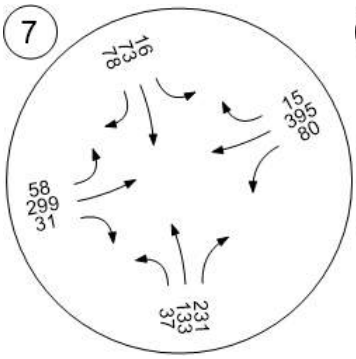

Wood Avenue (SR 2017) & U



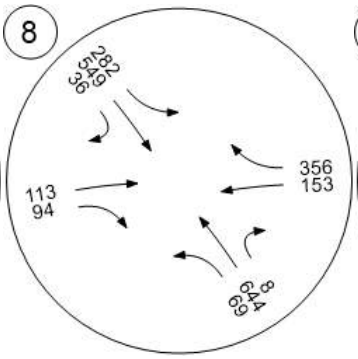

Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W



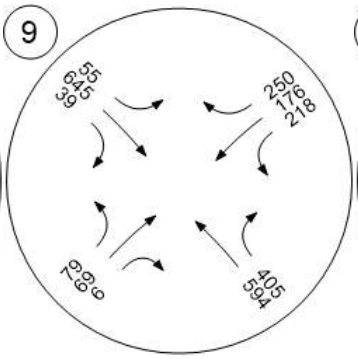

Northampton Street (SR 024



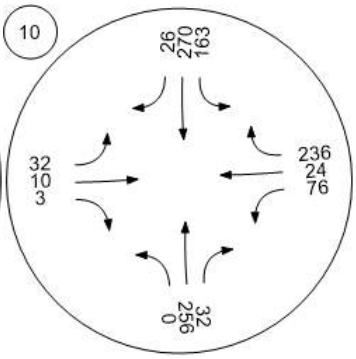

Northampton Street (SR 024




Nazareth Road (SR 0248) &

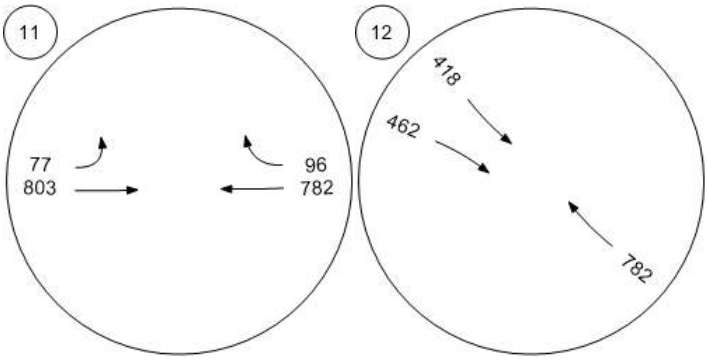



Hackett Avenue (SR 2017) /



Report Figure 3a: Traffic Volume - Base Volume

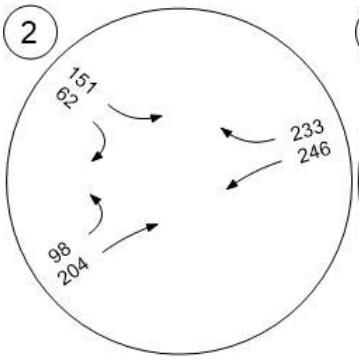
Wood Avenue (SR 2017) & U



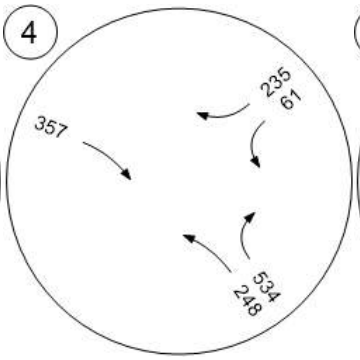

Wood Avenue (SR 2017) & U

Report Figure 3c: Traffic Volume - Future Background Volume

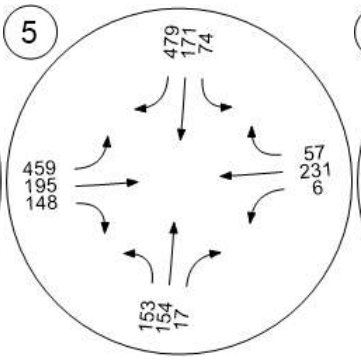
Hackett Avenue (SR 2017) &

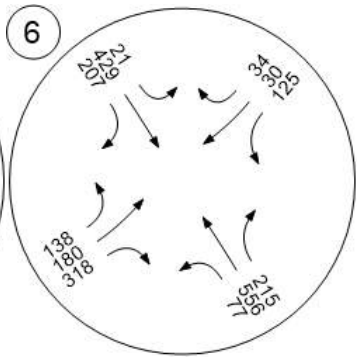



Wood Avenue (SR 2017) & U

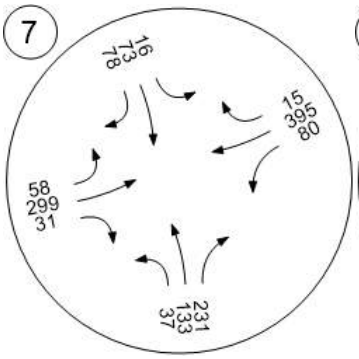



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

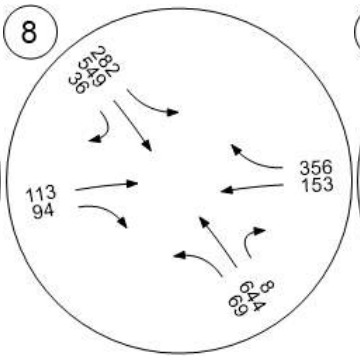


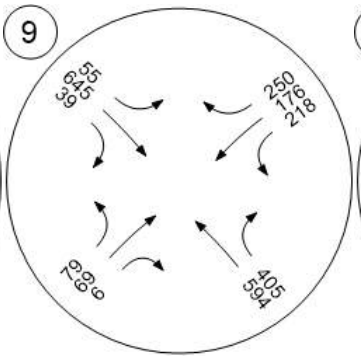

Northampton Street (SR 024



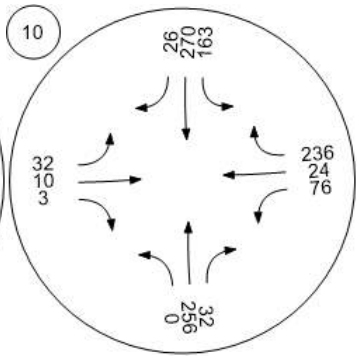

Northampton Street (SR 024




Nazareth Road (SR 0248) &

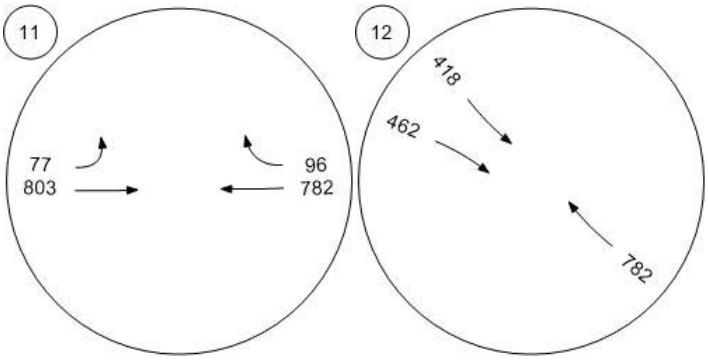



Hackett Avenue (SR 2017) /



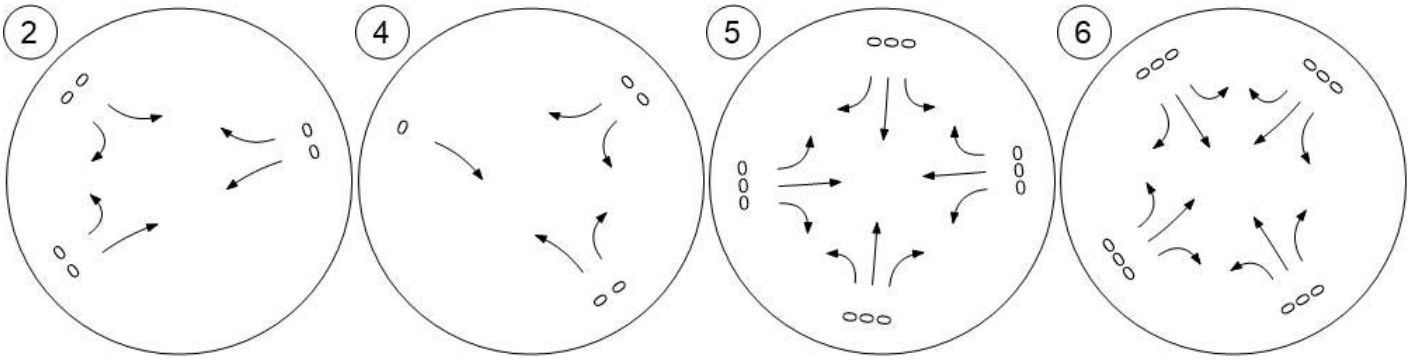
Report Figure 3c: Traffic Volume - Future Background Volume

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

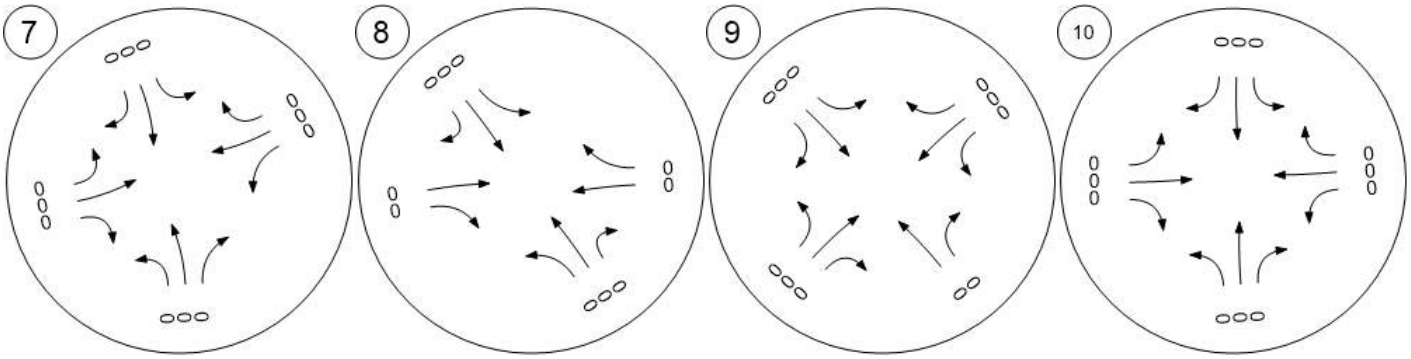


Report Figure 3d: Traffic Volume - Net New Site Trips

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

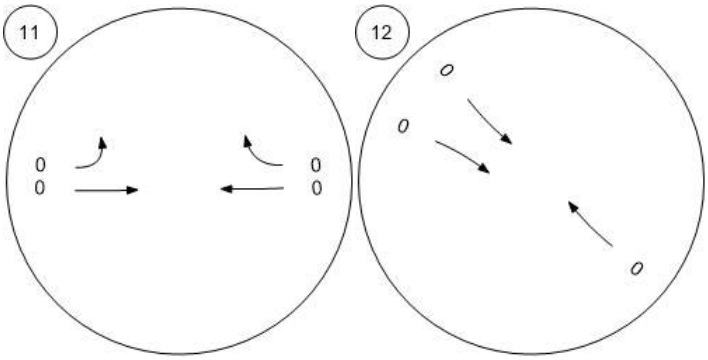



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



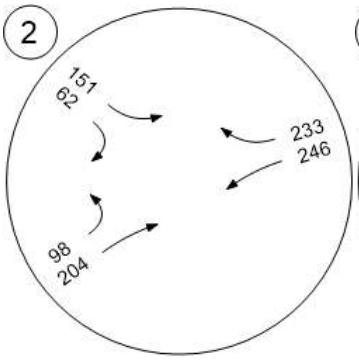
Report Figure 3d: Traffic Volume - Net New Site Trips

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

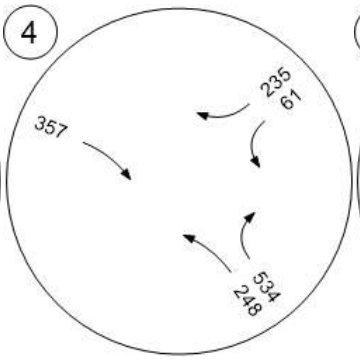


Report Figure 3f: Traffic Volume - Future Total Volume

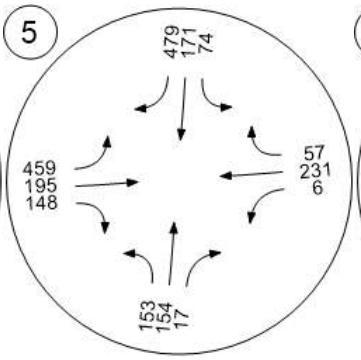
Hackett Avenue (SR 2017) &

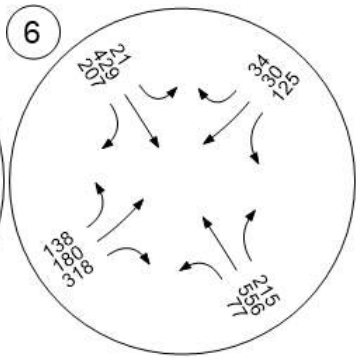



Wood Avenue (SR 2017) & U

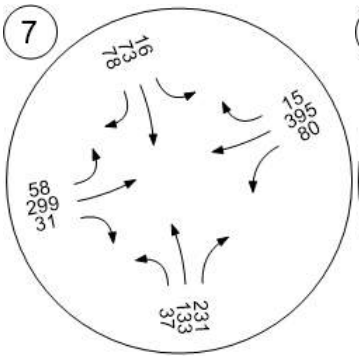



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

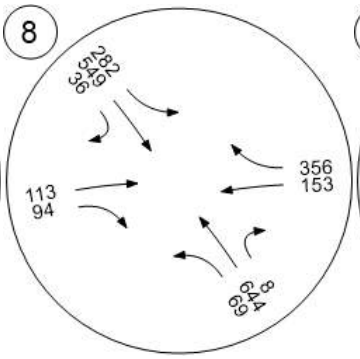


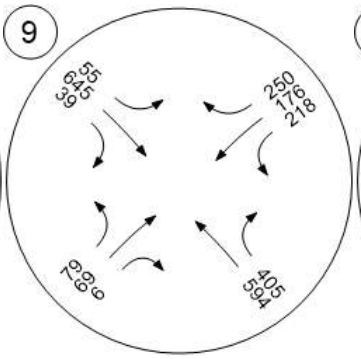

Northampton Street (SR 024



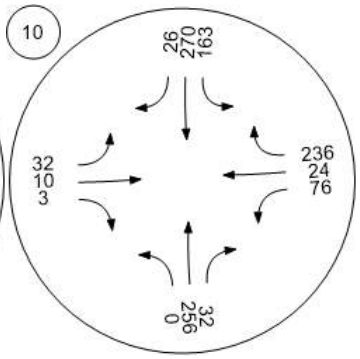

Northampton Street (SR 024




Nazareth Road (SR 0248) &

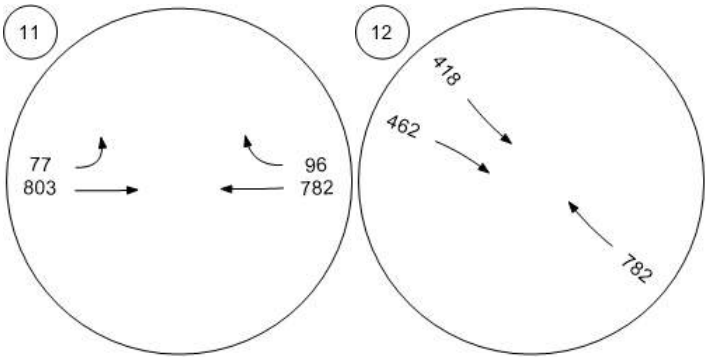



Hackett Avenue (SR 2017) /



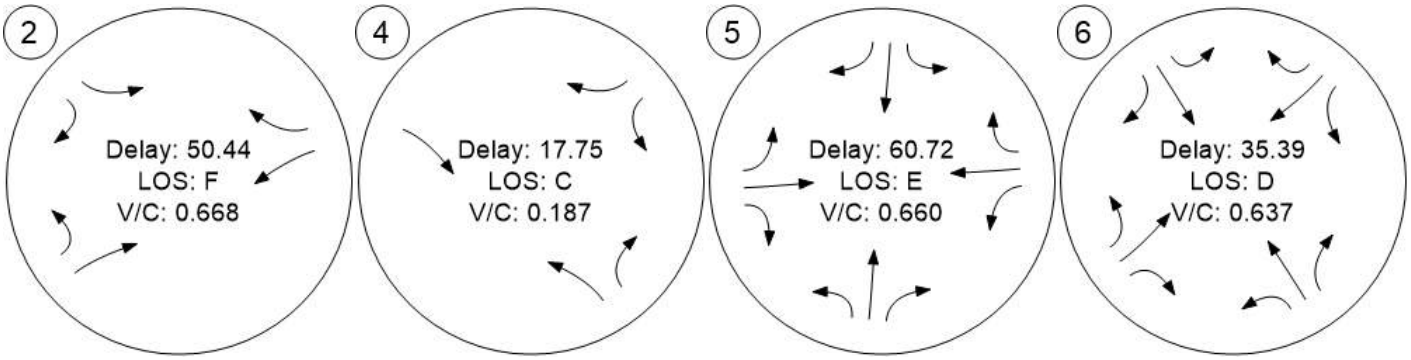
Report Figure 3f: Traffic Volume - Future Total Volume

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

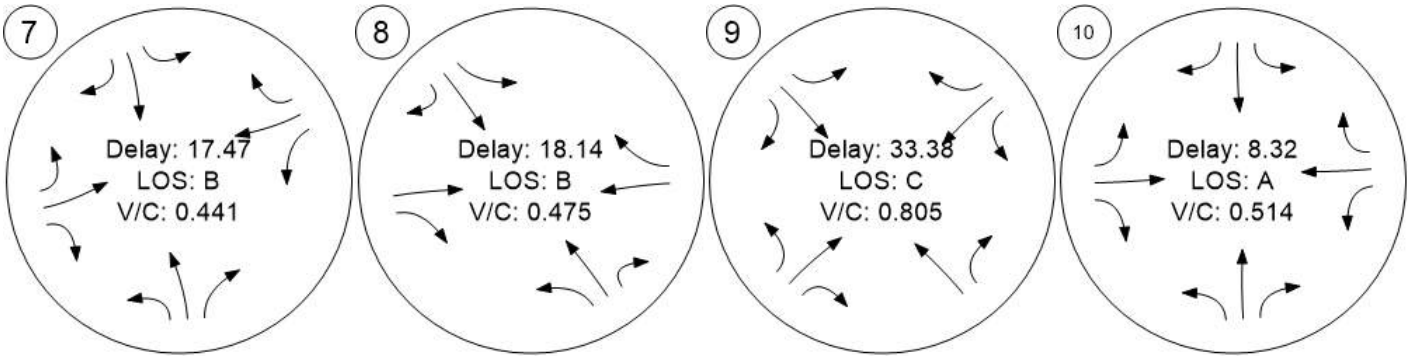


Report Figure 4: Traffic Conditions

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

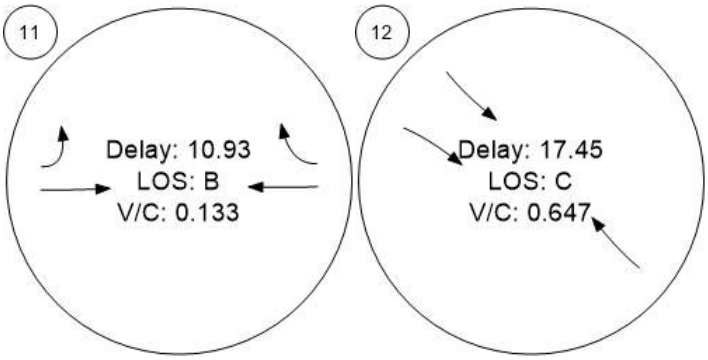



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



Report Figure 4: Traffic Conditions

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U



# PTV Vistro 2024 Reports

*Without Development Conditions (2025) – Weekday AM*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

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Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 5 2025 WO AM

Report File: C:\...\2025 No Dev AM.pdf
6/17/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Two-way stop | HCM 7th Edition | SB Left | 0.374 | 20.7 | C |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Two-way stop | HCM 7th Edition | SB Left | 0.048 | 12.5 | B |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Signalized | HCM 7th Edition | SB Right | 0.652 | 35.8 | D |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Signalized | HCM 7th Edition | SB Left | 0.606 | 29.4 | C |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Signalized | HCM 7th Edition | NB Thru | 0.341 | 18.7 | B |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Signalized | HCM 7th Edition | WB Thru | 0.394 | 15.9 | B |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Signalized | HCM 7th Edition | WB Left | 0.572 | 19.8 | B |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Signalized | HCM 7th Edition | EB Left | 0.406 | 6.8 | A |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Two-way stop | HCM 7th Edition | EB Left | 0.224 | 11.6 | B |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Two-way stop | HCM 7th Edition | NB Thru | 0.590 | 15.2 | C |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**

**Intersection 2: Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 20.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.374 |

**Intersection Setup**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.01 | | 0.01 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 128 | 42 | 61 | 153 | 235 | 115 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 2.00 | 5.00 | 5.00 | 6.00 | 2.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 129 | 42 | 62 | 154 | 237 | 116 |
| Peak Hour Factor | 0.9040 | 0.9040 | 0.9040 | 0.9040 | 0.9040 | 0.9040 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 36 | 12 | 17 | 43 | 66 | 32 |
| Total Analysis Volume [veh/h] | 143 | 46 | 69 | 170 | 262 | 128 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.37 | 0.06 | 0.08 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 20.73 | 16.32 | 9.24 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | C | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 2.18 | 2.18 | 0.12 | 0.12 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 54.43 | 54.43 | 2.99 | 2.99 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 19.66 | | 2.67 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.32 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 4: Wood Avenue (SR 2017) & US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.048 |

**Intersection Setup**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.05 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 23 | 89 | 0 | 300 | 209 | 659 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 3.00 | 2.00 | 4.00 | 2.00 | 1.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 23 | 90 | 0 | 303 | 211 | 665 |
| Peak Hour Factor | 0.9760 | 0.9760 | 1.0000 | 0.9760 | 0.9760 | 0.9760 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 23 | 0 | 78 | 54 | 170 |
| Total Analysis Volume [veh/h] | 24 | 92 | 0 | 310 | 216 | 681 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.05 | 0.11 | 0.00 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 12.52 | 9.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.15 | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 3.75 | 9.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.32 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.91 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Wood Avenue (SR 2017) & N. 13th Street (SR 2019)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.652 |

**Intersection Setup**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 12.00 | 11.00 | 12.00 | 15.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 20.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 105.00 | 100.00 | 285.00 | 115.00 | 100.00 | 100.00 | 100.00 | 100.00 | 75.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.09 | | | 0.10 | | | -0.05 | | | -0.02 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 152 | 125 | 5 | 57 | 137 | 615 | 363 | 163 | 123 | 6 | 226 | 65 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 3.00 | 0.00 | 4.00 | 7.00 | 3.00 | 4.00 | 2.00 | 1.00 | 0.00 | 1.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 327 | 0 | 0 | 69 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 153 | 126 | 4 | 57 | 138 | 293 | 366 | 164 | 55 | 6 | 228 | 66 |
| Peak Hour Factor | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 41 | 34 | 1 | 15 | 37 | 78 | 98 | 44 | 15 | 2 | 61 | 18 |
| Total Analysis Volume [veh/h] | 163 | 135 | 4 | 61 | 147 | 313 | 391 | 175 | 59 | 6 | 244 | 71 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 7 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 11 | 27 | 0 | 11 | 27 | 0 | 18 | 52 | 0 | 10 | 28 | 0 |
| Amber [s] | 4.5 | 4.5 | 0.0 | 4.5 | 4.5 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 19 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 3.5 | 3.5 | 0.0 | 3.5 | 3.5 | 0.0 | 2.5 | 2.5 | 0.0 | 4.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | | No | |
| Maximum Recall | No | Yes | | No | Yes | | No | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | C | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 | 0.00 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 12 | 33 | 7 | 28 | 28 | 37 | 37 | 37 | 13 | 13 |
| g / C, Green / Cycle | 0.13 | 0.35 | 0.07 | 0.30 | 0.30 | 0.40 | 0.40 | 0.40 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.08 | 0.05 | 0.11 | 0.26 | 0.28 | 0.10 | 0.04 | 0.10 | 0.10 |
| s, saturation flow rate [veh/h] | 1686 | 1747 | 1305 | 1328 | 1224 | 1400 | 1771 | 1517 | 1654 | 1566 |
| c, Capacity [veh/h] | 215 | 618 | 92 | 394 | 364 | 579 | 700 | 600 | 273 | 221 |
| d1, Uniform Delay [s] | 39.75 | 21.37 | 42.75 | 26.20 | 31.30 | 23.96 | 19.12 | 17.93 | 38.34 | 38.70 |
| k, delay calibration | 0.23 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 10.92 | 0.84 | 8.01 | 2.69 | 22.55 | 1.39 | 0.19 | 0.07 | 2.09 | 4.30 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.76 | 0.22 | 0.67 | 0.37 | 0.86 | 0.68 | 0.25 | 0.10 | 0.60 | 0.72 |
| d, Delay for Lane Group [s/veh] | 50.67 | 22.21 | 50.76 | 28.89 | 53.85 | 25.35 | 19.30 | 18.00 | 40.44 | 43.00 |
| Lane Group LOS | D | C | D | C | D | C | B | B | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 4.21 | 2.23 | 1.56 | 2.82 | 8.71 | 6.87 | 2.51 | 0.79 | 3.64 | 3.67 |
| 50th-Percentile Queue Length [ft/ln] | 105.34 | 55.71 | 39.08 | 70.58 | 217.75 | 171.82 | 62.67 | 19.82 | 90.91 | 91.78 |
| 95th-Percentile Queue Length [veh/ln] | 7.58 | 4.01 | 2.81 | 5.08 | 13.55 | 11.17 | 4.51 | 1.43 | 6.55 | 6.61 |
| 95th-Percentile Queue Length [ft/ln] | 189.49 | 100.28 | 70.35 | 127.04 | 338.75 | 279.31 | 112.80 | 35.68 | 163.63 | 165.21 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 50.67 | 22.21 | 22.21 | 50.76 | 28.89 | 53.85 | 25.35 | 19.30 | 18.00 | 40.44 | 41.35 | 43.00 |
| Movement LOS | D | C | C | D | C | D | C | B | B | D | D | D |
| d_A, Approach Delay [s/veh] | 37.57 | | | 46.44 | | | 22.96 | | | 41.70 | | |
| Approach LOS | D | | | D | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 35.77 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.652 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.21 | 7.85 | 6.42 | 15.47 | 32.95 | 13.31 | 5.96 | 2.01 | 16.15 | 15.66 |
| Stops [stops/h] | 160.90 | 85.10 | 59.70 | 107.81 | 332.61 | 262.46 | 95.72 | 30.27 | 138.86 | 140.20 |
| Fuel consumption [US gal/h] | 3.24 | 1.57 | 1.32 | 2.26 | 7.19 | 4.50 | 1.63 | 0.52 | 3.00 | 3.03 |
| CO [g/h] | 226.59 | 109.58 | 92.53 | 158.31 | 502.38 | 314.41 | 114.25 | 36.37 | 209.77 | 212.07 |
| NOx [g/h] | 44.09 | 21.32 | 18.00 | 30.80 | 97.74 | 61.17 | 22.23 | 7.08 | 40.81 | 41.26 |
| VOC [g/h] | 52.51 | 25.40 | 21.45 | 36.69 | 116.43 | 72.87 | 26.48 | 8.43 | 48.62 | 49.15 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.78 | 36.78 | 36.78 | 36.78 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.173 | 3.053 | 2.756 | 2.223 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 573 | 573 | 1103 | 594 |
| d_b, Bicycle Delay [s] | 24.00 | 24.00 | 9.48 | 23.29 |
| l_b,int, Bicycle LOS Score for Intersection | 2.060 | 2.959 | 2.705 | 1.824 |
| Bicycle LOS | B | C | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 6: S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 29.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.606 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 | 12.00 | 13.00 | 12.00 | 14.00 | 11.00 | 13.00 | 23.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 300.00 | 100.00 | 420.00 | 265.00 | 100.00 | 280.00 | 100.00 | 100.00 | 100.00 | 400.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 350.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 40.00 | | | 35.00 | | |
| Grade [%] | -0.06 | | | 0.05 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 96 | 503 | 144 | 7 | 409 | 183 | 78 | 117 | 301 | 179 | 15 | 22 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 7.00 | 15.00 | 0.00 | 6.00 | 1.00 | 3.00 | 4.00 | 15.00 | 8.00 | 0.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 60 | 0 | 0 | 93 | 0 | 0 | 220 | 0 | 0 | 11 |
| Total Hourly Volume [veh/h] | 97 | 507 | 85 | 7 | 413 | 92 | 79 | 118 | 84 | 181 | 15 | 11 |
| Peak Hour Factor | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 26 | 138 | 23 | 2 | 112 | 25 | 21 | 32 | 23 | 49 | 4 | 3 |
| Total Analysis Volume [veh/h] | 106 | 552 | 92 | 8 | 449 | 100 | 86 | 128 | 91 | 197 | 16 | 12 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 88.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 7 | 36 | 0 | 7 | 33 | 0 | 0 | 17 | 0 | 17 | 36 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 6 | 0 | 0 | 6 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 50.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 35.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 19 | 47 | 0 | 13 | 41 | 0 | 0 | 26 | 0 | 14 | 40 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 0 | 10 | 0 | 7 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | | No | | No | No | |
| Maximum Recall | No | Yes | | No | Yes | | | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 |
| g_i, Effective Green Time [s] | 9 | 50 | 50 | 2 | 43 | 43 | 19 | 19 | 33 | 33 |
| g / C, Green / Cycle | 0.09 | 0.50 | 0.50 | 0.02 | 0.43 | 0.43 | 0.19 | 0.19 | 0.33 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.32 | 0.07 | 0.01 | 0.29 | 0.07 | 0.15 | 0.06 | 0.15 | 0.02 |
| s, saturation flow rate [veh/h] | 1686 | 1700 | 1349 | 1540 | 1532 | 1363 | 1415 | 1405 | 1272 | 1728 |
| c, Capacity [veh/h] | 156 | 848 | 673 | 38 | 660 | 587 | 315 | 262 | 364 | 564 |
| d1, Uniform Delay [s] | 43.93 | 18.59 | 13.47 | 47.84 | 22.92 | 17.49 | 39.77 | 35.37 | 28.00 | 23.04 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.26 | 0.11 | 0.35 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 5.09 | 3.86 | 0.42 | 2.78 | 5.59 | 0.63 | 5.97 | 0.79 | 4.08 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.68 | 0.65 | 0.14 | 0.21 | 0.68 | 0.17 | 0.68 | 0.35 | 0.54 | 0.05 |
| d, Delay for Lane Group [s/veh] | 49.02 | 22.45 | 13.89 | 50.62 | 28.51 | 18.12 | 45.74 | 36.15 | 32.08 | 23.08 |
| Lane Group LOS | D | C | B | D | C | B | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.72 | 9.75 | 1.15 | 0.22 | 9.10 | 1.47 | 5.42 | 1.93 | 3.98 | 0.45 |
| 50th-Percentile Queue Length [ft/ln] | 68.00 | 243.69 | 28.66 | 5.55 | 227.41 | 36.85 | 135.40 | 48.25 | 99.43 | 11.23 |
| 95th-Percentile Queue Length [veh/ln] | 4.90 | 14.87 | 2.06 | 0.40 | 14.04 | 2.65 | 9.23 | 3.47 | 7.16 | 0.81 |
| 95th-Percentile Queue Length [ft/ln] | 122.41 | 371.69 | 51.59 | 9.99 | 351.07 | 66.33 | 230.82 | 86.84 | 178.97 | 20.21 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 49.02 | 22.45 | 13.89 | 50.62 | 28.51 | 18.12 | 45.74 | 45.74 | 36.15 | 32.08 | 23.08 | 23.08 |
| Movement LOS | D | C | B | D | C | B | D | D | D | C | C | C |
| d_A, Approach Delay [s/veh] | 25.16 | | | 26.96 | | | 42.88 | | | 30.96 | | |
| Approach LOS | C | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 29.36 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.606 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 10.15 | 52.87 | 8.81 | 1.10 | 61.93 | 13.79 | 15.89 | 6.76 | 27.93 | 3.97 |
| Stops [stops/h] | 97.93 | 350.91 | 41.27 | 7.99 | 327.47 | 53.07 | 194.98 | 69.48 | 143.17 | 16.17 |
| Fuel consumption [US gal/h] | 2.18 | 7.18 | 0.91 | 0.18 | 7.43 | 1.29 | 4.48 | 1.59 | 3.43 | 0.40 |
| CO [g/h] | 152.43 | 501.62 | 63.36 | 12.90 | 519.23 | 90.41 | 312.88 | 111.42 | 239.55 | 28.27 |
| NOx [g/h] | 29.66 | 97.60 | 12.33 | 2.51 | 101.02 | 17.59 | 60.87 | 21.68 | 46.61 | 5.50 |
| VOC [g/h] | 35.33 | 116.25 | 14.68 | 2.99 | 120.34 | 20.95 | 72.51 | 25.82 | 55.52 | 6.55 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 10.0 | 10.0 | 8.0 | 8.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 40.50 | 40.50 | 42.32 | 42.32 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.808 | 2.876 | 2.630 | 2.239 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 820 | 700 | 400 | 680 |
| d_b, Bicycle Delay [s] | 17.41 | 21.13 | 32.00 | 21.78 |
| l_b,int, Bicycle LOS Score for Intersection | 2.896 | 2.632 | 2.426 | 1.949 |
| Bicycle LOS | C | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 7: Northampton Street (SR 0248) & Wood Avenue (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.341 |

**Intersection Setup**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 17.00 | 12.00 | 22.00 | 10.00 | 10.00 | 10.00 | 11.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.01 | | | -0.03 | | | -0.05 | | | 0.06 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | No | | | Yes | | |

**Volumes**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 22 | 90 | 186 | 13 | 124 | 50 | 51 | 204 | 17 | 49 | 288 | 11 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 8.00 | 6.00 | 8.00 | 2.00 | 12.00 | 6.00 | 4.00 | 0.00 | 6.00 | 3.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 130 | 0 | 0 | 8 | 0 | 0 | 1 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 22 | 91 | 58 | 13 | 125 | 42 | 51 | 206 | 16 | 49 | 290 | 11 |
| Peak Hour Factor | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 25 | 16 | 4 | 35 | 12 | 14 | 58 | 4 | 14 | 81 | 3 |
| Total Analysis Volume [veh/h] | 25 | 102 | 65 | 15 | 140 | 47 | 57 | 230 | 18 | 55 | 324 | 12 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 16.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 36 | 0 | 0 | 36 | 0 | 0 | 52 | 0 | 0 | 52 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 12 | 0 | 0 | 12 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 0 | 42 | 0 | 0 | 58 | 0 | 0 | 58 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | Yes | | | Yes | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 16 | 16 | 74 | 74 | 74 | 74 |
| g / C, Green / Cycle | 0.16 | 0.16 | 0.74 | 0.74 | 0.74 | 0.74 |
| (v / s)_i Volume / Saturation Flow Rate | 0.12 | 0.12 | 0.06 | 0.14 | 0.06 | 0.22 |
| s, saturation flow rate [veh/h] | 1566 | 1696 | 1010 | 1720 | 962 | 1539 |
| c, Capacity [veh/h] | 286 | 304 | 702 | 1279 | 702 | 1144 |
| d1, Uniform Delay [s] | 40.44 | 40.36 | 7.50 | 3.84 | 6.30 | 4.21 |
| k, delay calibration | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.74 | 2.49 | 0.23 | 0.34 | 0.22 | 0.65 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.67 | 0.66 | 0.08 | 0.19 | 0.08 | 0.29 |
| d, Delay for Lane Group [s/veh] | 43.18 | 42.85 | 7.72 | 4.18 | 6.52 | 4.86 |
| Lane Group LOS | D | D | A | A | A | A |
| Critical Lane Group | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 4.76 | 4.97 | 0.51 | 1.41 | 0.44 | 2.12 |
| 50th-Percentile Queue Length [ft/ln] | 119.00 | 124.36 | 12.84 | 35.22 | 11.12 | 52.97 |
| 95th-Percentile Queue Length [veh/ln] | 8.34 | 8.63 | 0.92 | 2.54 | 0.80 | 3.81 |
| 95th-Percentile Queue Length [ft/ln] | 208.45 | 215.81 | 23.11 | 63.39 | 20.02 | 95.35 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 43.18 | 43.18 | 43.18 | 42.85 | 42.85 | 42.85 | 7.72 | 4.18 | 4.18 | 6.52 | 4.86 | 4.86 |
| Movement LOS | D | D | D | D | D | D | A | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 43.18 | | | 42.85 | | | 4.84 | | | 5.09 | | |
| Approach LOS | D | | | D | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 18.73 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.341 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 27.22 | 215.40 | 6.73 | 29.28 | 14.87 | 90.86 |
| Stops [stops/h] | 171.36 | 179.08 | 18.48 | 50.72 | 16.02 | 76.28 |
| Fuel consumption [US gal/h] | 3.57 | 12.13 | 0.46 | 1.72 | 0.80 | 4.71 |
| CO [g/h] | 249.42 | 848.23 | 32.37 | 120.40 | 56.15 | 329.29 |
| NOx [g/h] | 48.53 | 165.03 | 6.30 | 23.43 | 10.92 | 64.07 |
| VOC [g/h] | 57.81 | 196.59 | 7.50 | 27.90 | 13.01 | 76.32 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 16.0 | 16.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.28 | 35.28 | 0.00 | 39.61 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.196 | 1.962 | 0.000 | 2.191 |
| Crosswalk LOS | B | A | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 720 | 720 | 1040 | 1040 |
| d_b, Bicycle Delay [s] | 20.48 | 20.48 | 11.52 | 11.52 |
| l_b,int, Bicycle LOS Score for Intersection | 2.091 | 1.906 | 2.065 | 2.205 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 8: Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 15.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.394 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 13.00 | 12.00 | 20.00 | 12.00 | 12.00 | 11.00 | 13.00 | 12.00 | 12.00 | 13.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 40.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.02 | | | -0.02 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 86 | 530 | 1 | 178 | 437 | 72 | 0 | 85 | 140 | 0 | 121 | 244 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 7.00 | 0.00 | 3.00 | 3.00 | 6.00 | 2.00 | 8.00 | 1.00 | 2.00 | 6.00 | 4.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 54 | 0 | 0 | 84 |
| Total Hourly Volume [veh/h] | 87 | 535 | 1 | 180 | 441 | 45 | 0 | 86 | 87 | 0 | 122 | 162 |
| Peak Hour Factor | 0.9640 | 0.9640 | 0.9640 | 0.9640 | 0.9640 | 0.9640 | 1.0000 | 0.9640 | 0.9640 | 1.0000 | 0.9640 | 0.9640 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 23 | 139 | 0 | 47 | 114 | 12 | 0 | 22 | 23 | 0 | 32 | 42 |
| Total Analysis Volume [veh/h] | 90 | 555 | 1 | 187 | 457 | 47 | 0 | 89 | 90 | 0 | 127 | 168 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 2.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Overlap | Permiss | Permiss | Overlap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 5 | 0 | 8 | 1 |
| Auxiliary Signal Groups | | | | | | | | | 4,5 | | | 1,8 |
| Maximum Green [s] | 13 | 45 | 0 | 13 | 45 | 0 | 0 | 24 | 13 | 0 | 24 | 13 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Walk [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 40.0 | 40.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 14 | 43 | 0 | 16 | 45 | 0 | 0 | 41 | 14 | 0 | 41 | 16 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 0 | 10 | 7 | 0 | 10 | 7 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 |
| Minimum Recall | No | No | | No | No | | | No | No | | No | No |
| Maximum Recall | No | Yes | | No | Yes | | | No | No | | No | No |
| Pedestrian Recall | No | No | | No | No | | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | R | C | R |
|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| g_i, Effective Green Time [s] | 77 | 61 | 61 | 77 | 64 | 13 | 26 | 13 | 29 |
| g / C, Green / Cycle | 0.77 | 0.61 | 0.61 | 0.77 | 0.64 | 0.13 | 0.26 | 0.13 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.16 | 0.16 | 0.19 | 0.28 | 0.05 | 0.06 | 0.07 | 0.11 |
| s, saturation flow rate [veh/h] | 1006 | 1702 | 1700 | 992 | 1798 | 1688 | 1579 | 1716 | 1542 |
| c, Capacity [veh/h] | 743 | 1030 | 1029 | 797 | 1151 | 228 | 395 | 232 | 439 |
| d1, Uniform Delay [s] | 4.54 | 9.32 | 9.32 | 3.89 | 9.00 | 39.49 | 29.83 | 40.40 | 28.70 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.29 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.33 | 0.65 | 0.65 | 0.69 | 1.21 | 1.09 | 0.29 | 2.02 | 1.44 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.12 | 0.27 | 0.27 | 0.23 | 0.44 | 0.39 | 0.23 | 0.55 | 0.38 |
| d, Delay for Lane Group [s/veh] | 4.87 | 9.96 | 9.96 | 4.58 | 10.21 | 40.58 | 30.12 | 42.42 | 30.15 |
| Lane Group LOS | A | A | A | A | B | D | C | D | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.42 | 2.79 | 2.79 | 0.88 | 5.03 | 2.04 | 1.73 | 3.00 | 3.34 |
| 50th-Percentile Queue Length [ft/ln] | 10.44 | 69.69 | 69.66 | 21.93 | 125.86 | 50.92 | 43.15 | 75.06 | 83.50 |
| 95th-Percentile Queue Length [veh/ln] | 0.75 | 5.02 | 5.02 | 1.58 | 8.71 | 3.67 | 3.11 | 5.40 | 6.01 |
| 95th-Percentile Queue Length [ft/ln] | 18.78 | 125.45 | 125.39 | 39.48 | 217.86 | 91.66 | 77.66 | 135.11 | 150.30 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 4.87 | 9.96 | 9.96 | 4.58 | 10.21 | 10.21 | 0.00 | 40.58 | 30.12 | 0.00 | 42.42 | 30.15 |
| Movement LOS | A | A | A | A | B | B | | D | C | | D | C |
| d_A, Approach Delay [s/veh] | 9.25 | | | 8.69 | | | 35.32 | | | 35.43 | | |
| Approach LOS | A | | | A | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 15.88 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.394 | | | | | | | | | | | |

**Emissions**

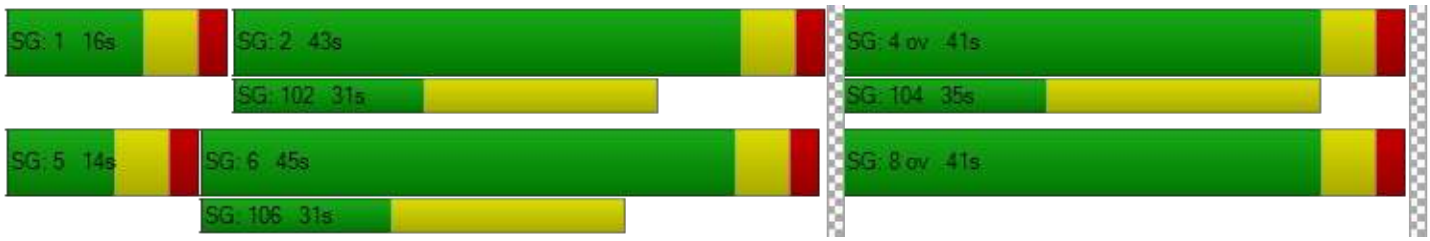
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 12.41 | 38.35 | 38.33 | 15.18 | 40.91 | 6.24 | 6.31 | 15.00 | 19.84 |
| Stops [stops/h] | 15.03 | 100.36 | 100.31 | 31.58 | 181.24 | 73.32 | 62.13 | 108.09 | 120.24 |
| Fuel consumption [US gal/h] | 0.68 | 2.78 | 2.78 | 1.03 | 4.29 | 1.52 | 1.26 | 2.48 | 2.69 |
| CO [g/h] | 47.21 | 194.35 | 194.25 | 71.87 | 300.13 | 106.56 | 88.04 | 173.40 | 188.11 |
| NOx [g/h] | 9.19 | 37.81 | 37.79 | 13.98 | 58.39 | 20.73 | 17.13 | 33.74 | 36.60 |
| VOC [g/h] | 10.94 | 45.04 | 45.02 | 16.66 | 69.56 | 24.70 | 20.40 | 40.19 | 43.60 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 19.0 | 0.0 | 18.0 | 18.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.81 | 0.00 | 33.62 | 33.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.467 | 0.000 | 2.300 | 2.603 |
| Crosswalk LOS | B | F | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 740 | 780 | 700 | 700 |
| d_b, Bicycle Delay [s] | 19.85 | 18.61 | 21.13 | 21.13 |
| l_b,int, Bicycle LOS Score for Intersection | 2.093 | 2.746 | 1.944 | 2.185 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 9: Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.572 |

**Intersection Setup**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 13.00 | 13.00 | 12.00 | 12.00 | 12.00 | 18.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 25.00 | | | 35.00 | | |
| Grade [%] | 0.04 | | | -0.04 | | | -0.01 | | | 0.01 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | No | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 392 | 404 | 71 | 521 | 34 | 48 | 122 | 1 | 118 | 80 | 112 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 7.00 | 9.00 | 3.00 | 4.00 | 0.00 | 2.00 | 1.00 | 0.00 | 2.00 | 1.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 134 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 49 |
| Total Hourly Volume [veh/h] | 0 | 395 | 273 | 72 | 525 | 32 | 48 | 123 | 1 | 119 | 81 | 64 |
| Peak Hour Factor | 1.0000 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 108 | 74 | 20 | 143 | 9 | 13 | 33 | 0 | 32 | 22 | 17 |
| Total Analysis Volume [veh/h] | 0 | 430 | 297 | 78 | 572 | 35 | 52 | 134 | 1 | 130 | 88 | 70 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 7 | 53 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 165.0 | 165.0 | 0.0 | 0.0 | -5.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 6.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 49 | 0 | 13 | 62 | 0 | 0 | 38 | 0 | 0 | 38 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | Yes | No | | | No | | | No | |
| Maximum Recall | | Yes | | No | Yes | | | No | | | No | |
| Pedestrian Recall | | No | | No | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | C | C | C | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 2.50 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 52 | 52 | 65 | 65 | 25 | 25 |
| g / C, Green / Cycle | 0.52 | 0.52 | 0.65 | 0.65 | 0.25 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.23 | 0.26 | 0.28 | 0.23 | 0.13 | 0.22 |
| s, saturation flow rate [veh/h] | 1570 | 1372 | 1204 | 1559 | 1462 | 1333 |
| c, Capacity [veh/h] | 812 | 709 | 750 | 1009 | 416 | 389 |
| d1, Uniform Delay [s] | 15.17 | 15.86 | 8.91 | 8.04 | 31.38 | 36.20 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.17 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.79 | 2.63 | 1.90 | 0.95 | 0.76 | 4.39 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.45 | 0.51 | 0.44 | 0.35 | 0.45 | 0.74 |
| d, Delay for Lane Group [s/veh] | 16.96 | 18.50 | 10.82 | 8.99 | 32.14 | 40.60 |
| Lane Group LOS | B | B | B | A | C | D |
| Critical Lane Group | No | Yes | Yes | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 5.17 | 5.50 | 3.19 | 3.20 | 3.91 | 7.03 |
| 50th-Percentile Queue Length [ft/ln] | 129.28 | 137.61 | 79.68 | 80.07 | 97.84 | 175.75 |
| 95th-Percentile Queue Length [veh/ln] | 8.90 | 9.35 | 5.74 | 5.77 | 7.04 | 11.38 |
| 95th-Percentile Queue Length [ft/ln] | 222.52 | 233.81 | 143.43 | 144.13 | 176.12 | 284.46 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 17.20 | 18.50 | 10.82 | 9.81 | 8.99 | 32.14 | 32.14 | 32.14 | 40.60 | 40.60 | 40.60 |
| Movement LOS | | B | B | B | A | A | C | C | C | D | D | D |
| d_A, Approach Delay [s/veh] | 17.73 | | | 9.88 | | | 32.14 | | | 40.60 | | |
| Approach LOS | B | | | A | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 19.80 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.572 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 29.51 | 29.51 | 24.42 | 25.74 | 7.93 | 19.85 |
| Stops [stops/h] | 186.17 | 198.16 | 114.74 | 115.30 | 140.89 | 253.08 |
| Fuel consumption [US gal/h] | 4.14 | 4.37 | 2.74 | 2.70 | 2.12 | 5.04 |
| CO [g/h] | 289.41 | 305.60 | 191.25 | 188.59 | 148.19 | 352.23 |
| NOx [g/h] | 56.31 | 59.46 | 37.21 | 36.69 | 28.83 | 68.53 |
| VOC [g/h] | 67.07 | 70.83 | 44.32 | 43.71 | 34.35 | 81.63 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 9.0 | 9.0 | 9.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 0.00 | 41.41 | 41.41 | 41.41 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 0.000 | 2.633 | 1.848 | 2.606 | |
| Crosswalk LOS | F | B | A | B | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 860 | 1120 | 640 | 640 | |
| d_b, Bicycle Delay [s] | 16.25 | 9.68 | 23.12 | 23.12 | |
| l_b,int, Bicycle LOS Score for Intersection | 2.270 | 2.126 | 1.868 | 2.116 | |
| Bicycle LOS | B | B | A | B | |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 10: Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 6.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.406 |

**Intersection Setup**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 11.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 11.00 | 11.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 120.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 25.00 | | | 40.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 244 | 38 | 138 | 280 | 6 | 1 | 0 | 0 | 31 | 4 | 146 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 10.00 | 6.00 | 1.00 | 5.00 | 17.00 | 100.00 | 0.00 | 0.00 | 13.00 | 25.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Total Hourly Volume [veh/h] | 0 | 246 | 35 | 139 | 282 | 6 | 1 | 0 | 0 | 31 | 4 | 139 |
| Peak Hour Factor | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 65 | 9 | 36 | 74 | 2 | 0 | 0 | 0 | 8 | 1 | 36 |
| Total Analysis Volume [veh/h] | 0 | 258 | 37 | 146 | 296 | 6 | 1 | 0 | 0 | 33 | 4 | 146 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 38 | 0 | 0 | 38 | 0 | 0 | 13 | 0 | 0 | 13 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 9 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 |
| Detector Location [ft] | 0.0 | 210.0 | 0.0 | 0.0 | 210.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 6.0 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 26 | 26 | 26 | 26 | 26 | 26 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |
| g_i, Effective Green Time [s] | 11 | 11 | 7 | 7 | 7 | 7 |
| g / C, Green / Cycle | 0.41 | 0.41 | 0.28 | 0.28 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.17 | 0.28 | 0.00 | 0.00 | 0.03 | 0.12 |
| s, saturation flow rate [veh/h] | 1687 | 1573 | 264 | 1800 | 1292 | 1233 |
| c, Capacity [veh/h] | 828 | 826 | 299 | 514 | 529 | 352 |
| d1, Uniform Delay [s] | 5.54 | 6.19 | 10.81 | 0.00 | 8.69 | 7.62 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.26 | 0.56 | 0.00 | 0.00 | 0.05 | 0.82 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.36 | 0.54 | 0.00 | 0.00 | 0.06 | 0.43 |
| d, Delay for Lane Group [s/veh] | 5.80 | 6.75 | 10.81 | 0.00 | 8.73 | 8.44 |
| Lane Group LOS | A | A | B | A | A | A |
| Critical Lane Group | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.48 | 0.84 | 0.00 | 0.00 | 0.09 | 0.40 |
| 50th-Percentile Queue Length [ft/ln] | 12.00 | 20.97 | 0.11 | 0.00 | 2.30 | 9.90 |
| 95th-Percentile Queue Length [veh/ln] | 0.86 | 1.51 | 0.01 | 0.00 | 0.17 | 0.71 |
| 95th-Percentile Queue Length [ft/ln] | 21.59 | 37.74 | 0.19 | 0.00 | 4.13 | 17.83 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 5.80 | 5.80 | 5.80 | 6.75 | 6.75 | 6.75 | 10.81 | 0.00 | 0.00 | 8.73 | 8.44 | 8.44 |
| Movement LOS | A | A | A | A | A | A | B | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 5.80 | | | 6.75 | | | 10.81 | | | 8.49 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 6.80 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.406 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 44.79 | 64.87 | 0.11 | 0.00 | 28.61 | 130.06 |
| Stops [stops/h] | 66.16 | 115.64 | 0.59 | 0.00 | 12.66 | 54.62 |
| Fuel consumption [US gal/h] | 2.55 | 3.96 | 0.01 | 0.00 | 1.21 | 5.45 |
| CO [g/h] | 178.48 | 276.63 | 0.65 | 0.00 | 84.43 | 381.16 |
| NOx [g/h] | 34.73 | 53.82 | 0.13 | 0.00 | 16.43 | 74.16 |
| VOC [g/h] | 41.36 | 64.11 | 0.15 | 0.00 | 19.57 | 88.34 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 4.37 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.039 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2911 | 2911 | 996 | 996 |
| d_b, Bicycle Delay [s] | 2.71 | 2.71 | 3.29 | 3.29 |
| l_b,int, Bicycle LOS Score for Intersection | 2.051 | 2.299 | 1.561 | 1.875 |
| Bicycle LOS | B | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 11: Wood Avenue (SR 2017) & US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.224 |

**Intersection Setup**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 50.00 | 0.00 |
| Speed [mph] | 30.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | -0.03 | | 0.03 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 113 | 656 | 872 | 191 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 0.00 | 3.00 | 1.00 | 2.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 114 | 662 | 879 | 193 |
| Peak Hour Factor | 1.0000 | 1.0000 | 0.9180 | 0.9180 | 0.9180 | 0.9180 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 31 | 180 | 239 | 53 |
| Total Analysis Volume [veh/h] | 0 | 0 | 124 | 721 | 958 | 210 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.22 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 11.64 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.22 | 0.07 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 5.54 | 1.85 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 1.71 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.72 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 12: Wood Avenue (SR 2017) & US 22 East Off-Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 15.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.590 |

**Intersection Setup**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Thru | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | -0.04 | | -0.03 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 446 | 323 | 0 | 0 | 872 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 450 | 326 | 0 | 0 | 879 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 125 | 91 | 0 | 0 | 244 |
| Total Analysis Volume [veh/h] | 0 | 500 | 362 | 0 | 0 | 977 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.59 | 0.00 | 0.00 | 0.00 | 0.01 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 15.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | A | | | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 3.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 98.92 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 15.17 | | 0.00 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.12 | | | | | |
| Intersection LOS | C | | | | | |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 5 2025 WO AM

Report File: C:\...\2025 No Dev AM.pdf
6/17/2024

## Turning Movement Volume: Summary

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | 129 | 42 | 62 | 154 | 237 | 116 | 740 |

| ID | Intersection Name | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | 23 | 90 | 303 | 211 | 665 | 1292 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | 153 | 126 | 5 | 57 | 138 | 620 | 366 | 164 | 124 | 6 | 228 | 66 | 2053 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | 97 | 507 | 145 | 7 | 413 | 185 | 79 | 118 | 304 | 181 | 15 | 22 | 2073 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | 22 | 91 | 188 | 13 | 125 | 50 | 51 | 206 | 17 | 49 | 290 | 11 | 1113 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012) /Nazareth Road (SR 0248) | 87 | 535 | 1 | 180 | 441 | 73 | 86 | 141 | 122 | 246 | 1912 |

| ID | Intersection Name | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | 395 | 407 | 72 | 525 | 34 | 48 | 123 | 1 | 119 | 81 | 113 | 1918 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | 0 | 246 | 38 | 139 | 282 | 6 | 1 | 0 | 0 | 31 | 4 | 147 | 894 |

| ID | Intersection Name | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|
| | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | 114 | 662 | 879 | 193 | 1848 |

| ID | Intersection Name | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|
| | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | 450 | 326 | 879 | 1655 |

Proposed Warehouse at 1525 Wood Ave
Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 5 2025 WO AM
Report File: C:\...\2025 No Dev AM.pdf
6/17/2024

## Turning Movement Volume: Detail

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Final Base | 128 | 42 | 61 | 153 | 235 | 115 | 734 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **129** | **42** | **62** | **154** | **237** | **116** | **740** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Final Base | 23 | 89 | 300 | 209 | 659 | 1280 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **23** | **90** | **303** | **211** | **665** | **1292** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Final Base | 152 | 125 | 5 | 57 | 137 | 615 | 363 | 163 | 123 | 6 | 226 | 65 | 2037 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **153** | **126** | **5** | **57** | **138** | **620** | **366** | **164** | **124** | **6** | **228** | **66** | **2053** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Final Base | 96 | 503 | 144 | 7 | 409 | 183 | 78 | 117 | 301 | 179 | 15 | 22 | 2054 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **97** | **507** | **145** | **7** | **413** | **185** | **79** | **118** | **304** | **181** | **15** | **22** | **2073** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Final Base | 22 | 90 | 186 | 13 | 124 | 50 | 51 | 204 | 17 | 49 | 288 | 11 | 1105 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **22** | **91** | **188** | **13** | **125** | **50** | **51** | **206** | **17** | **49** | **290** | **11** | **1113** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Final Base | 86 | 530 | 1 | 178 | 437 | 72 | 85 | 140 | 121 | 244 | 1894 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **87** | **535** | **1** | **180** | **441** | **73** | **86** | **141** | **122** | **246** | **1912** |

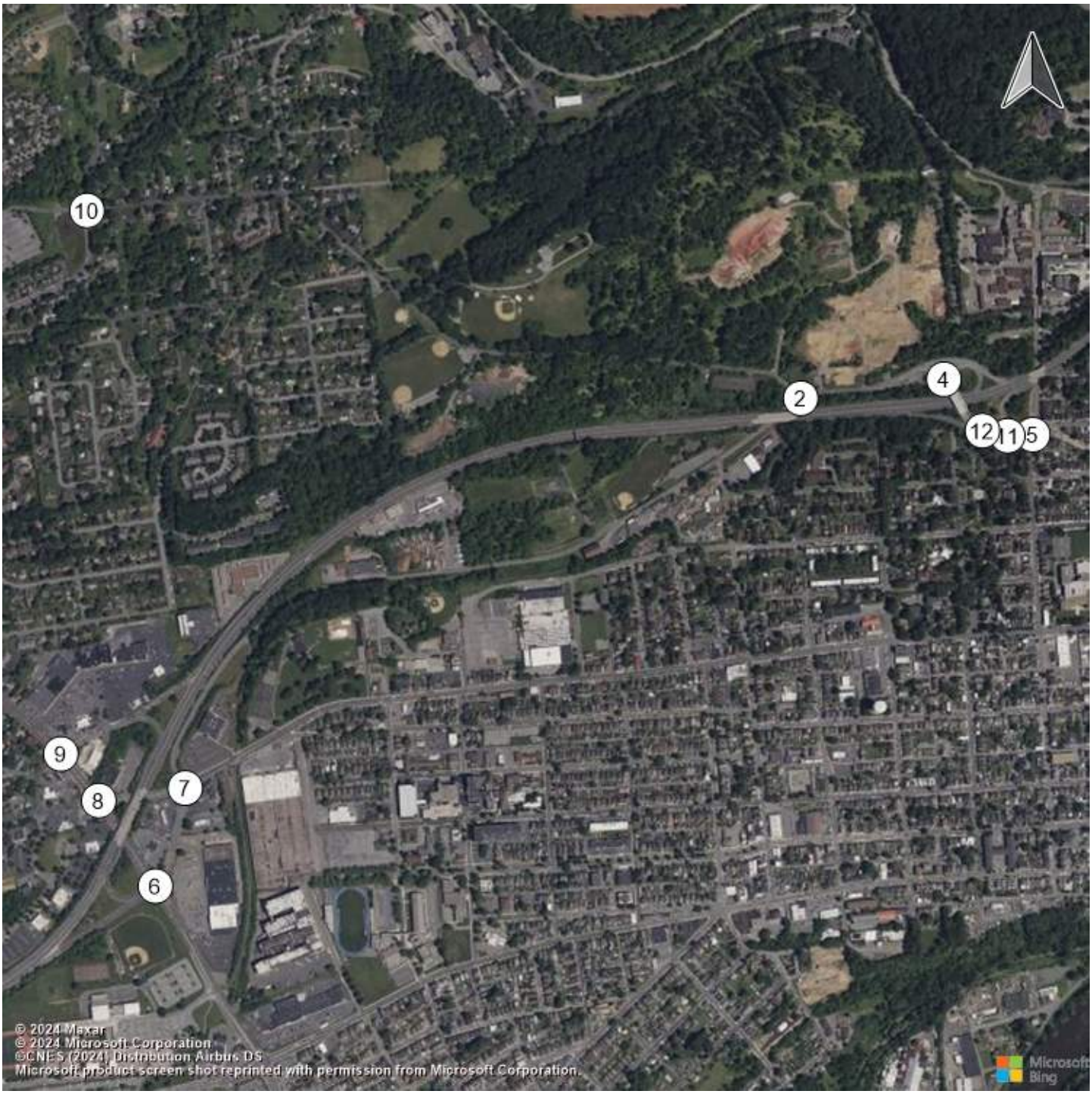
| ID | Intersection Name | Volume Type | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Final Base | 392 | 404 | 71 | 521 | 34 | 48 | 122 | 1 | 118 | 80 | 112 | 1903 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **395** | **407** | **72** | **525** | **34** | **48** | **123** | **1** | **119** | **81** | **113** | **1918** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Final Base | 0 | 244 | 38 | 138 | 280 | 6 | 1 | 0 | 0 | 31 | 4 | 146 | 888 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **0** | **246** | **38** | **139** | **282** | **6** | **1** | **0** | **0** | **31** | **4** | **147** | **894** |

| ID | Intersection Name | Volume Type | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Final Base | 113 | 656 | 872 | 191 | 1832 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **114** | **662** | **879** | **193** | **1848** |

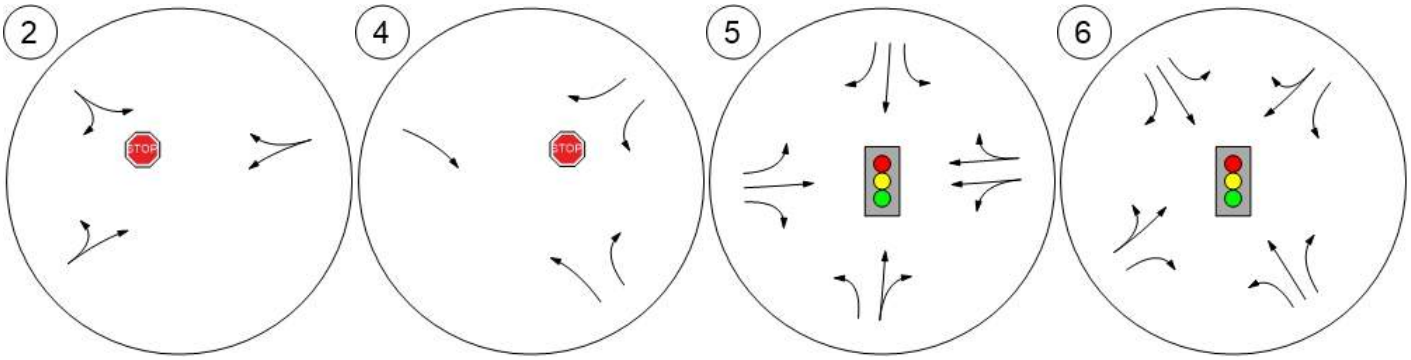
| ID | Intersection Name | Volume Type | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|---|
| | | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Final Base | 446 | 323 | 872 | 1641 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 |
| | | **Future Total** | **450** | **326** | **879** | **1655** |

Report Figure 1: Study Intersections

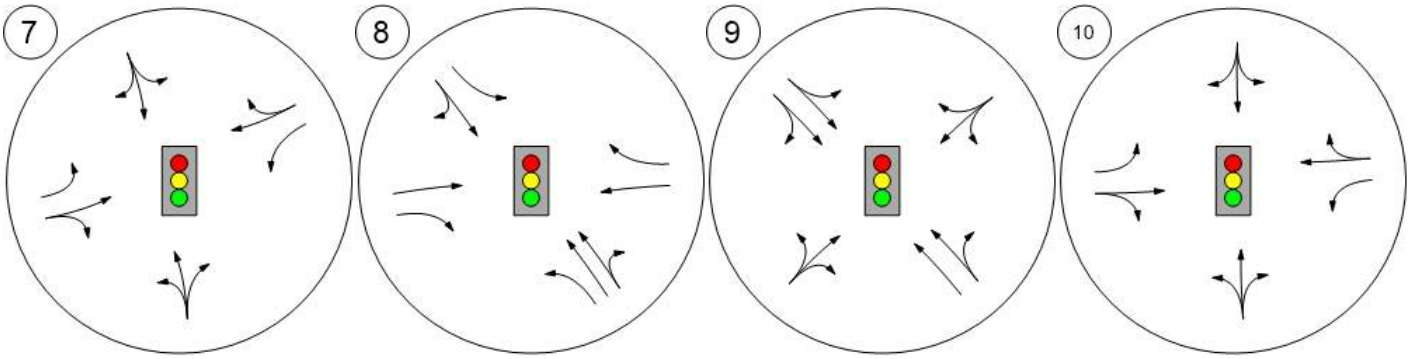


Report Figure 2: Lane Configuration and Traffic Control

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

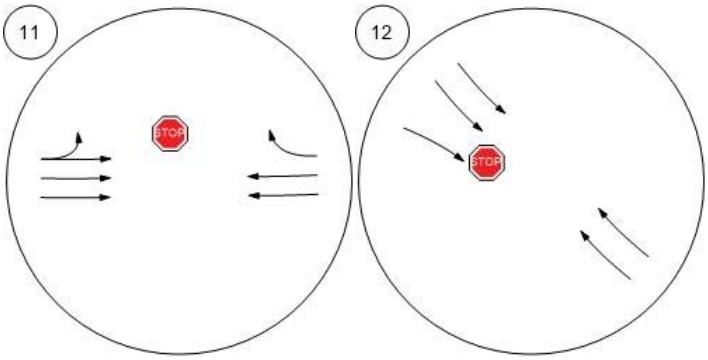



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



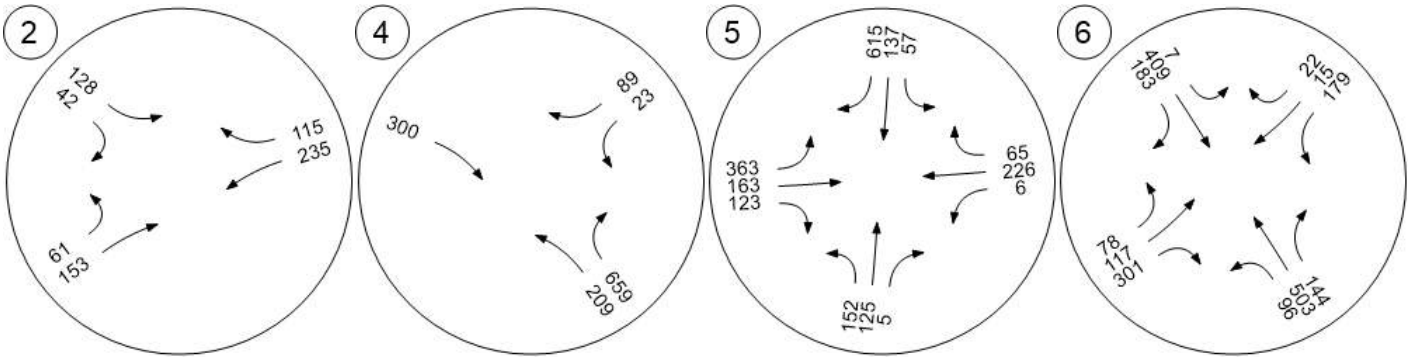
Report Figure 2: Lane Configuration and Traffic Control

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

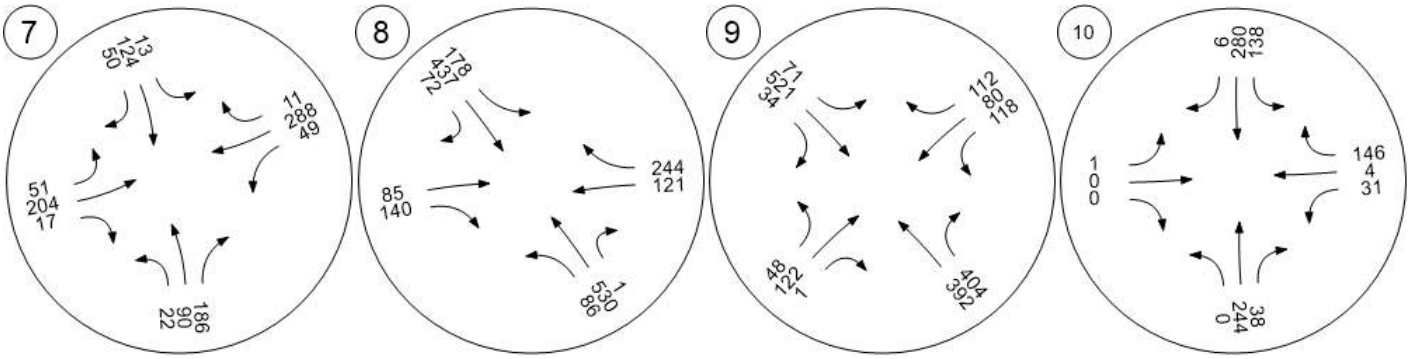


Report Figure 3a: Traffic Volume - Base Volume

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

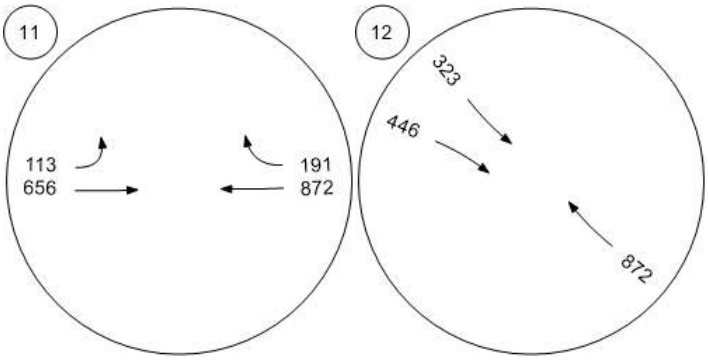



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



Report Figure 3a: Traffic Volume - Base Volume

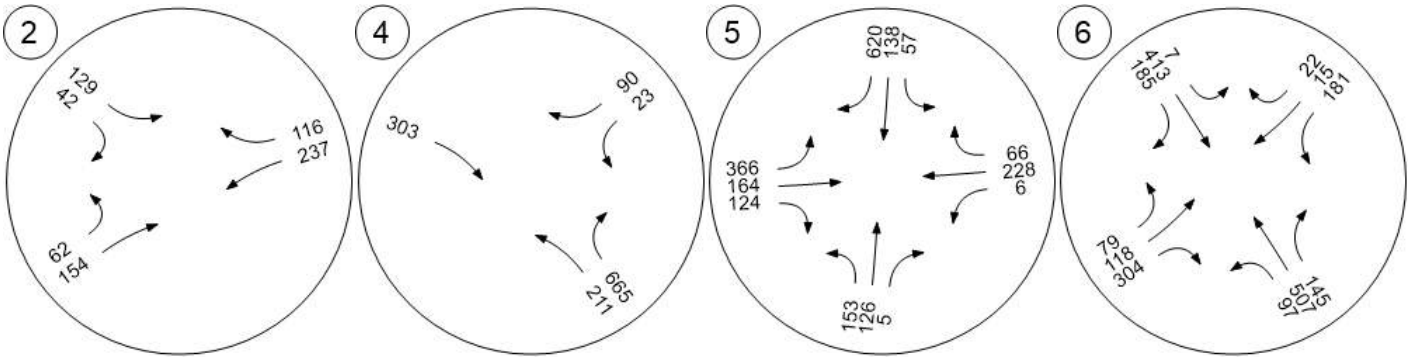
Wood Avenue (SR 2017) & U



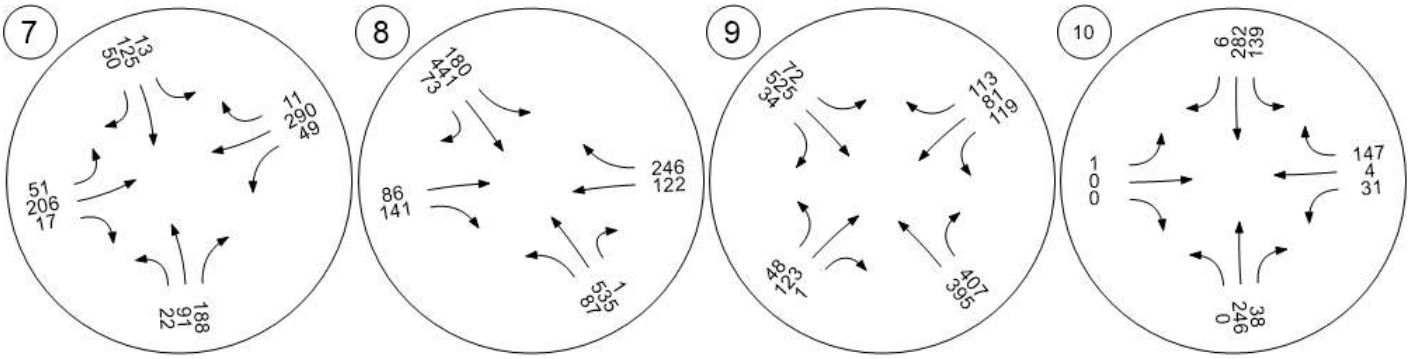

Wood Avenue (SR 2017) & U

Report Figure 3c: Traffic Volume - Future Background Volume

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

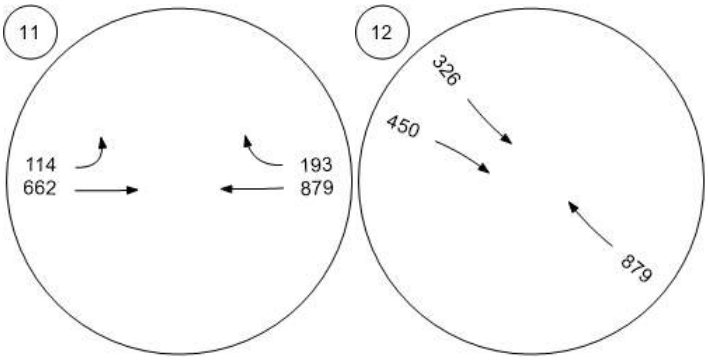



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



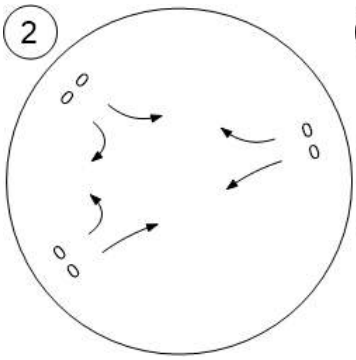
Report Figure 3c: Traffic Volume - Future Background Volume

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

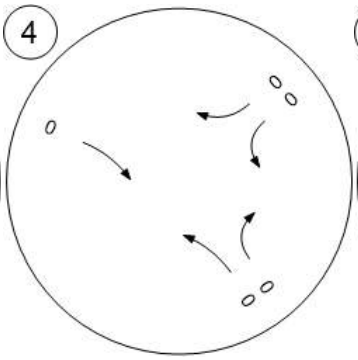


Report Figure 3d: Traffic Volume - Net New Site Trips

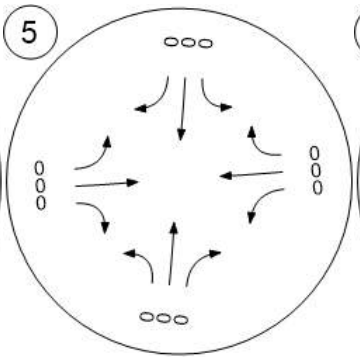
Hackett Avenue (SR 2017) &

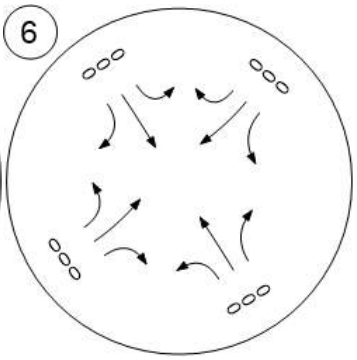



Wood Avenue (SR 2017) & U

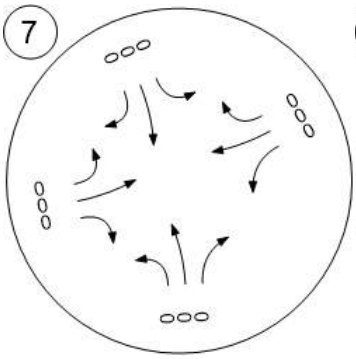



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

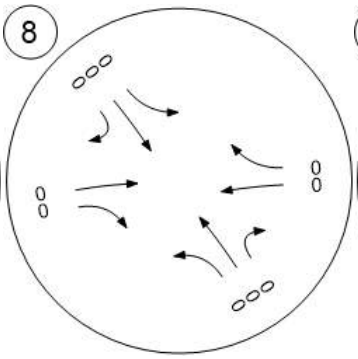


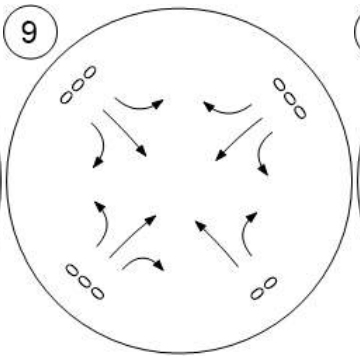

Northampton Street (SR 024



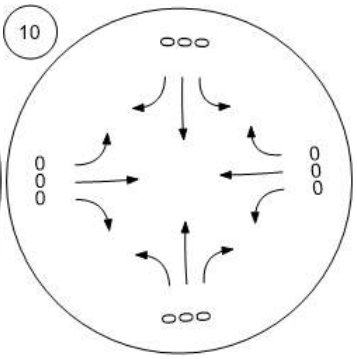

Northampton Street (SR 024




Nazareth Road (SR 0248) &

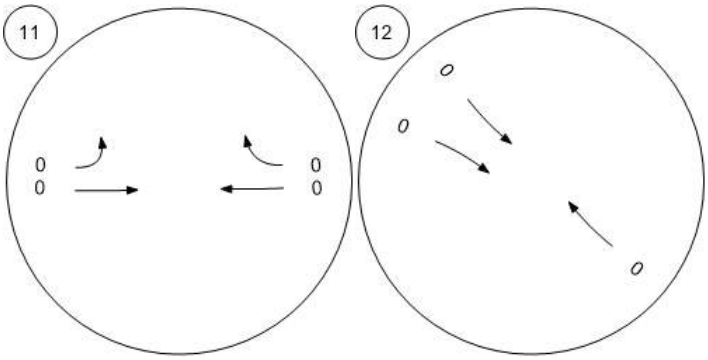



Hackett Avenue (SR 2017) /



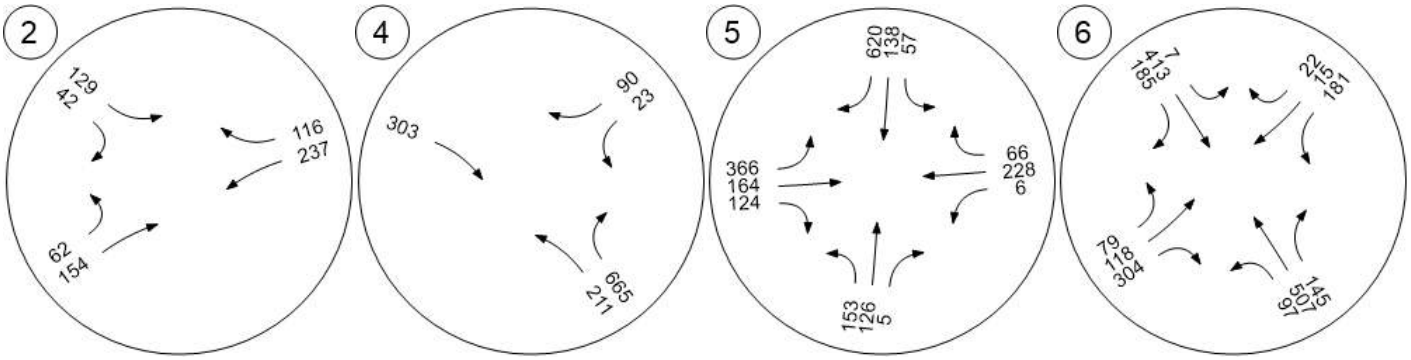
Report Figure 3d: Traffic Volume - Net New Site Trips

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

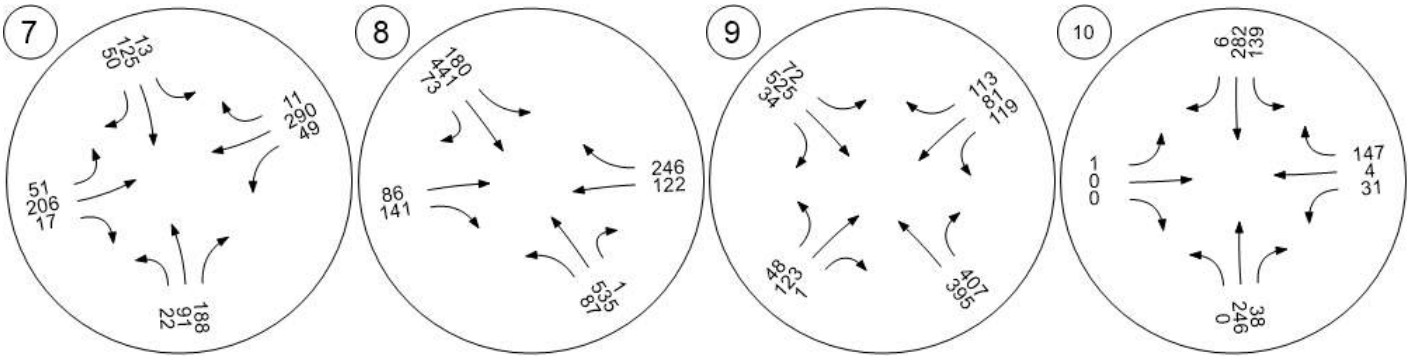


Report Figure 3f: Traffic Volume - Future Total Volume

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

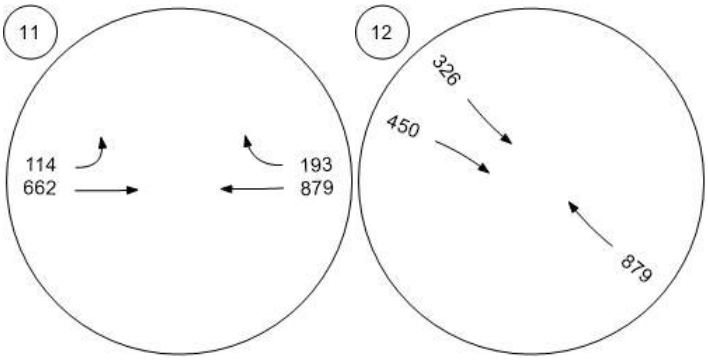



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



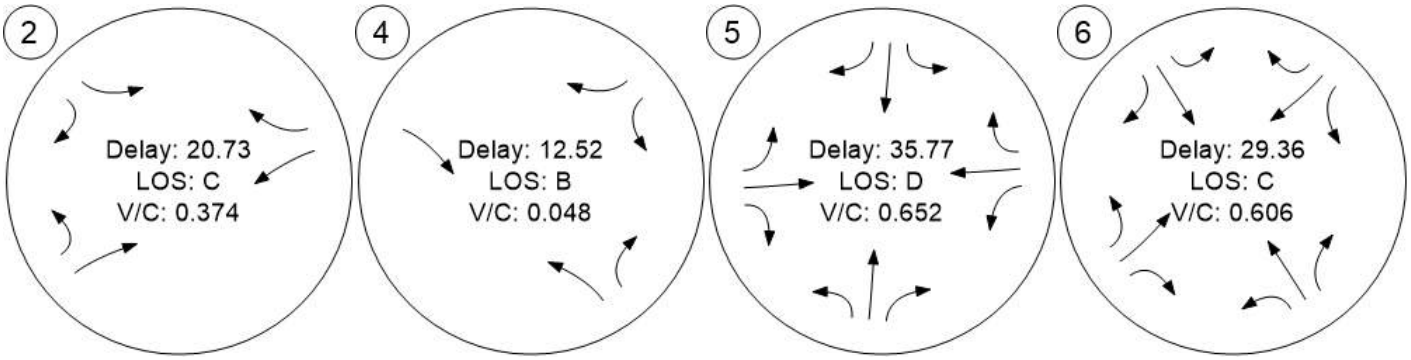
Report Figure 3f: Traffic Volume - Future Total Volume

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

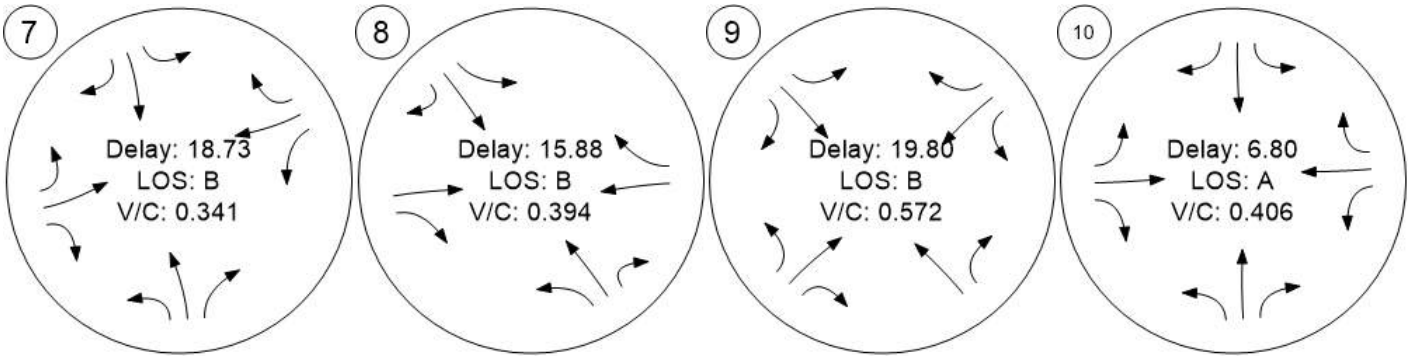


Report Figure 4: Traffic Conditions

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

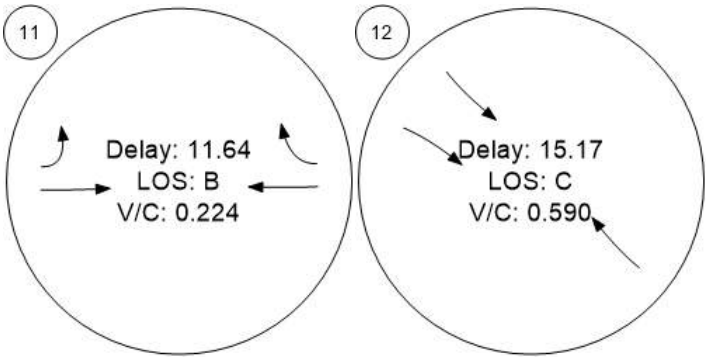



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



Report Figure 4: Traffic Conditions

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U



# PTV Vistro 2024 Reports

*Without Development Conditions (2025) – Weekday PM*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

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Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 6 2025 WO PM

Report File: C:\...\2025 No Dev PM.pdf
6/17/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Two-way stop | HCM 7th Edition | SB Left | 0.683 | 53.1 | F |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Two-way stop | HCM 7th Edition | SB Left | 0.192 | 17.9 | C |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Signalized | HCM 7th Edition | SB Right | 0.665 | 62.2 | E |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Signalized | HCM 7th Edition | NB Left | 0.635 | 34.8 | C |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Signalized | HCM 7th Edition | NB Thru | 0.443 | 17.5 | B |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Signalized | HCM 7th Edition | WB Thru | 0.479 | 18.3 | B |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Signalized | HCM 7th Edition | WB Left | 0.815 | 33.8 | C |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Signalized | HCM 7th Edition | EB Left | 0.518 | 8.4 | A |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Two-way stop | HCM 7th Edition | EB Left | 0.135 | 11.0 | B |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Two-way stop | HCM 7th Edition | NB Thru | 0.658 | 17.9 | C |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**

**Intersection 2: Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 53.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.683 |

**Intersection Setup**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.01 | | 0.01 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 151 | 62 | 98 | 204 | 246 | 233 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 2.00 | 2.00 | 2.00 | 3.00 | 2.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 152 | 63 | 99 | 206 | 248 | 235 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 42 | 17 | 27 | 57 | 68 | 65 |
| Total Analysis Volume [veh/h] | 167 | 69 | 109 | 226 | 273 | 258 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.68 | 0.11 | 0.14 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 53.13 | 44.00 | 9.79 | 0.00 | 0.00 | 0.00 |
| Movement LOS | F | E | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 6.27 | 6.27 | 0.19 | 0.19 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 156.64 | 156.64 | 4.83 | 4.83 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 50.46 | | 3.19 | | 0.00 | |
| Approach LOS | F | | A | | A | |
| d_I, Intersection Delay [s/veh] | 11.78 | | | | | |
| Intersection LOS | F | | | | | |

**Intersection Level Of Service Report**
**Intersection 4: Wood Avenue (SR 2017) & US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 17.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.192 |

**Intersection Setup**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.05 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 61 | 235 | 0 | 357 | 248 | 534 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 100.00 | 3.00 | 2.00 | 1.00 | 4.00 | 2.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 62 | 237 | 0 | 360 | 250 | 539 |
| Peak Hour Factor | 0.9440 | 0.9440 | 1.0000 | 0.9440 | 0.9440 | 0.9440 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 16 | 63 | 0 | 95 | 66 | 143 |
| Total Analysis Volume [veh/h] | 66 | 251 | 0 | 381 | 265 | 571 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.19 | 0.32 | 0.00 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 17.95 | 11.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.70 | 1.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 17.47 | 34.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 12.96 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.68 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Wood Avenue (SR 2017) & N. 13th Street (SR 2019)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 62.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.665 |

**Intersection Setup**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 12.00 | 11.00 | 12.00 | 15.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 20.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 105.00 | 100.00 | 285.00 | 115.00 | 100.00 | 100.00 | 100.00 | 100.00 | 75.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.09 | | | 0.10 | | | -0.05 | | | -0.02 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 153 | 154 | 17 | 74 | 171 | 479 | 459 | 195 | 148 | 6 | 231 | 57 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.00 | 5.00 | 13.00 | 7.00 | 2.00 | 5.00 | 2.00 | 2.00 | 3.00 | 0.00 | 1.00 | 14.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 208 | 0 | 0 | 72 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 154 | 155 | 16 | 75 | 172 | 275 | 463 | 197 | 77 | 6 | 233 | 57 |
| Peak Hour Factor | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 40 | 40 | 4 | 19 | 45 | 71 | 120 | 51 | 20 | 2 | 60 | 15 |
| Total Analysis Volume [veh/h] | 159 | 160 | 17 | 78 | 178 | 285 | 479 | 204 | 80 | 6 | 241 | 59 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 7 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 21 | 49 | 0 | 10 | 22 | 0 |
| Amber [s] | 4.5 | 4.5 | 0.0 | 4.5 | 4.5 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 19 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 3.5 | 3.5 | 0.0 | 3.5 | 3.5 | 0.0 | 2.5 | 2.5 | 0.0 | 4.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | | No | |
| Maximum Recall | No | Yes | | No | Yes | | No | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | C | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 | 0.00 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 11 | 17 | 7 | 13 | 13 | 37 | 37 | 37 | 12 | 12 |
| g / C, Green / Cycle | 0.14 | 0.21 | 0.09 | 0.17 | 0.17 | 0.48 | 0.48 | 0.48 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.10 | 0.06 | 0.13 | 0.24 | 0.33 | 0.12 | 0.05 | 0.09 | 0.10 |
| s, saturation flow rate [veh/h] | 1659 | 1699 | 1265 | 1399 | 1199 | 1453 | 1771 | 1493 | 1650 | 1581 |
| c, Capacity [veh/h] | 226 | 362 | 114 | 233 | 200 | 751 | 848 | 715 | 298 | 239 |
| d1, Uniform Delay [s] | 32.16 | 26.94 | 34.39 | 31.00 | 32.47 | 16.02 | 11.96 | 11.18 | 30.73 | 31.03 |
| k, delay calibration | 0.11 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.98 | 4.67 | 7.10 | 20.77 | 217.78 | 0.93 | 0.15 | 0.07 | 1.41 | 2.75 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.70 | 0.49 | 0.69 | 0.76 | 1.43 | 0.64 | 0.24 | 0.11 | 0.52 | 0.63 |
| d, Delay for Lane Group [s/veh] | 36.14 | 31.61 | 41.49 | 51.76 | 250.25 | 25.95 | 12.10 | 11.25 | 32.14 | 33.78 |
| Lane Group LOS | D | C | D | D | F | C | B | B | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 2.99 | 3.21 | 1.60 | 4.38 | 15.67 | 5.84 | 1.91 | 0.70 | 2.70 | 2.73 |
| 50th-Percentile Queue Length [ft/ln] | 74.67 | 80.33 | 40.03 | 109.55 | 391.78 | 145.90 | 47.86 | 17.57 | 67.45 | 68.25 |
| 95th-Percentile Queue Length [veh/ln] | 5.38 | 5.78 | 2.88 | 7.81 | 25.52 | 9.80 | 3.45 | 1.27 | 4.86 | 4.91 |
| 95th-Percentile Queue Length [ft/ln] | 134.40 | 144.59 | 72.05 | 195.37 | 638.08 | 244.95 | 86.15 | 31.63 | 121.41 | 122.84 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.14 | 31.61 | 31.61 | 41.49 | 51.76 | 250.25 | 25.95 | 12.10 | 11.25 | 32.14 | 32.77 | 33.78 |
| Movement LOS | D | C | C | D | D | F | C | B | B | C | C | C |
| d_A, Approach Delay [s/veh] | 33.76 | | | 154.85 | | | 20.71 | | | 32.95 | | |
| Approach LOS | C | | | F | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 62.18 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.665 | | | | | | | | | | | |

**Emissions**

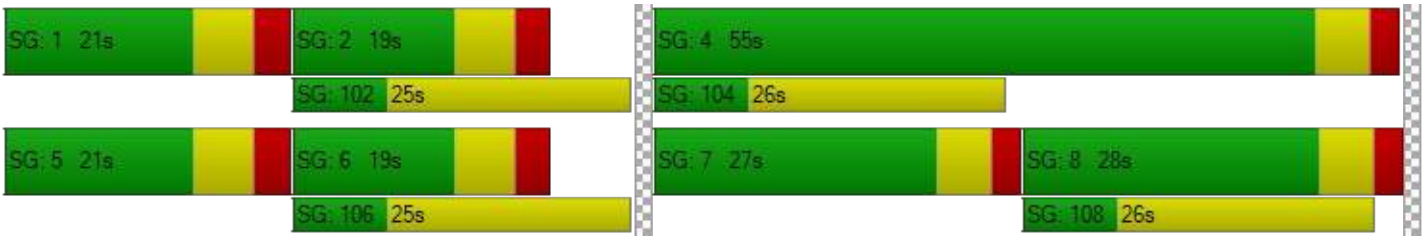
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 8.98 | 10.00 | 8.21 | 18.74 | 30.00 | 16.30 | 6.94 | 2.72 | 15.34 | 14.99 |
| Stops [stops/h] | 138.22 | 148.70 | 74.10 | 202.80 | 725.28 | 270.10 | 88.60 | 32.53 | 124.86 | 126.34 |
| Fuel consumption [US gal/h] | 2.55 | 2.64 | 1.53 | 4.11 | 21.11 | 5.18 | 1.43 | 0.53 | 2.54 | 2.56 |
| CO [g/h] | 178.33 | 184.40 | 106.87 | 287.59 | 1475.55 | 362.26 | 100.20 | 37.16 | 177.27 | 179.00 |
| NOx [g/h] | 34.70 | 35.88 | 20.79 | 55.96 | 287.09 | 70.48 | 19.50 | 7.23 | 34.49 | 34.83 |
| VOC [g/h] | 41.33 | 42.74 | 24.77 | 66.65 | 341.97 | 83.96 | 23.22 | 8.61 | 41.08 | 41.49 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 28.67 | 28.67 | 28.67 | 28.67 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.197 | 2.906 | 2.749 | 2.220 |
| Crosswalk LOS | B | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 309 | 309 | 1260 | 566 |
| d_b, Bicycle Delay [s] | 27.82 | 27.82 | 5.33 | 20.00 |
| l_b,int, Bicycle LOS Score for Intersection | 2.116 | 2.795 | 2.937 | 1.812 |
| Bicycle LOS | B | C | C | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 6: S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 34.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.635 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 | 12.00 | 13.00 | 12.00 | 14.00 | 11.00 | 13.00 | 23.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 300.00 | 100.00 | 420.00 | 265.00 | 100.00 | 280.00 | 100.00 | 100.00 | 100.00 | 400.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 350.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 40.00 | | | 35.00 | | |
| Grade [%] | -0.06 | | | 0.05 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 77 | 556 | 215 | 21 | 429 | 207 | 138 | 180 | 318 | 125 | 30 | 34 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 3.00 | 5.00 | 0.00 | 1.00 | 1.00 | 0.00 | 2.00 | 3.00 | 2.00 | 0.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 126 | 0 | 0 | 84 | 0 | 0 | 220 | 0 | 0 | 23 |
| Total Hourly Volume [veh/h] | 78 | 561 | 91 | 21 | 433 | 125 | 139 | 182 | 101 | 126 | 30 | 11 |
| Peak Hour Factor | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 144 | 23 | 5 | 111 | 32 | 36 | 47 | 26 | 32 | 8 | 3 |
| Total Analysis Volume [veh/h] | 80 | 577 | 94 | 22 | 445 | 129 | 143 | 187 | 104 | 130 | 31 | 11 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 95.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 7 | 42 | 0 | 5 | 42 | 0 | 0 | 23 | 0 | 10 | 39 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 6 | 0 | 0 | 6 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 50.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 35.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 13 | 42 | 0 | 13 | 42 | 0 | 0 | 32 | 0 | 13 | 45 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 0 | 10 | 0 | 7 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | | No | | No | No | |
| Maximum Recall | No | Yes | | No | Yes | | | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 |
| g_i, Effective Green Time [s] | 7 | 41 | 41 | 4 | 38 | 38 | 27 | 27 | 40 | 40 |
| g / C, Green / Cycle | 0.07 | 0.41 | 0.41 | 0.04 | 0.38 | 0.38 | 0.27 | 0.27 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.33 | 0.06 | 0.01 | 0.28 | 0.09 | 0.24 | 0.07 | 0.11 | 0.02 |
| s, saturation flow rate [veh/h] | 1672 | 1756 | 1469 | 1540 | 1603 | 1363 | 1398 | 1554 | 1238 | 1777 |
| c, Capacity [veh/h] | 124 | 720 | 602 | 67 | 608 | 517 | 425 | 415 | 358 | 705 |
| d1, Uniform Delay [s] | 45.03 | 25.94 | 18.61 | 46.44 | 26.68 | 21.29 | 36.63 | 28.79 | 23.34 | 18.62 |
| k, delay calibration | 0.13 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.38 | 0.11 | 0.40 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 6.79 | 9.18 | 0.55 | 2.86 | 7.62 | 1.16 | 10.10 | 0.31 | 2.28 | 0.03 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.65 | 0.80 | 0.16 | 0.33 | 0.73 | 0.25 | 0.78 | 0.25 | 0.36 | 0.06 |
| d, Delay for Lane Group [s/veh] | 51.83 | 35.11 | 19.16 | 49.30 | 34.30 | 22.45 | 46.72 | 29.11 | 25.62 | 18.66 |
| Lane Group LOS | D | D | B | D | C | C | D | C | C | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.13 | 13.24 | 1.43 | 0.58 | 10.00 | 2.18 | 8.64 | 1.93 | 2.19 | 0.59 |
| 50th-Percentile Queue Length [ft/ln] | 53.34 | 331.08 | 35.64 | 14.42 | 249.95 | 54.53 | 215.99 | 48.31 | 54.69 | 14.83 |
| 95th-Percentile Queue Length [veh/ln] | 3.84 | 19.21 | 2.57 | 1.04 | 15.18 | 3.93 | 13.46 | 3.48 | 3.94 | 1.07 |
| 95th-Percentile Queue Length [ft/ln] | 96.01 | 480.29 | 64.15 | 25.96 | 379.59 | 98.15 | 336.51 | 86.97 | 98.44 | 26.69 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 51.83 | 35.11 | 19.16 | 49.30 | 34.30 | 22.45 | 46.72 | 46.72 | 29.11 | 25.62 | 18.66 | 18.66 |
| Movement LOS | D | D | B | D | C | C | D | D | C | C | B | B |
| d_A, Approach Delay [s/veh] | 34.90 | | | 32.29 | | | 42.50 | | | 23.92 | | |
| Approach LOS | C | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 34.82 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.635 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 7.66 | 55.26 | 9.00 | 3.03 | 61.38 | 17.79 | 24.50 | 7.72 | 18.43 | 5.95 |
| Stops [stops/h] | 76.81 | 476.76 | 51.32 | 20.77 | 359.93 | 78.52 | 311.03 | 69.57 | 78.75 | 21.35 |
| Fuel consumption [US gal/h] | 1.71 | 9.81 | 1.10 | 0.49 | 8.15 | 1.86 | 7.07 | 1.58 | 1.97 | 0.55 |
| CO [g/h] | 119.77 | 686.06 | 76.59 | 34.43 | 569.84 | 129.87 | 494.22 | 110.16 | 137.87 | 38.24 |
| NOx [g/h] | 23.30 | 133.48 | 14.90 | 6.70 | 110.87 | 25.27 | 96.16 | 21.43 | 26.83 | 7.44 |
| VOC [g/h] | 27.76 | 159.00 | 17.75 | 7.98 | 132.07 | 30.10 | 114.54 | 25.53 | 31.95 | 8.86 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 10.0 | 10.0 | 8.0 | 8.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 40.50 | 40.50 | 42.32 | 42.32 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.898 | 2.956 | 2.659 | 2.271 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 720 | 720 | 520 | 780 |
| d_b, Bicycle Delay [s] | 20.48 | 20.48 | 27.38 | 18.61 |
| l_b,int, Bicycle LOS Score for Intersection | 3.007 | 2.682 | 2.639 | 1.881 |
| Bicycle LOS | C | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 7: Northampton Street (SR 0248) & Wood Avenue (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 17.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.443 |

**Intersection Setup**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 17.00 | 12.00 | 22.00 | 10.00 | 10.00 | 10.00 | 11.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.01 | | | -0.03 | | | -0.05 | | | 0.06 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | No | | | Yes | | |

**Volumes**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 37 | 133 | 231 | 16 | 73 | 78 | 58 | 299 | 31 | 80 | 395 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 5.00 | 4.00 | 0.00 | 3.00 | 12.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 8.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 139 | 0 | 0 | 26 | 0 | 0 | 5 | 0 | 0 | 2 |
| Total Hourly Volume [veh/h] | 37 | 134 | 94 | 16 | 74 | 53 | 58 | 302 | 26 | 81 | 398 | 13 |
| Peak Hour Factor | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 10 | 35 | 24 | 4 | 19 | 14 | 15 | 79 | 7 | 21 | 104 | 3 |
| Total Analysis Volume [veh/h] | 39 | 139 | 98 | 17 | 77 | 55 | 60 | 314 | 27 | 84 | 414 | 14 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 66.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 38 | 0 | 0 | 38 | 0 | 0 | 50 | 0 | 0 | 50 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 12 | 0 | 0 | 12 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 44 | 0 | 0 | 44 | 0 | 0 | 56 | 0 | 0 | 56 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | Yes | | | Yes | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 20 | 20 | 70 | 70 | 70 | 70 |
| g / C, Green / Cycle | 0.20 | 0.20 | 0.70 | 0.70 | 0.70 | 0.70 |
| (v / s)_i Volume / Saturation Flow Rate | 0.17 | 0.09 | 0.06 | 0.19 | 0.09 | 0.27 |
| s, saturation flow rate [veh/h] | 1618 | 1596 | 974 | 1760 | 925 | 1568 |
| c, Capacity [veh/h] | 371 | 365 | 608 | 1225 | 620 | 1092 |
| d1, Uniform Delay [s] | 38.06 | 34.85 | 10.78 | 5.72 | 9.14 | 6.34 |
| k, delay calibration | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.98 | 0.73 | 0.32 | 0.57 | 0.45 | 1.06 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.74 | 0.41 | 0.10 | 0.28 | 0.14 | 0.39 |
| d, Delay for Lane Group [s/veh] | 41.03 | 35.58 | 11.10 | 6.29 | 9.60 | 7.40 |
| Lane Group LOS | D | D | B | A | A | A |
| Critical Lane Group | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 6.77 | 3.26 | 0.68 | 2.63 | 0.88 | 3.72 |
| 50th-Percentile Queue Length [ft/ln] | 169.15 | 81.58 | 17.07 | 65.81 | 21.96 | 92.93 |
| 95th-Percentile Queue Length [veh/ln] | 11.03 | 5.87 | 1.23 | 4.74 | 1.58 | 6.69 |
| 95th-Percentile Queue Length [ft/ln] | 275.79 | 146.85 | 30.73 | 118.46 | 39.52 | 167.27 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 41.03 | 41.03 | 41.03 | 35.58 | 35.58 | 35.58 | 11.10 | 6.29 | 6.29 | 9.60 | 7.40 | 7.40 |
| Movement LOS | D | D | D | D | D | D | B | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 41.03 | | | 35.58 | | | 7.01 | | | 7.76 | | |
| Approach LOS | D | | | D | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 17.50 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.443 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 39.12 | 158.89 | 7.08 | 40.26 | 22.71 | 115.73 |
| Stops [stops/h] | 243.57 | 117.48 | 24.59 | 94.77 | 31.62 | 133.82 |
| Fuel consumption [US gal/h] | 5.00 | 8.67 | 0.55 | 2.61 | 1.31 | 6.36 |
| CO [g/h] | 349.38 | 606.35 | 38.34 | 182.47 | 91.35 | 444.75 |
| NOx [g/h] | 67.98 | 117.97 | 7.46 | 35.50 | 17.77 | 86.53 |
| VOC [g/h] | 80.97 | 140.53 | 8.88 | 42.29 | 21.17 | 103.07 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 16.0 | 16.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.28 | 35.28 | 0.00 | 39.61 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.279 | 1.996 | 0.000 | 2.265 |
| Crosswalk LOS | B | A | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 760 | 760 | 1000 | 1000 |
| d_b, Bicycle Delay [s] | 19.22 | 19.22 | 12.50 | 12.50 |
| l_b,int, Bicycle LOS Score for Intersection | 2.244 | 1.848 | 2.230 | 2.408 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 8: Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.479 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 13.00 | 12.00 | 20.00 | 12.00 | 12.00 | 11.00 | 13.00 | 12.00 | 12.00 | 13.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 40.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.02 | | | -0.02 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 69 | 644 | 8 | 282 | 549 | 36 | 0 | 113 | 94 | 0 | 153 | 356 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 3.00 | 0.00 | 0.00 | 1.00 | 5.00 | 2.00 | 2.00 | 3.00 | 2.00 | 4.00 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 23 | 0 | 0 | 86 |
| Total Hourly Volume [veh/h] | 70 | 650 | 8 | 284 | 554 | 22 | 0 | 114 | 72 | 0 | 154 | 273 |
| Peak Hour Factor | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 1.0000 | 0.9800 | 0.9800 | 1.0000 | 0.9800 | 0.9800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 166 | 2 | 72 | 141 | 6 | 0 | 29 | 18 | 0 | 39 | 70 |
| Total Analysis Volume [veh/h] | 71 | 663 | 8 | 290 | 565 | 22 | 0 | 116 | 73 | 0 | 157 | 279 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 2.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Overlap | Permiss | Permiss | Overlap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 5 | 0 | 8 | 1 |
| Auxiliary Signal Groups | | | | | | | | | 4,5 | | | 1,8 |
| Maximum Green [s] | 16 | 31 | 0 | 16 | 31 | 0 | 0 | 35 | 16 | 0 | 35 | 16 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Walk [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 40.0 | 40.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 13 | 37 | 0 | 22 | 46 | 0 | 0 | 41 | 13 | 0 | 41 | 22 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 0 | 10 | 7 | 0 | 10 | 7 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 |
| Minimum Recall | No | No | | No | No | | | No | No | | No | No |
| Maximum Recall | No | Yes | | No | Yes | | | No | No | | No | No |
| Pedestrian Recall | No | No | | No | No | | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | R | C | R |
|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| g_i, Effective Green Time [s] | 72 | 50 | 50 | 72 | 60 | 18 | 30 | 18 | 40 |
| g / C, Green / Cycle | 0.72 | 0.50 | 0.50 | 0.72 | 0.60 | 0.18 | 0.30 | 0.18 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.19 | 0.19 | 0.28 | 0.32 | 0.07 | 0.05 | 0.09 | 0.18 |
| s, saturation flow rate [veh/h] | 935 | 1758 | 1750 | 1028 | 1845 | 1772 | 1554 | 1744 | 1579 |
| c, Capacity [veh/h] | 619 | 880 | 876 | 754 | 1100 | 325 | 457 | 320 | 615 |
| d1, Uniform Delay [s] | 6.72 | 15.42 | 15.42 | 6.43 | 11.96 | 35.68 | 26.17 | 36.64 | 22.64 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.49 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.38 | 1.26 | 1.27 | 1.48 | 1.86 | 0.66 | 0.16 | 1.17 | 2.34 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.11 | 0.38 | 0.38 | 0.38 | 0.53 | 0.36 | 0.16 | 0.49 | 0.45 |
| d, Delay for Lane Group [s/veh] | 7.09 | 16.68 | 16.69 | 7.92 | 13.81 | 36.34 | 26.33 | 37.81 | 24.98 |
| Lane Group LOS | A | B | B | A | B | D | C | D | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.44 | 4.78 | 4.76 | 1.98 | 7.33 | 2.49 | 1.29 | 3.48 | 5.09 |
| 50th-Percentile Queue Length [ft/ln] | 10.93 | 119.50 | 119.07 | 49.60 | 183.32 | 62.29 | 32.16 | 87.10 | 127.35 |
| 95th-Percentile Queue Length [veh/ln] | 0.79 | 8.37 | 8.34 | 3.57 | 11.77 | 4.48 | 2.32 | 6.27 | 8.80 |
| 95th-Percentile Queue Length [ft/ln] | 19.67 | 209.14 | 208.55 | 89.28 | 294.34 | 112.12 | 57.89 | 156.77 | 219.89 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 7.09 | 16.69 | 16.69 | 7.92 | 13.81 | 13.81 | 0.00 | 36.34 | 26.33 | 0.00 | 37.81 | 24.98 |
| Movement LOS | A | B | B | A | B | B | | D | C | | D | C |
| d_A, Approach Delay [s/veh] | 15.77 | | | 11.86 | | | 32.48 | | | 29.60 | | |
| Approach LOS | B | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 18.34 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.479 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.79 | 46.37 | 46.18 | 23.54 | 47.65 | 8.14 | 5.12 | 18.54 | 32.94 |
| Stops [stops/h] | 15.73 | 172.09 | 171.46 | 71.43 | 263.97 | 89.70 | 46.31 | 125.42 | 183.38 |
| Fuel consumption [US gal/h] | 0.59 | 4.20 | 4.19 | 2.01 | 5.95 | 1.84 | 0.93 | 2.86 | 4.05 |
| CO [g/h] | 41.53 | 293.77 | 292.67 | 140.65 | 415.92 | 128.80 | 65.33 | 199.76 | 283.31 |
| NOx [g/h] | 8.08 | 57.16 | 56.94 | 27.37 | 80.92 | 25.06 | 12.71 | 38.87 | 55.12 |
| VOC [g/h] | 9.62 | 68.08 | 67.83 | 32.60 | 96.39 | 29.85 | 15.14 | 46.30 | 65.66 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 19.0 | 0.0 | 18.0 | 18.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.81 | 0.00 | 33.62 | 33.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.485 | 0.000 | 2.214 | 2.735 |
| Crosswalk LOS | B | F | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 620 | 800 | 700 | 700 |
| d_b, Bicycle Delay [s] | 23.81 | 18.00 | 21.13 | 21.13 |
| l_b,int, Bicycle LOS Score for Intersection | 2.172 | 3.030 | 1.909 | 2.421 |
| Bicycle LOS | B | C | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 9: Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 33.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.815 |

**Intersection Setup**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 13.00 | 13.00 | 12.00 | 12.00 | 12.00 | 18.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 25.00 | | | 35.00 | | |
| Grade [%] | 0.04 | | | -0.04 | | | -0.01 | | | 0.01 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | No | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 594 | 405 | 55 | 645 | 39 | 79 | 69 | 6 | 218 | 176 | 250 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 4.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 135 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 108 |
| Total Hourly Volume [veh/h] | 0 | 599 | 273 | 55 | 651 | 37 | 80 | 70 | 5 | 220 | 178 | 144 |
| Peak Hour Factor | 1.0000 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 156 | 71 | 14 | 170 | 10 | 21 | 18 | 1 | 57 | 46 | 38 |
| Total Analysis Volume [veh/h] | 0 | 625 | 285 | 57 | 680 | 39 | 84 | 73 | 5 | 230 | 186 | 150 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 99.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 39 | 0 | 7 | 52 | 0 | 0 | 36 | 0 | 0 | 36 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 165.0 | 165.0 | 0.0 | 0.0 | -5.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 6.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 13 | 55 | 0 | 0 | 45 | 0 | 0 | 45 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | Yes | No | | | No | | | No | |
| Maximum Recall | | Yes | | No | Yes | | | No | | | No | |
| Pedestrian Recall | | No | | No | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | C | C | C | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 2.50 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 37 | 37 | 50 | 50 | 40 | 40 |
| g / C, Green / Cycle | 0.37 | 0.37 | 0.50 | 0.50 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.28 | 0.31 | 0.34 | 0.26 | 0.15 | 0.38 |
| s, saturation flow rate [veh/h] | 1641 | 1477 | 1096 | 1597 | 1084 | 1493 |
| c, Capacity [veh/h] | 609 | 548 | 485 | 800 | 487 | 646 |
| d1, Uniform Delay [s] | 27.37 | 28.58 | 18.18 | 16.72 | 20.61 | 29.49 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.44 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 8.16 | 13.60 | 10.68 | 2.31 | 0.40 | 13.89 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.75 | 0.83 | 0.76 | 0.51 | 0.33 | 0.88 |
| d, Delay for Lane Group [s/veh] | 35.52 | 42.18 | 28.86 | 19.03 | 21.01 | 43.39 |
| Lane Group LOS | D | D | C | B | C | D |
| Critical Lane Group | No | Yes | Yes | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 10.29 | 11.37 | 6.46 | 6.29 | 2.68 | 14.93 |
| 50th-Percentile Queue Length [ft/ln] | 257.17 | 284.33 | 161.53 | 157.18 | 66.92 | 373.29 |
| 95th-Percentile Queue Length [veh/ln] | 15.55 | 16.90 | 10.63 | 10.40 | 4.82 | 21.27 |
| 95th-Percentile Queue Length [ft/ln] | 388.67 | 422.60 | 265.74 | 259.99 | 120.46 | 531.72 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 37.33 | 42.18 | 28.86 | 23.53 | 19.03 | 21.01 | 21.01 | 21.01 | 43.39 | 43.39 | 43.39 |
| Movement LOS | | D | D | C | C | B | C | C | C | D | D | D |
| d_A, Approach Delay [s/veh] | 38.85 | | | 23.69 | | | 21.01 | | | 43.39 | | |
| Approach LOS | D | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 33.84 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.815 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 36.94 | 36.94 | 26.95 | 29.88 | 6.87 | 39.01 |
| Stops [stops/h] | 370.32 | 409.43 | 232.60 | 226.34 | 96.36 | 537.53 |
| Fuel consumption [US gal/h] | 8.25 | 9.25 | 5.41 | 4.87 | 1.37 | 10.53 |
| CO [g/h] | 576.68 | 646.61 | 378.28 | 340.66 | 95.85 | 735.81 |
| NOx [g/h] | 112.20 | 125.81 | 73.60 | 66.28 | 18.65 | 143.16 |
| VOC [g/h] | 133.65 | 149.86 | 87.67 | 78.95 | 22.21 | 170.53 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 9.0 | 9.0 | 9.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 0.00 | 41.41 | 41.41 | 41.41 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 0.000 | 2.827 | 1.881 | 2.778 | |
| Crosswalk LOS | F | C | A | C | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 720 | 980 | 780 | 780 | |
| d_b, Bicycle Delay [s] | 20.48 | 13.01 | 18.61 | 18.61 | |
| l_b,int, Bicycle LOS Score for Intersection | 2.422 | 2.201 | 1.829 | 2.672 | |
| Bicycle LOS | B | B | A | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 10: Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.518 |

**Intersection Setup**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 11.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 11.00 | 11.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 120.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 25.00 | | | 40.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 256 | 32 | 163 | 270 | 26 | 32 | 10 | 3 | 76 | 24 | 236 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 6.00 | 0.00 | 1.00 | 3.00 | 0.00 | 3.00 | 0.00 | 0.00 | 1.00 | 13.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Total Hourly Volume [veh/h] | 0 | 258 | 28 | 164 | 272 | 26 | 32 | 10 | 3 | 77 | 24 | 230 |
| Peak Hour Factor | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 70 | 8 | 45 | 74 | 7 | 9 | 3 | 1 | 21 | 7 | 63 |
| Total Analysis Volume [veh/h] | 0 | 281 | 30 | 178 | 296 | 28 | 35 | 11 | 3 | 84 | 26 | 250 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 38 | 0 | 0 | 38 | 0 | 0 | 13 | 0 | 0 | 13 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 9 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 |
| Detector Location [ft] | 0.0 | 210.0 | 0.0 | 0.0 | 210.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 6.0 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 30 | 30 | 30 | 30 | 30 | 30 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |
| g_i, Effective Green Time [s] | 12 | 12 | 10 | 10 | 10 | 10 |
| g / C, Green / Cycle | 0.41 | 0.41 | 0.32 | 0.32 | 0.32 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.18 | 0.32 | 0.03 | 0.01 | 0.06 | 0.20 |
| s, saturation flow rate [veh/h] | 1730 | 1570 | 1094 | 1734 | 1411 | 1393 |
| c, Capacity [veh/h] | 834 | 811 | 313 | 554 | 568 | 445 |
| d1, Uniform Delay [s] | 6.26 | 7.27 | 13.47 | 6.96 | 9.36 | 8.61 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.28 | 0.78 | 0.16 | 0.02 | 0.12 | 1.42 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.37 | 0.62 | 0.11 | 0.03 | 0.15 | 0.62 |
| d, Delay for Lane Group [s/veh] | 6.54 | 8.04 | 13.62 | 6.98 | 9.48 | 10.03 |
| Lane Group LOS | A | A | B | A | A | B |
| Critical Lane Group | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.73 | 1.41 | 0.20 | 0.04 | 0.29 | 0.96 |
| 50th-Percentile Queue Length [ft/ln] | 18.17 | 35.32 | 4.92 | 1.11 | 7.17 | 23.95 |
| 95th-Percentile Queue Length [veh/ln] | 1.31 | 2.54 | 0.35 | 0.08 | 0.52 | 1.72 |
| 95th-Percentile Queue Length [ft/ln] | 32.70 | 63.58 | 8.85 | 2.00 | 12.91 | 43.11 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 6.54 | 6.54 | 6.54 | 8.04 | 8.04 | 8.04 | 13.62 | 6.98 | 6.98 | 9.48 | 10.03 | 10.03 |
| Movement LOS | A | A | A | A | A | A | B | A | A | A | B | B |
| d_A, Approach Delay [s/veh] | 6.54 | | | 8.04 | | | 11.72 | | | 9.90 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 8.36 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.518 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 47.22 | 72.68 | 3.78 | 1.51 | 72.83 | 239.30 |
| Stops [stops/h] | 88.06 | 171.19 | 23.82 | 5.39 | 34.77 | 116.07 |
| Fuel consumption [US gal/h] | 2.88 | 4.88 | 0.36 | 0.11 | 3.11 | 10.28 |
| CO [g/h] | 201.03 | 341.11 | 25.06 | 7.59 | 217.57 | 718.27 |
| NOx [g/h] | 39.11 | 66.37 | 4.87 | 1.48 | 42.33 | 139.75 |
| VOC [g/h] | 46.59 | 79.06 | 5.81 | 1.76 | 50.42 | 166.47 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 5.89 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.165 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2558 | 2558 | 875 | 875 |
| d_b, Bicycle Delay [s] | 1.16 | 1.16 | 4.70 | 4.70 |
| l_b,int, Bicycle LOS Score for Intersection | 2.079 | 2.388 | 1.640 | 2.167 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 11: Wood Avenue (SR 2017) & US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.135 |

**Intersection Setup**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 50.00 | 0.00 |
| Speed [mph] | 30.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | -0.03 | | 0.03 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 77 | 803 | 782 | 96 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 3.00 | 2.00 | 2.00 | 0.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 78 | 810 | 789 | 97 |
| Peak Hour Factor | 1.0000 | 1.0000 | 0.9430 | 0.9430 | 0.9430 | 0.9430 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 21 | 215 | 209 | 26 |
| Total Analysis Volume [veh/h] | 0 | 0 | 83 | 859 | 837 | 103 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.14 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 10.97 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.14 | 0.05 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 3.62 | 1.21 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.97 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.48 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 12: Wood Avenue (SR 2017) & US 22 East Off-Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 17.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.658 |

**Intersection Setup**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Thru | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | -0.04 | | -0.03 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 462 | 418 | 0 | 0 | 782 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 466 | 422 | 0 | 0 | 789 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 129 | 117 | 0 | 0 | 219 |
| Total Analysis Volume [veh/h] | 0 | 518 | 469 | 0 | 0 | 877 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.66 | 0.00 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 0.00 | 17.91 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | A | | | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 5.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 125.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 17.91 | | 0.00 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.98 | | | | | |
| Intersection LOS | C | | | | | |

Proposed Warehouse at 1525 Wood Ave
Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 6 2025 WO PM
Report File: C:\...\2025 No Dev PM.pdf
6/17/2024

## Turning Movement Volume: Summary

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | 152 | 63 | 99 | 206 | 248 | 235 | 1003 |

| ID | Intersection Name | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | 62 | 237 | 360 | 250 | 539 | 1448 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | 154 | 155 | 17 | 75 | 172 | 483 | 463 | 197 | 149 | 6 | 233 | 57 | 2161 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | 78 | 561 | 217 | 21 | 433 | 209 | 139 | 182 | 321 | 126 | 30 | 34 | 2351 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | 37 | 134 | 233 | 16 | 74 | 79 | 58 | 302 | 31 | 81 | 398 | 15 | 1458 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012) /Nazareth Road (SR 0248) | 70 | 650 | 8 | 284 | 554 | 36 | 114 | 95 | 154 | 359 | 2324 |

| ID | Intersection Name | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | 599 | 408 | 55 | 651 | 39 | 80 | 70 | 6 | 220 | 178 | 252 | 2558 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | 0 | 258 | 32 | 164 | 272 | 26 | 32 | 10 | 3 | 77 | 24 | 238 | 1136 |

| ID | Intersection Name | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|
| | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | 78 | 810 | 789 | 97 | 1774 |

| ID | Intersection Name | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|
| | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | 466 | 422 | 789 | 1677 |

Proposed Warehouse at 1525 Wood Ave
Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 6 2025 WO PM
Report File: C:\...\2025 No Dev PM.pdf
6/17/2024

## Turning Movement Volume: Detail

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Final Base | 151 | 62 | 98 | 204 | 246 | 233 | 994 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **152** | **63** | **99** | **206** | **248** | **235** | **1003** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Final Base | 61 | 235 | 357 | 248 | 534 | 1435 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **62** | **237** | **360** | **250** | **539** | **1448** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Final Base | 153 | 154 | 17 | 74 | 171 | 479 | 459 | 195 | 148 | 6 | 231 | 57 | 2144 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **154** | **155** | **17** | **75** | **172** | **483** | **463** | **197** | **149** | **6** | **233** | **57** | **2161** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Final Base | 77 | 556 | 215 | 21 | 429 | 207 | 138 | 180 | 318 | 125 | 30 | 34 | 2330 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **78** | **561** | **217** | **21** | **433** | **209** | **139** | **182** | **321** | **126** | **30** | **34** | **2351** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Final Base | 37 | 133 | 231 | 16 | 73 | 78 | 58 | 299 | 31 | 80 | 395 | 15 | 1446 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **37** | **134** | **233** | **16** | **74** | **79** | **58** | **302** | **31** | **81** | **398** | **15** | **1458** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Final Base | 69 | 644 | 8 | 282 | 549 | 36 | 113 | 94 | 153 | 356 | 2304 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **70** | **650** | **8** | **284** | **554** | **36** | **114** | **95** | **154** | **359** | **2324** |

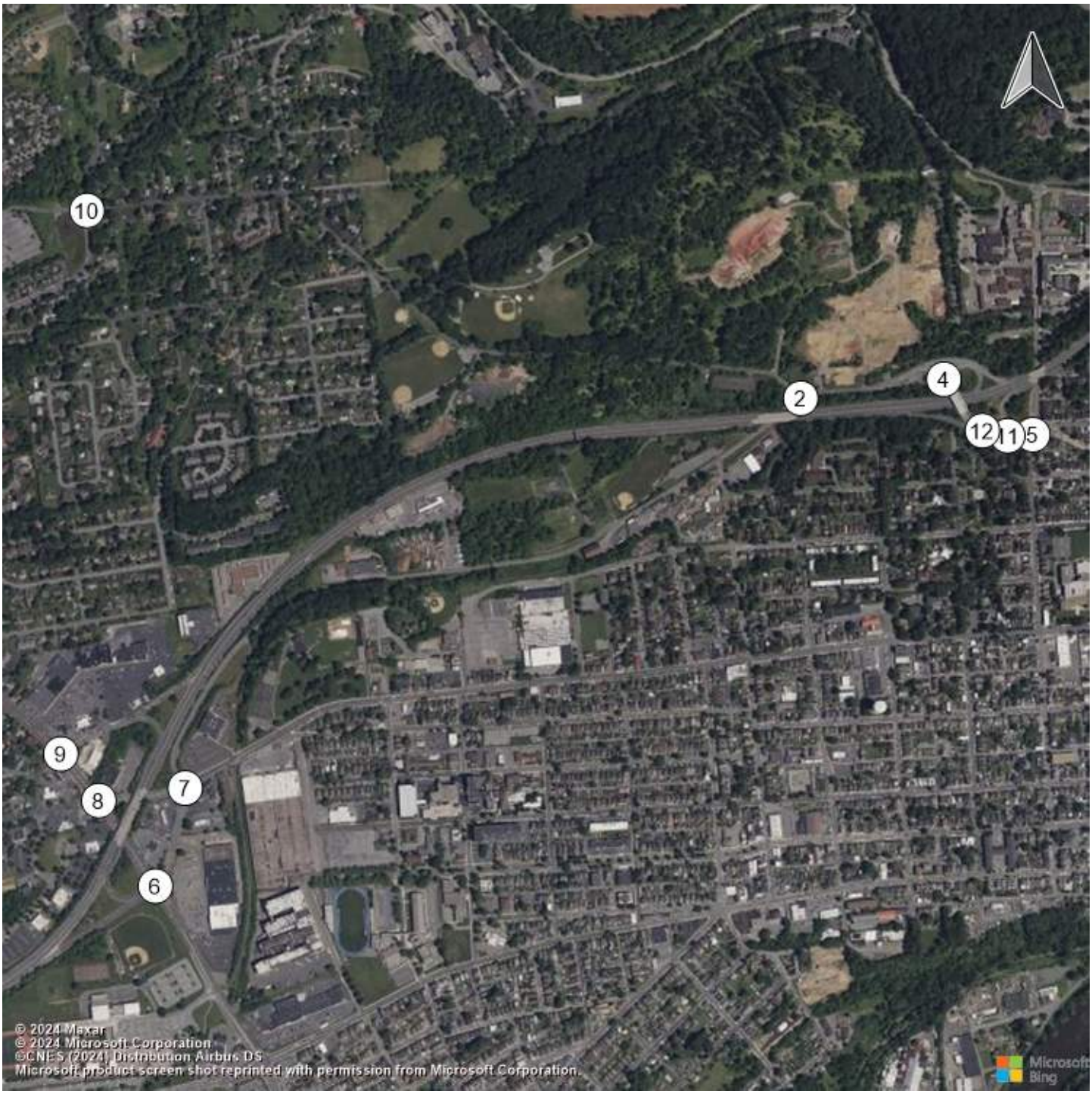
| ID | Intersection Name | Volume Type | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Final Base | 594 | 405 | 55 | 645 | 39 | 79 | 69 | 6 | 218 | 176 | 250 | 2536 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **599** | **408** | **55** | **651** | **39** | **80** | **70** | **6** | **220** | **178** | **252** | **2558** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Final Base | 0 | 256 | 32 | 163 | 270 | 26 | 32 | 10 | 3 | 76 | 24 | 236 | 1128 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **0** | **258** | **32** | **164** | **272** | **26** | **32** | **10** | **3** | **77** | **24** | **238** | **1136** |

| ID | Intersection Name | Volume Type | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Final Base | 77 | 803 | 782 | 96 | 1758 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **78** | **810** | **789** | **97** | **1774** |

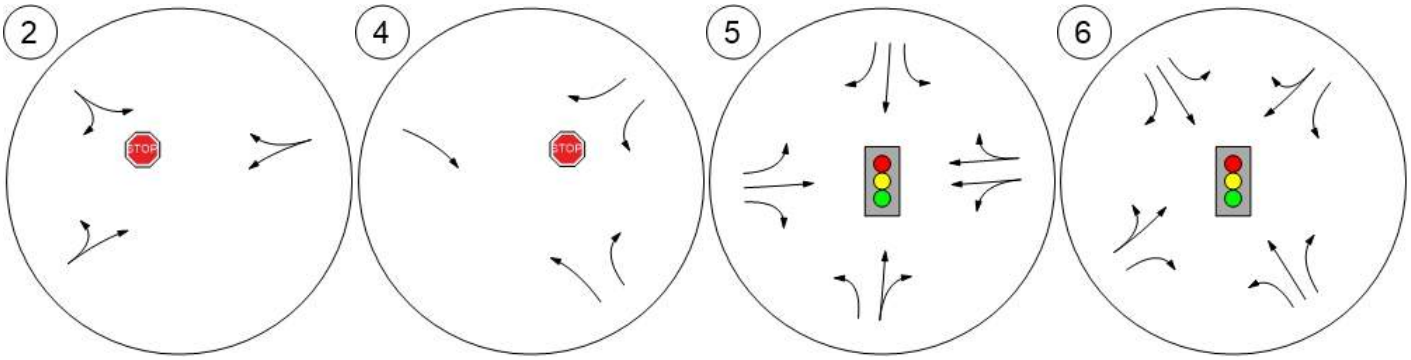
| ID | Intersection Name | Volume Type | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|---|
| | | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Final Base | 462 | 418 | 782 | 1662 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 |
| | | **Future Total** | **466** | **422** | **789** | **1677** |

Report Figure 1: Study Intersections

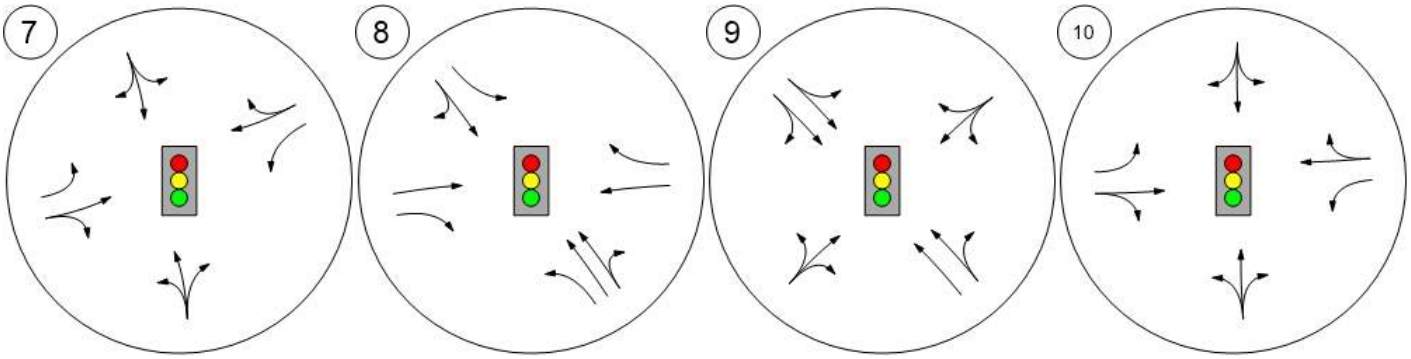


Report Figure 2: Lane Configuration and Traffic Control

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

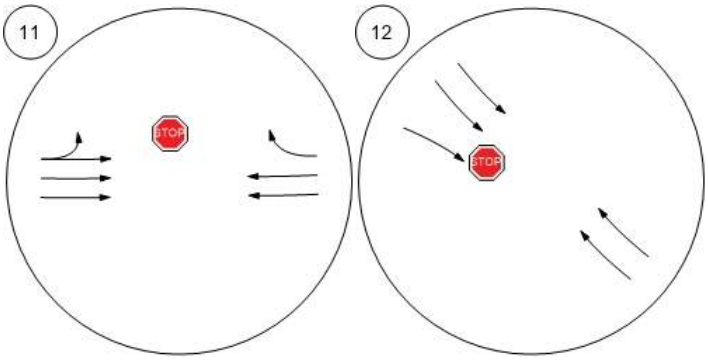



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



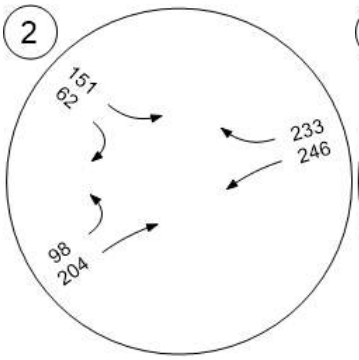
Report Figure 2: Lane Configuration and Traffic Control

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

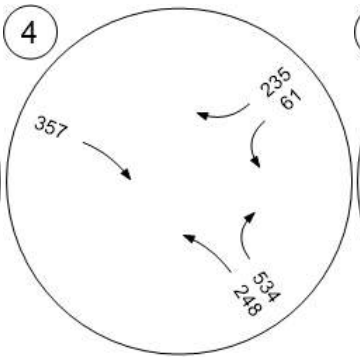


Report Figure 3a: Traffic Volume - Base Volume

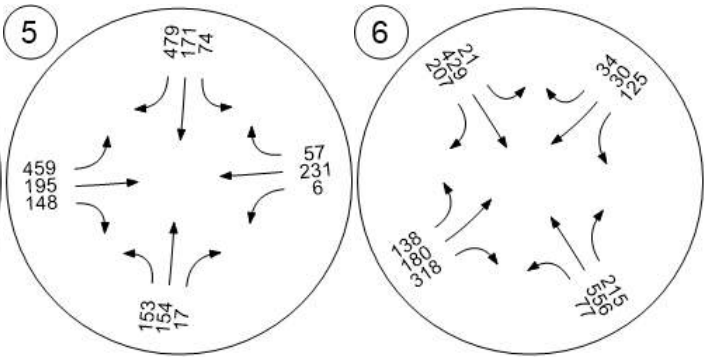
Hackett Avenue (SR 2017) &



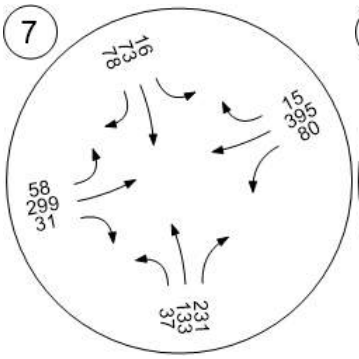

Wood Avenue (SR 2017) & U



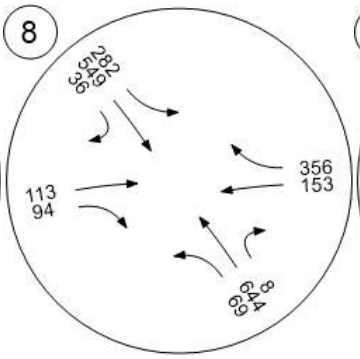

Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W



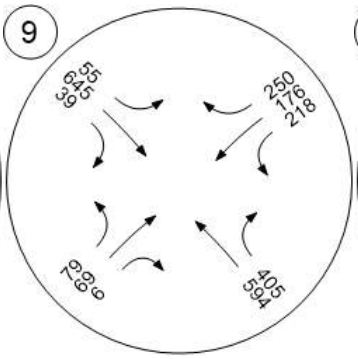

Northampton Street (SR 024



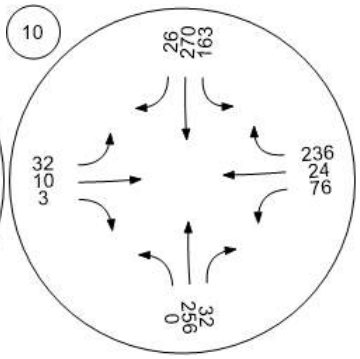

Northampton Street (SR 024




Nazareth Road (SR 0248) &

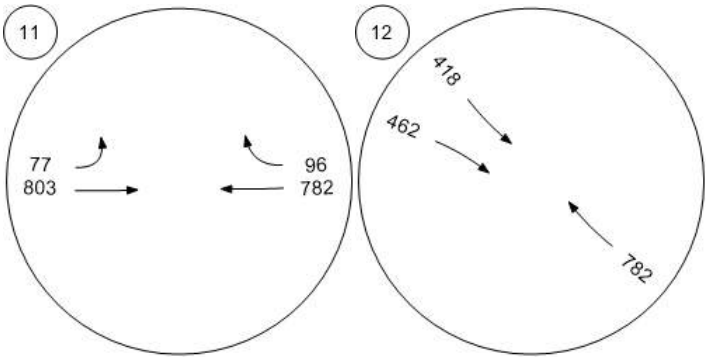



Hackett Avenue (SR 2017) /



Report Figure 3a: Traffic Volume - Base Volume

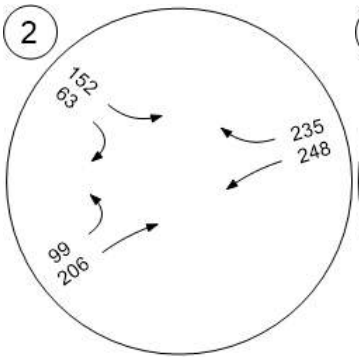
Wood Avenue (SR 2017) & U



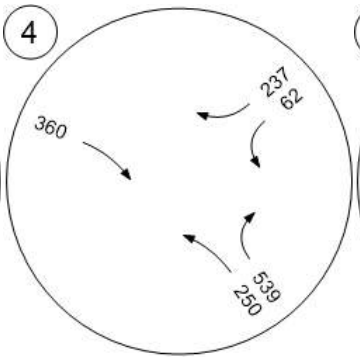

Wood Avenue (SR 2017) & U

Report Figure 3c: Traffic Volume - Future Background Volume

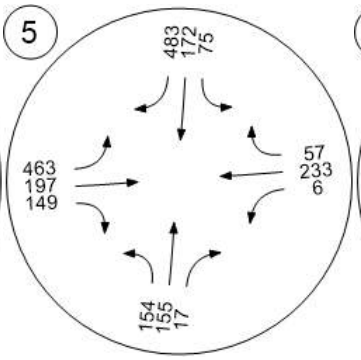
Hackett Avenue (SR 2017) &

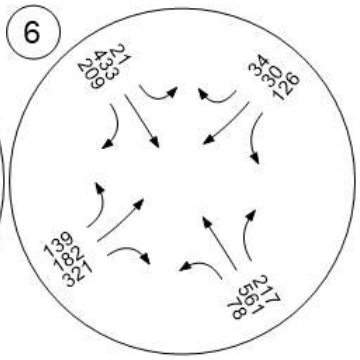



Wood Avenue (SR 2017) & U

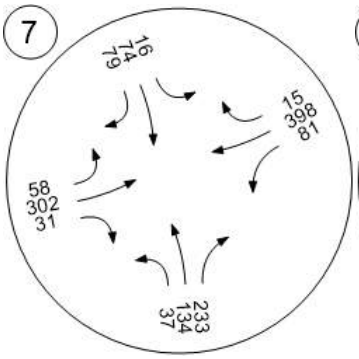



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

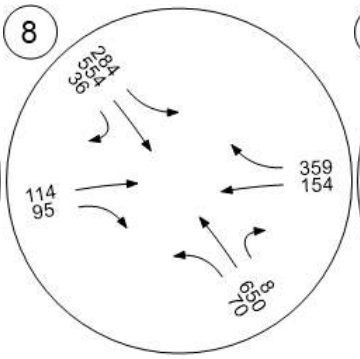


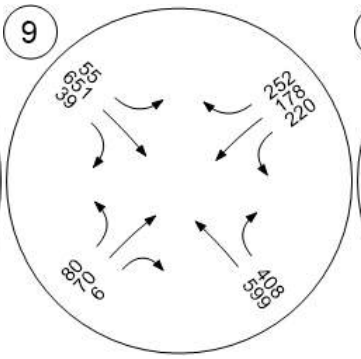

Northampton Street (SR 024



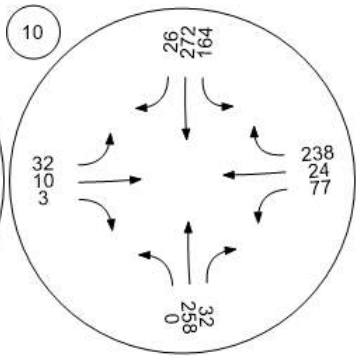

Northampton Street (SR 024




Nazareth Road (SR 0248) &

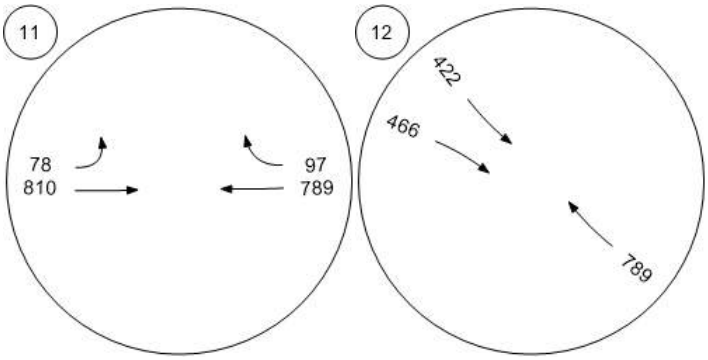



Hackett Avenue (SR 2017) /



Report Figure 3c: Traffic Volume - Future Background Volume

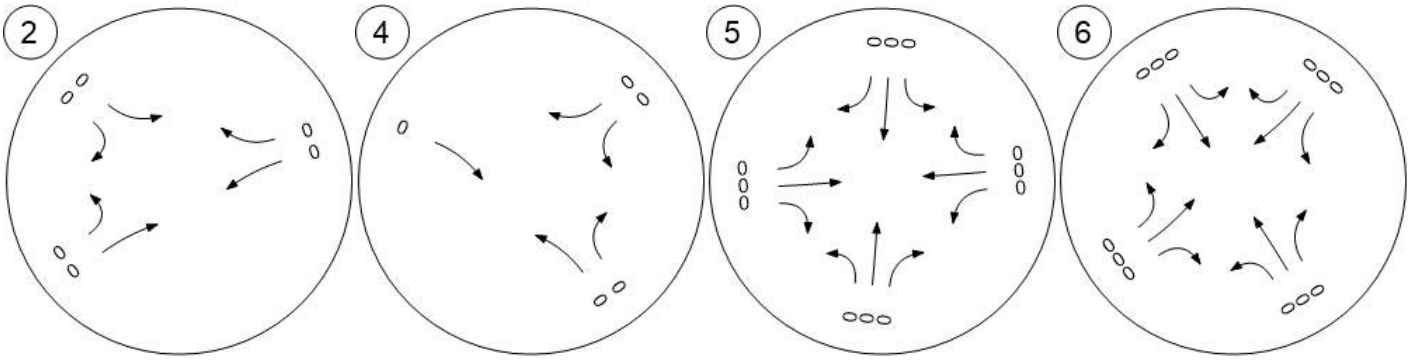
Wood Avenue (SR 2017) & U



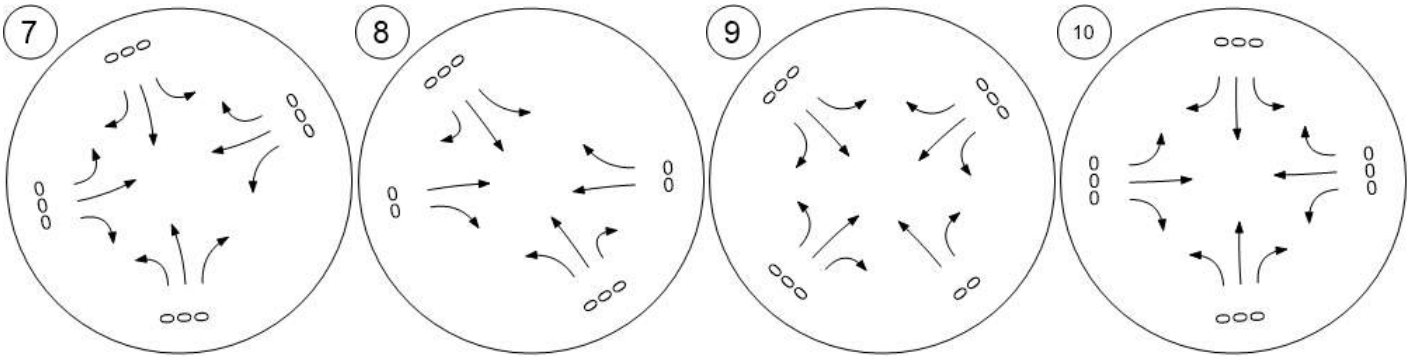

Wood Avenue (SR 2017) & U

Report Figure 3d: Traffic Volume - Net New Site Trips

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

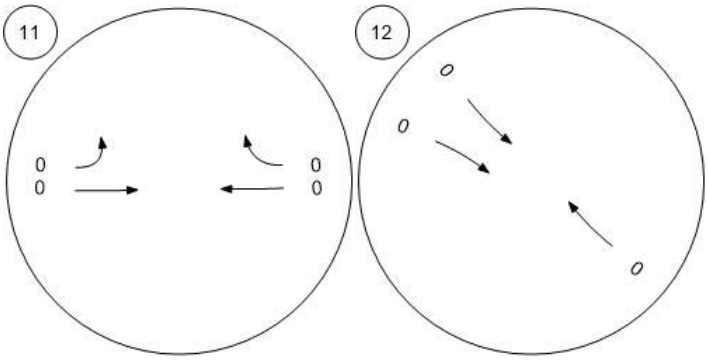



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



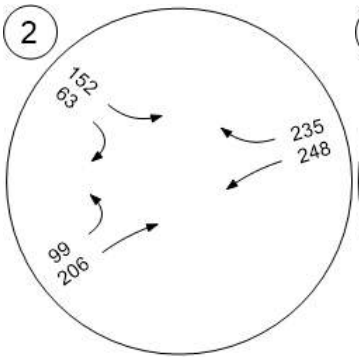
Report Figure 3d: Traffic Volume - Net New Site Trips

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

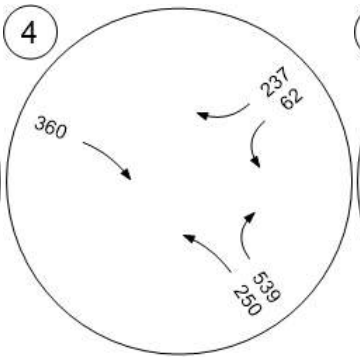


Report Figure 3f: Traffic Volume - Future Total Volume

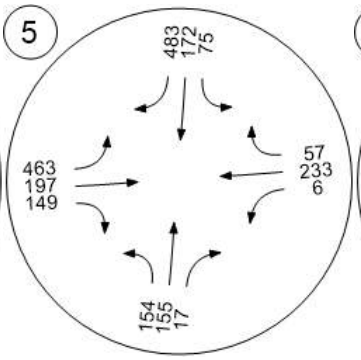
Hackett Avenue (SR 2017) &

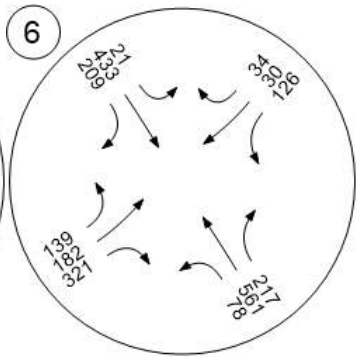



Wood Avenue (SR 2017) & U

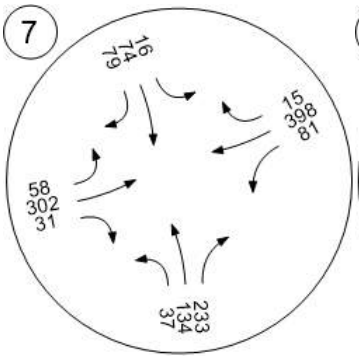



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

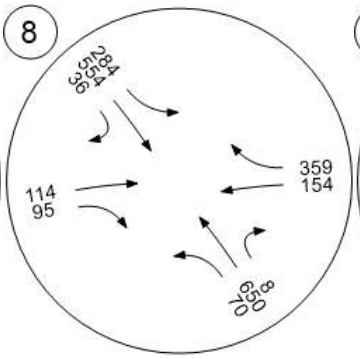


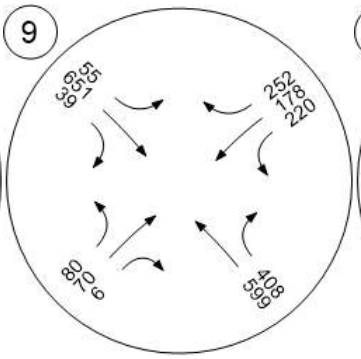

Northampton Street (SR 024



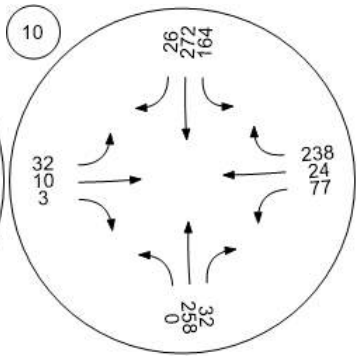

Northampton Street (SR 024




Nazareth Road (SR 0248) &

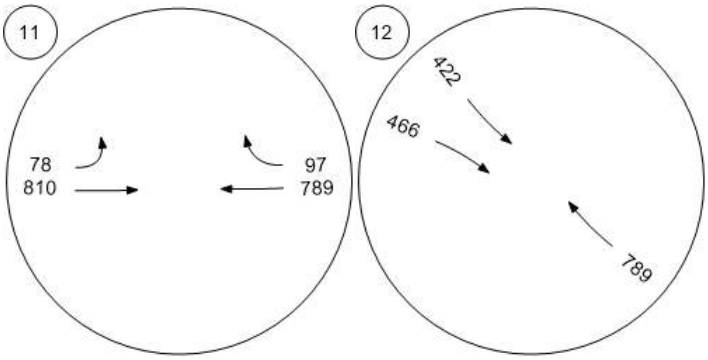



Hackett Avenue (SR 2017) /



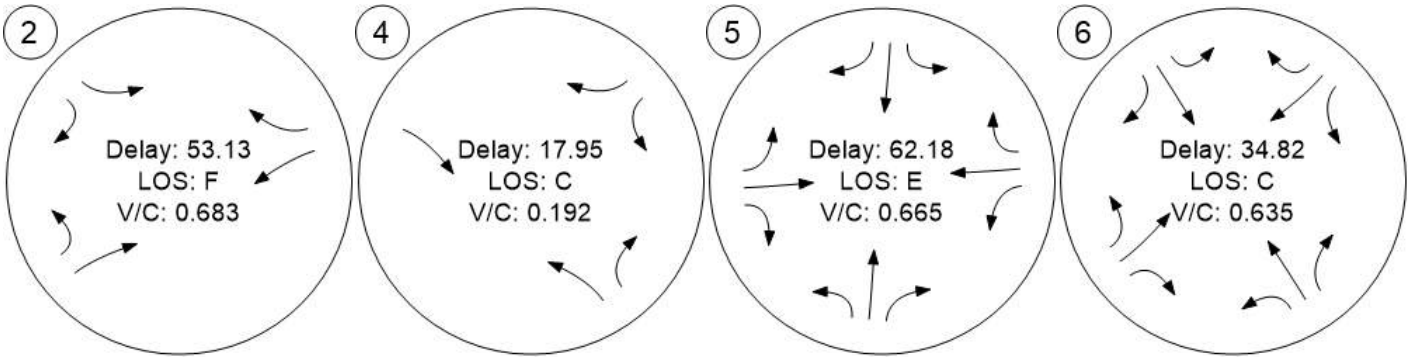
Report Figure 3f: Traffic Volume - Future Total Volume

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

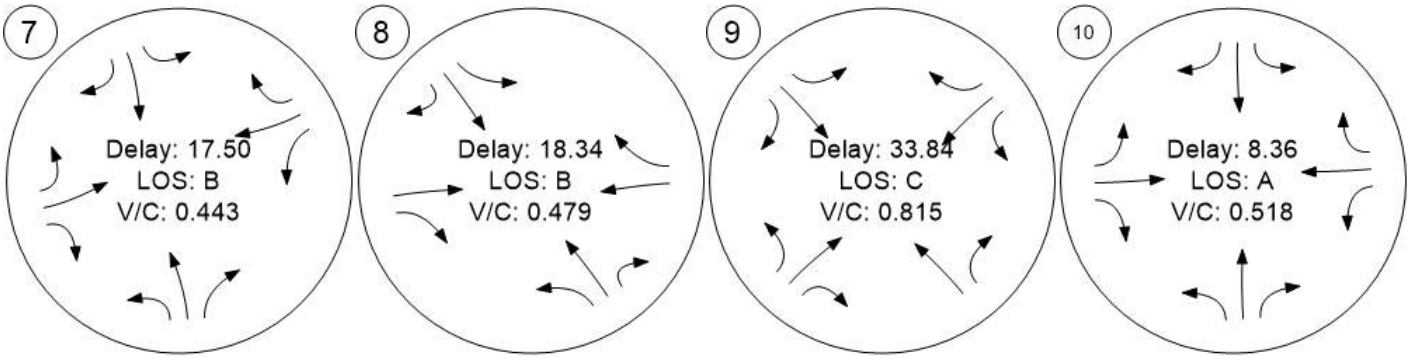


Report Figure 4: Traffic Conditions

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

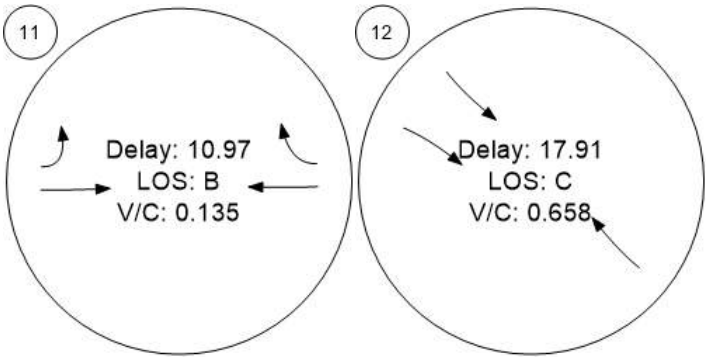



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



Report Figure 4: Traffic Conditions

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U



# PTV Vistro 2024 Reports

*With Development Conditions (2025) – Weekday AM*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

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Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 7 2025 WD AM

Report File: C:\...\2025 WD AM.pdf
6/17/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | SB Left | 0.016 | 11.5 | B |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Two-way stop | HCM 7th Edition | SB Left | 0.478 | 28.5 | D |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | SB Left | 0.027 | 16.1 | C |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Two-way stop | HCM 7th Edition | SB Left | 0.051 | 13.0 | B |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Signalized | HCM 7th Edition | SB Right | 0.663 | 36.7 | D |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Signalized | HCM 7th Edition | SB Left | 0.623 | 30.6 | C |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Signalized | HCM 7th Edition | NB Thru | 0.376 | 19.6 | B |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Signalized | HCM 7th Edition | WB Thru | 0.400 | 16.0 | B |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Signalized | HCM 7th Edition | WB Left | 0.578 | 19.9 | B |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Signalized | HCM 7th Edition | EB Left | 0.413 | 6.9 | A |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Two-way stop | HCM 7th Edition | EB Left | 0.243 | 11.8 | B |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Two-way stop | HCM 7th Edition | NB Thru | 0.595 | 15.4 | C |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Hackett Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.016 |

**Intersection Setup**

| Name | Proposed Site Access | | Hackett Avenue (SR 2017) | | Hackett Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | 40.00 | | 40.00 | |
| Grade [%] | 0.03 | | 0.05 | | -0.05 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Proposed Site Access | | Hackett Avenue (SR 2017) | | Hackett Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 176 | 176 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 43.00 | 0.00 | 0.00 | 3.00 | 1.00 | 7.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 8 | 2 | 14 | 0 | 0 | 27 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 8 | 2 | 14 | 178 | 178 | 27 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 1 | 4 | 49 | 49 | 8 |
| Total Analysis Volume [veh/h] | 9 | 2 | 16 | 198 | 198 | 30 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 11.48 | 9.27 | 8.61 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.06 | 0.06 | 0.03 | 0.03 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.39 | 1.39 | 0.67 | 0.67 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.08 | | 0.64 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.57 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**

**Intersection 2: Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 28.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.478 |

**Intersection Setup**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.01 | | 0.01 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 128 | 42 | 61 | 153 | 235 | 115 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 6.00 | 6.00 | 5.00 | 7.00 | 2.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 3 | 5 | 18 | 51 | 11 | 9 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 132 | 47 | 80 | 205 | 248 | 125 |
| Peak Hour Factor | 0.9040 | 0.9040 | 0.9040 | 0.9040 | 0.9040 | 0.9040 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 13 | 22 | 57 | 69 | 35 |
| Total Analysis Volume [veh/h] | 146 | 52 | 88 | 227 | 274 | 138 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.48 | 0.07 | 0.10 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 28.51 | 21.86 | 9.34 | 0.00 | 0.00 | 0.00 |
| Movement LOS | D | C | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 3.19 | 3.19 | 0.15 | 0.15 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 79.87 | 79.87 | 3.85 | 3.85 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 26.77 | | 2.61 | | 0.00 | |
| Approach LOS | D | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.62 | | | | | |
| Intersection LOS | D | | | | | |

**Intersection Level Of Service Report**
**Intersection 3: Wood Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 16.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.027 |

**Intersection Setup**

| Name | Proposed Site Access | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Proposed Site Access | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 281 | 298 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 43.00 | 27.00 | 6.00 | 3.00 | 2.00 | 17.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 8 | 11 | 51 | 3 | 9 | 29 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 8 | 11 | 51 | 286 | 310 | 29 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 3 | 14 | 79 | 86 | 8 |
| Total Analysis Volume [veh/h] | 9 | 12 | 57 | 318 | 344 | 32 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.03 | 0.02 | 0.06 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 16.10 | 10.46 | 9.11 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.14 | 0.14 | 0.10 | 0.10 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 3.44 | 3.44 | 2.45 | 2.45 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 12.88 | | 1.38 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.02 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 4: Wood Avenue (SR 2017) & US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 13.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.051 |

**Intersection Setup**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | |  | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.05 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 23 | 89 | 0 | 300 | 209 | 659 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 8.00 | 2.00 | 5.00 | 2.00 | 1.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 16 | 0 | 11 | 22 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 23 | 106 | 0 | 314 | 233 | 665 |
| Peak Hour Factor | 0.9760 | 0.9760 | 1.0000 | 0.9760 | 0.9760 | 0.9760 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 27 | 0 | 80 | 60 | 170 |
| Total Analysis Volume [veh/h] | 24 | 109 | 0 | 322 | 239 | 681 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.05 | 0.13 | 0.00 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 13.00 | 10.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.16 | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 3.99 | 11.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.60 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.02 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Wood Avenue (SR 2017) & N. 13th Street (SR 2019)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 36.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.663 |

**Intersection Setup**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 12.00 | 11.00 | 12.00 | 15.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 20.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 105.00 | 100.00 | 285.00 | 115.00 | 100.00 | 100.00 | 100.00 | 100.00 | 75.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.09 | | | 0.10 | | | -0.05 | | | -0.02 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 152 | 125 | 5 | 57 | 137 | 615 | 363 | 163 | 123 | 6 | 226 | 65 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 3.00 | 0.00 | 4.00 | 7.00 | 3.00 | 4.00 | 2.00 | 1.00 | 0.00 | 1.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 6 | 0 | 0 | 0 | 0 | 12 | 2 | 1 | 1 | 0 | 4 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 333 | 0 | 0 | 70 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 159 | 126 | 4 | 57 | 138 | 299 | 368 | 165 | 55 | 6 | 232 | 66 |
| Peak Hour Factor | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 42 | 34 | 1 | 15 | 37 | 80 | 98 | 44 | 15 | 2 | 62 | 18 |
| Total Analysis Volume [veh/h] | 170 | 135 | 4 | 61 | 147 | 319 | 393 | 176 | 59 | 6 | 248 | 71 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 7 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 11 | 27 | 0 | 11 | 27 | 0 | 18 | 52 | 0 | 10 | 28 | 0 |
| Amber [s] | 4.5 | 4.5 | 0.0 | 4.5 | 4.5 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 19 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 3.5 | 3.5 | 0.0 | 3.5 | 3.5 | 0.0 | 2.5 | 2.5 | 0.0 | 4.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 17 | 0 | 0 | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | | No | |
| Maximum Recall | No | Yes | | No | Yes | | No | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | C | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 | 0.00 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 12 | 33 | 7 | 28 | 28 | 37 | 37 | 37 | 13 | 13 |
| g / C, Green / Cycle | 0.13 | 0.35 | 0.07 | 0.30 | 0.30 | 0.40 | 0.40 | 0.40 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.08 | 0.05 | 0.11 | 0.26 | 0.28 | 0.10 | 0.04 | 0.10 | 0.10 |
| s, saturation flow rate [veh/h] | 1686 | 1747 | 1305 | 1328 | 1224 | 1397 | 1771 | 1517 | 1659 | 1567 |
| c, Capacity [veh/h] | 214 | 618 | 92 | 394 | 363 | 578 | 701 | 601 | 275 | 222 |
| d1, Uniform Delay [s] | 39.99 | 21.43 | 42.80 | 26.26 | 31.58 | 23.99 | 19.11 | 17.91 | 38.35 | 38.70 |
| k, delay calibration | 0.25 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 13.97 | 0.84 | 8.03 | 2.70 | 24.69 | 1.42 | 0.19 | 0.07 | 2.11 | 4.32 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.79 | 0.23 | 0.67 | 0.37 | 0.88 | 0.68 | 0.25 | 0.10 | 0.60 | 0.72 |
| d, Delay for Lane Group [s/veh] | 53.96 | 22.27 | 50.84 | 28.95 | 56.27 | 25.41 | 19.30 | 17.98 | 40.46 | 43.02 |
| Lane Group LOS | D | C | D | C | E | C | B | B | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 4.57 | 2.23 | 1.57 | 2.83 | 9.10 | 6.92 | 2.52 | 0.79 | 3.69 | 3.72 |
| 50th-Percentile Queue Length [ft/ln] | 114.24 | 55.83 | 39.14 | 70.71 | 227.58 | 173.06 | 63.06 | 19.82 | 92.28 | 92.91 |
| 95th-Percentile Queue Length [veh/ln] | 8.08 | 4.02 | 2.82 | 5.09 | 14.05 | 11.24 | 4.54 | 1.43 | 6.64 | 6.69 |
| 95th-Percentile Queue Length [ft/ln] | 201.88 | 100.49 | 70.45 | 127.28 | 351.29 | 280.93 | 113.51 | 35.67 | 166.10 | 167.24 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 53.96 | 22.27 | 22.27 | 50.84 | 28.95 | 56.27 | 25.41 | 19.30 | 17.98 | 40.46 | 41.38 | 43.02 |
| Movement LOS | D | C | C | D | C | E | C | B | B | D | D | D |
| d_A, Approach Delay [s/veh] | 39.70 | | | 48.02 | | | 23.00 | | | 41.72 | | |
| Approach LOS | D | | | D | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 36.66 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.663 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.60 | 7.85 | 6.42 | 15.47 | 33.58 | 13.38 | 5.99 | 2.01 | 16.37 | 15.83 |
| Stops [stops/h] | 174.30 | 85.18 | 59.72 | 107.89 | 347.24 | 264.05 | 96.22 | 30.24 | 140.80 | 141.76 |
| Fuel consumption [US gal/h] | 3.54 | 1.57 | 1.32 | 2.27 | 7.54 | 4.53 | 1.64 | 0.52 | 3.04 | 3.07 |
| CO [g/h] | 247.68 | 109.73 | 92.61 | 158.48 | 527.33 | 316.51 | 114.85 | 36.34 | 212.73 | 214.47 |
| NOx [g/h] | 48.19 | 21.35 | 18.02 | 30.84 | 102.60 | 61.58 | 22.35 | 7.07 | 41.39 | 41.73 |
| VOC [g/h] | 57.40 | 25.43 | 21.46 | 36.73 | 122.21 | 73.35 | 26.62 | 8.42 | 49.30 | 49.71 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.83 | 36.83 | 36.83 | 36.83 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.177 | 3.064 | 2.759 | 2.224 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 572 | 572 | 1102 | 593 |
| d_b, Bicycle Delay [s] | 24.05 | 24.05 | 9.51 | 23.34 |
| l_b,int, Bicycle LOS Score for Intersection | 2.071 | 2.979 | 2.711 | 1.828 |
| Bicycle LOS | B | C | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 6: S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 30.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.623 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 | 12.00 | 13.00 | 12.00 | 14.00 | 11.00 | 13.00 | 23.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 300.00 | 100.00 | 420.00 | 265.00 | 100.00 | 280.00 | 100.00 | 100.00 | 100.00 | 400.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 350.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 40.00 | | | 35.00 | | |
| Grade [%] | -0.06 | | | 0.05 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 96 | 503 | 144 | 7 | 409 | 183 | 78 | 117 | 301 | 179 | 15 | 22 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 7.00 | 14.00 | 0.00 | 6.00 | 1.00 | 3.00 | 7.00 | 15.00 | 8.00 | 0.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 25 | 0 | 3 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 67 | 0 | 0 | 93 | 0 | 0 | 220 | 0 | 0 | 11 |
| Total Hourly Volume [veh/h] | 97 | 507 | 94 | 7 | 413 | 92 | 79 | 143 | 84 | 184 | 15 | 11 |
| Peak Hour Factor | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 26 | 138 | 26 | 2 | 112 | 25 | 21 | 39 | 23 | 50 | 4 | 3 |
| Total Analysis Volume [veh/h] | 106 | 552 | 102 | 8 | 449 | 100 | 86 | 156 | 91 | 200 | 16 | 12 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 88.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 13 | 36 | 0 | 7 | 33 | 0 | 0 | 20 | 0 | 17 | 36 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 6 | 0 | 0 | 6 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 50.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 35.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 19 | 47 | 0 | 13 | 41 | 0 | 0 | 26 | 0 | 14 | 40 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 0 | 10 | 0 | 7 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | | No | | No | No | |
| Maximum Recall | No | Yes | | No | Yes | | | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 |
| g_i, Effective Green Time [s] | 9 | 48 | 48 | 2 | 42 | 42 | 20 | 20 | 34 | 34 |
| g / C, Green / Cycle | 0.09 | 0.48 | 0.48 | 0.02 | 0.42 | 0.42 | 0.20 | 0.20 | 0.34 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.32 | 0.07 | 0.01 | 0.29 | 0.07 | 0.17 | 0.06 | 0.16 | 0.02 |
| s, saturation flow rate [veh/h] | 1686 | 1700 | 1361 | 1540 | 1532 | 1363 | 1439 | 1405 | 1247 | 1728 |
| c, Capacity [veh/h] | 158 | 824 | 660 | 40 | 639 | 568 | 336 | 280 | 363 | 587 |
| d1, Uniform Delay [s] | 43.85 | 19.66 | 14.35 | 47.71 | 24.04 | 18.34 | 39.10 | 34.25 | 27.30 | 22.17 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.32 | 0.11 | 0.38 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.91 | 4.31 | 0.50 | 2.47 | 6.36 | 0.68 | 8.17 | 0.67 | 4.50 | 0.03 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.67 | 0.67 | 0.15 | 0.20 | 0.70 | 0.18 | 0.72 | 0.32 | 0.55 | 0.05 |
| d, Delay for Lane Group [s/veh] | 48.76 | 23.97 | 14.85 | 50.18 | 30.40 | 19.02 | 47.27 | 34.92 | 31.80 | 22.20 |
| Lane Group LOS | D | C | B | D | C | B | D | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.71 | 10.14 | 1.33 | 0.22 | 9.44 | 1.52 | 6.29 | 1.89 | 4.00 | 0.44 |
| 50th-Percentile Queue Length [ft/ln] | 67.83 | 253.58 | 33.16 | 5.50 | 236.10 | 37.99 | 157.20 | 47.20 | 99.90 | 10.96 |
| 95th-Percentile Queue Length [veh/ln] | 4.88 | 15.37 | 2.39 | 0.40 | 14.48 | 2.74 | 10.40 | 3.40 | 7.19 | 0.79 |
| 95th-Percentile Queue Length [ft/ln] | 122.10 | 384.16 | 59.69 | 9.90 | 362.10 | 68.38 | 260.01 | 84.97 | 179.82 | 19.73 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 48.76 | 23.97 | 14.85 | 50.18 | 30.40 | 19.02 | 47.27 | 47.27 | 34.92 | 31.80 | 22.20 | 22.20 |
| Movement LOS | D | C | B | D | C | B | D | D | C | C | C | C |
| d_A, Approach Delay [s/veh] | 26.20 | | | 28.64 | | | 43.90 | | | 30.62 | | |
| Approach LOS | C | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 30.60 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.623 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 10.15 | 52.87 | 9.77 | 1.10 | 61.93 | 13.79 | 17.96 | 6.76 | 28.35 | 3.97 |
| Stops [stops/h] | 97.68 | 365.16 | 47.75 | 7.92 | 339.99 | 54.70 | 226.37 | 67.97 | 143.85 | 15.78 |
| Fuel consumption [US gal/h] | 2.17 | 7.45 | 1.04 | 0.18 | 7.70 | 1.32 | 5.20 | 1.56 | 3.46 | 0.40 |
| CO [g/h] | 151.91 | 521.03 | 72.68 | 12.81 | 537.90 | 92.56 | 363.13 | 108.79 | 241.63 | 27.71 |
| NOx [g/h] | 29.56 | 101.37 | 14.14 | 2.49 | 104.66 | 18.01 | 70.65 | 21.17 | 47.01 | 5.39 |
| VOC [g/h] | 35.21 | 120.75 | 16.84 | 2.97 | 124.66 | 21.45 | 84.16 | 25.21 | 56.00 | 6.42 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 10.0 | 10.0 | 8.0 | 8.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 40.50 | 40.50 | 42.32 | 42.32 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.825 | 2.876 | 2.636 | 2.246 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 820 | 700 | 400 | 680 |
| d_b, Bicycle Delay [s] | 17.41 | 21.13 | 32.00 | 21.78 |
| l_b,int, Bicycle LOS Score for Intersection | 2.924 | 2.632 | 2.472 | 1.954 |
| Bicycle LOS | C | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 7: Northampton Street (SR 0248) & Wood Avenue (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.376 |

**Intersection Setup**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 17.00 | 12.00 | 22.00 | 10.00 | 10.00 | 10.00 | 11.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.01 | | | -0.03 | | | -0.05 | | | 0.06 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | No | | | Yes | | |

**Volumes**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 22 | 90 | 186 | 13 | 124 | 50 | 51 | 204 | 17 | 49 | 288 | 11 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 9.00 | 6.00 | 7.00 | 2.00 | 18.00 | 4.00 | 4.00 | 0.00 | 6.00 | 3.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 41 | 0 | 1 | 3 | 12 | 20 | 0 | 0 | 0 | 0 | 8 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 130 | 0 | 0 | 10 | 0 | 0 | 1 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 22 | 132 | 58 | 14 | 128 | 52 | 71 | 206 | 16 | 49 | 290 | 19 |
| Peak Hour Factor | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 37 | 16 | 4 | 36 | 15 | 20 | 58 | 4 | 14 | 81 | 5 |
| Total Analysis Volume [veh/h] | 25 | 148 | 65 | 16 | 143 | 58 | 79 | 230 | 18 | 55 | 324 | 21 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 16.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 36 | 0 | 0 | 36 | 0 | 0 | 52 | 0 | 0 | 52 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 12 | 0 | 0 | 12 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 0 | 42 | 0 | 0 | 58 | 0 | 0 | 58 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | Yes | | | Yes | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 18 | 18 | 72 | 72 | 72 | 72 |
| g / C, Green / Cycle | 0.18 | 0.18 | 0.72 | 0.72 | 0.72 | 0.72 |
| (v / s)_i Volume / Saturation Flow Rate | 0.15 | 0.13 | 0.08 | 0.14 | 0.06 | 0.23 |
| s, saturation flow rate [veh/h] | 1581 | 1675 | 1018 | 1720 | 962 | 1532 |
| c, Capacity [veh/h] | 331 | 348 | 671 | 1231 | 674 | 1096 |
| d1, Uniform Delay [s] | 39.05 | 38.16 | 9.17 | 4.73 | 7.42 | 5.22 |
| k, delay calibration | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.93 | 1.84 | 0.36 | 0.37 | 0.24 | 0.75 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.72 | 0.62 | 0.12 | 0.20 | 0.08 | 0.31 |
| d, Delay for Lane Group [s/veh] | 41.97 | 40.00 | 9.53 | 5.09 | 7.66 | 5.97 |
| Lane Group LOS | D | D | A | A | A | A |
| Critical Lane Group | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 5.87 | 5.16 | 0.82 | 1.64 | 0.49 | 2.55 |
| 50th-Percentile Queue Length [ft/ln] | 146.63 | 129.04 | 20.40 | 40.99 | 12.36 | 63.87 |
| 95th-Percentile Queue Length [veh/ln] | 9.84 | 8.89 | 1.47 | 2.95 | 0.89 | 4.60 |
| 95th-Percentile Queue Length [ft/ln] | 245.93 | 222.19 | 36.71 | 73.78 | 22.25 | 114.96 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 41.97 | 41.97 | 41.97 | 40.00 | 40.00 | 40.00 | 9.53 | 5.09 | 5.09 | 7.66 | 5.97 | 5.97 |
| Movement LOS | D | D | D | D | D | D | A | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 41.97 | | | 40.00 | | | 6.16 | | | 6.20 | | |
| Approach LOS | D | | | D | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 19.60 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.376 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 33.74 | 231.40 | 9.33 | 29.28 | 14.87 | 93.29 |
| Stops [stops/h] | 211.15 | 185.81 | 29.37 | 59.03 | 17.80 | 91.97 |
| Fuel consumption [US gal/h] | 4.36 | 12.88 | 0.69 | 1.80 | 0.82 | 4.97 |
| CO [g/h] | 304.76 | 900.65 | 47.90 | 125.85 | 57.51 | 347.21 |
| NOx [g/h] | 59.29 | 175.23 | 9.32 | 24.48 | 11.19 | 67.56 |
| VOC [g/h] | 70.63 | 208.73 | 11.10 | 29.17 | 13.33 | 80.47 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 16.0 | 16.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.28 | 35.28 | 0.00 | 39.61 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.216 | 2.035 | 0.000 | 2.196 |
| Crosswalk LOS | B | B | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 720 | 720 | 1040 | 1040 |
| d_b, Bicycle Delay [s] | 20.48 | 20.48 | 11.52 | 11.52 |
| l_b,int, Bicycle LOS Score for Intersection | 2.167 | 1.934 | 2.101 | 2.220 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 8: Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 16.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.400 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 13.00 | 12.00 | 20.00 | 12.00 | 12.00 | 11.00 | 13.00 | 12.00 | 12.00 | 13.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 40.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.02 | | | -0.02 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 86 | 530 | 1 | 178 | 437 | 72 | 0 | 85 | 140 | 0 | 121 | 244 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 7.00 | 0.00 | 3.00 | 3.00 | 5.00 | 2.00 | 8.00 | 1.00 | 2.00 | 6.00 | 6.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 4 | 0 | 0 | 2 | 10 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 54 | 0 | 0 | 87 |
| Total Hourly Volume [veh/h] | 87 | 535 | 1 | 196 | 441 | 45 | 0 | 90 | 87 | 0 | 124 | 169 |
| Peak Hour Factor | 0.9640 | 0.9640 | 0.9640 | 0.9640 | 0.9640 | 0.9640 | 1.0000 | 0.9640 | 0.9640 | 1.0000 | 0.9640 | 0.9640 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 23 | 139 | 0 | 51 | 114 | 12 | 0 | 23 | 23 | 0 | 32 | 44 |
| Total Analysis Volume [veh/h] | 90 | 555 | 1 | 203 | 457 | 47 | 0 | 93 | 90 | 0 | 129 | 175 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 2.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Overlap | Permiss | Permiss | Overlap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 5 | 0 | 8 | 1 |
| Auxiliary Signal Groups | | | | | | | | | 4,5 | | | 1,8 |
| Maximum Green [s] | 13 | 45 | 0 | 13 | 45 | 0 | 0 | 24 | 13 | 0 | 24 | 13 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Walk [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 40.0 | 40.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 14 | 43 | 0 | 16 | 45 | 0 | 0 | 41 | 14 | 0 | 41 | 16 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 0 | 10 | 7 | 0 | 10 | 7 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 |
| Minimum Recall | No | No | | No | No | | | No | No | | No | No |
| Maximum Recall | No | Yes | | No | Yes | | | No | No | | No | No |
| Pedestrian Recall | No | No | | No | No | | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | R | C | R |
|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| g_i, Effective Green Time [s] | 76 | 60 | 60 | 76 | 64 | 14 | 26 | 14 | 30 |
| g / C, Green / Cycle | 0.76 | 0.60 | 0.60 | 0.76 | 0.64 | 0.14 | 0.26 | 0.14 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.16 | 0.16 | 0.20 | 0.28 | 0.06 | 0.06 | 0.08 | 0.12 |
| s, saturation flow rate [veh/h] | 1007 | 1702 | 1700 | 993 | 1798 | 1688 | 1579 | 1716 | 1517 |
| c, Capacity [veh/h] | 737 | 1021 | 1020 | 792 | 1142 | 237 | 403 | 241 | 440 |
| d1, Uniform Delay [s] | 4.70 | 9.57 | 9.57 | 4.09 | 9.26 | 39.11 | 29.42 | 39.96 | 28.48 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.32 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.34 | 0.66 | 0.66 | 0.78 | 1.24 | 1.06 | 0.28 | 1.85 | 1.71 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.12 | 0.27 | 0.27 | 0.26 | 0.44 | 0.39 | 0.22 | 0.54 | 0.40 |
| d, Delay for Lane Group [s/veh] | 5.04 | 10.23 | 10.23 | 4.87 | 10.50 | 40.17 | 29.70 | 41.81 | 30.19 |
| Lane Group LOS | A | B | B | A | B | D | C | D | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.43 | 2.84 | 2.84 | 1.00 | 5.14 | 2.12 | 1.71 | 3.02 | 3.50 |
| 50th-Percentile Queue Length [ft/ln] | 10.81 | 71.00 | 70.96 | 25.03 | 128.50 | 52.91 | 42.79 | 75.61 | 87.48 |
| 95th-Percentile Queue Length [veh/ln] | 0.78 | 5.11 | 5.11 | 1.80 | 8.86 | 3.81 | 3.08 | 5.44 | 6.30 |
| 95th-Percentile Queue Length [ft/ln] | 19.45 | 127.80 | 127.73 | 45.05 | 221.46 | 95.24 | 77.01 | 136.09 | 157.46 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 5.04 | 10.23 | 10.23 | 4.87 | 10.50 | 10.50 | 0.00 | 40.17 | 29.70 | 0.00 | 41.81 | 30.19 |
| Movement LOS | A | B | B | A | B | B | | D | C | | D | C |
| d_A, Approach Delay [s/veh] | 9.51 | | | 8.88 | | | 35.02 | | | 35.12 | | |
| Approach LOS | A | | | A | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 16.04 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.400 | | | | | | | | | | | |

**Emissions**

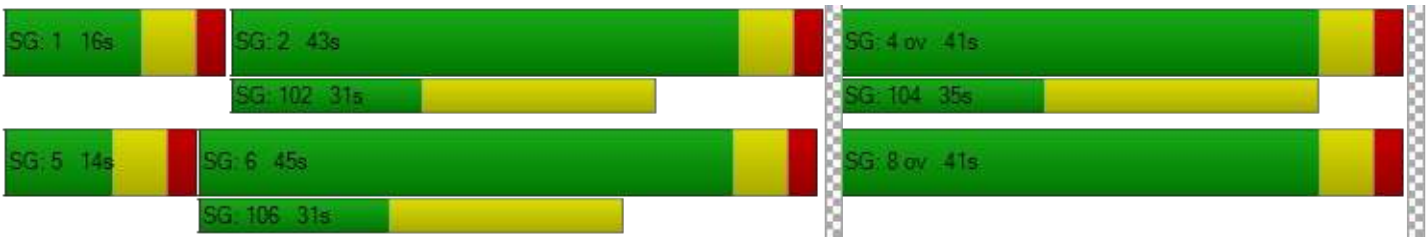
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 12.41 | 38.35 | 38.33 | 16.48 | 40.91 | 6.52 | 6.31 | 15.23 | 20.66 |
| Stops [stops/h] | 15.56 | 102.24 | 102.19 | 36.04 | 185.04 | 76.19 | 61.61 | 108.88 | 125.97 |
| Fuel consumption [US gal/h] | 0.68 | 2.81 | 2.81 | 1.15 | 4.36 | 1.58 | 1.25 | 2.50 | 2.81 |
| CO [g/h] | 47.70 | 196.40 | 196.29 | 80.09 | 304.77 | 110.57 | 87.23 | 174.53 | 196.44 |
| NOx [g/h] | 9.28 | 38.21 | 38.19 | 15.58 | 59.30 | 21.51 | 16.97 | 33.96 | 38.22 |
| VOC [g/h] | 11.06 | 45.52 | 45.49 | 18.56 | 70.63 | 25.63 | 20.22 | 40.45 | 45.53 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 19.0 | 0.0 | 18.0 | 18.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.81 | 0.00 | 33.62 | 33.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.467 | 0.000 | 2.301 | 2.629 |
| Crosswalk LOS | B | F | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 740 | 780 | 700 | 700 |
| d_b, Bicycle Delay [s] | 19.85 | 18.61 | 21.13 | 21.13 |
| l_b,int, Bicycle LOS Score for Intersection | 2.093 | 2.772 | 1.951 | 2.205 |
| Bicycle LOS | B | C | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 9: Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.578 |

**Intersection Setup**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 13.00 | 13.00 | 12.00 | 12.00 | 12.00 | 18.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 25.00 | | | 35.00 | | |
| Grade [%] | 0.04 | | | -0.04 | | | -0.01 | | | 0.01 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | No | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 392 | 404 | 71 | 521 | 34 | 48 | 122 | 1 | 118 | 80 | 112 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 7.00 | 10.00 | 3.00 | 4.00 | 0.00 | 2.00 | 1.00 | 0.00 | 2.00 | 1.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 2 | 8 | 0 | 13 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 137 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 49 |
| Total Hourly Volume [veh/h] | 0 | 397 | 278 | 72 | 538 | 32 | 48 | 123 | 4 | 119 | 81 | 64 |
| Peak Hour Factor | 1.0000 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 108 | 76 | 20 | 147 | 9 | 13 | 33 | 1 | 32 | 22 | 17 |
| Total Analysis Volume [veh/h] | 0 | 432 | 303 | 78 | 586 | 35 | 52 | 134 | 4 | 130 | 88 | 70 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 7 | 53 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 165.0 | 165.0 | 0.0 | 0.0 | -5.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 6.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 49 | 0 | 13 | 62 | 0 | 0 | 38 | 0 | 0 | 38 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | Yes | No | | | No | | | No | |
| Maximum Recall | | Yes | | No | Yes | | | No | | | No | |
| Pedestrian Recall | | No | | No | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | C | C | C | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 2.50 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 52 | 52 | 65 | 65 | 25 | 25 |
| g / C, Green / Cycle | 0.52 | 0.52 | 0.65 | 0.65 | 0.25 | 0.25 |
| (v / s)_i Volume / Saturation Flow Rate | 0.23 | 0.27 | 0.28 | 0.23 | 0.13 | 0.22 |
| s, saturation flow rate [veh/h] | 1570 | 1370 | 1204 | 1559 | 1466 | 1327 |
| c, Capacity [veh/h] | 810 | 707 | 747 | 1007 | 418 | 389 |
| d1, Uniform Delay [s] | 15.30 | 16.01 | 9.03 | 8.14 | 31.35 | 36.16 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.18 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.83 | 2.72 | 2.00 | 0.99 | 0.77 | 4.45 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.45 | 0.52 | 0.46 | 0.36 | 0.45 | 0.74 |
| d, Delay for Lane Group [s/veh] | 17.13 | 18.73 | 11.03 | 9.13 | 32.12 | 40.61 |
| Lane Group LOS | B | B | B | A | C | D |
| Critical Lane Group | No | Yes | Yes | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 5.26 | 5.61 | 3.29 | 3.31 | 3.98 | 7.04 |
| 50th-Percentile Queue Length [ft/ln] | 131.62 | 140.32 | 82.19 | 82.67 | 99.45 | 175.90 |
| 95th-Percentile Queue Length [veh/ln] | 9.03 | 9.50 | 5.92 | 5.95 | 7.16 | 11.39 |
| 95th-Percentile Queue Length [ft/ln] | 225.69 | 237.46 | 147.94 | 148.80 | 179.01 | 284.66 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 17.37 | 18.73 | 11.03 | 9.98 | 9.13 | 32.12 | 32.12 | 32.12 | 40.61 | 40.61 | 40.61 |
| Movement LOS | | B | B | B | A | A | C | C | C | D | D | D |
| d_A, Approach Delay [s/veh] | 17.93 | | | 10.05 | | | 32.12 | | | 40.61 | | |
| Approach LOS | B | | | B | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 19.88 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.578 | | | | | | | | | | | |

**Emissions**

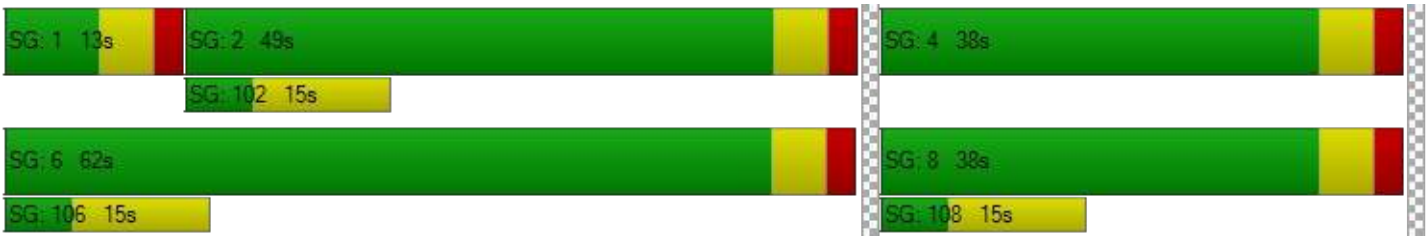
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 29.83 | 29.83 | 24.91 | 26.28 | 8.06 | 19.85 |
| Stops [stops/h] | 189.53 | 202.06 | 118.35 | 119.04 | 143.21 | 253.30 |
| Fuel consumption [US gal/h] | 4.21 | 4.45 | 2.82 | 2.78 | 2.15 | 5.04 |
| CO [g/h] | 294.39 | 311.37 | 196.99 | 194.15 | 150.53 | 352.39 |
| NOx [g/h] | 57.28 | 60.58 | 38.33 | 37.77 | 29.29 | 68.56 |
| VOC [g/h] | 68.23 | 72.16 | 45.66 | 45.00 | 34.89 | 81.67 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 9.0 | 9.0 | 9.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 0.00 | 41.41 | 41.41 | 41.41 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 0.000 | 2.638 | 1.849 | 2.615 | |
| Crosswalk LOS | F | B | A | B | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 860 | 1120 | 640 | 640 | |
| d_b, Bicycle Delay [s] | 16.25 | 9.68 | 23.12 | 23.12 | |
| l_b,int, Bicycle LOS Score for Intersection | 2.279 | 2.138 | 1.873 | 2.116 | |
| Bicycle LOS | B | B | A | B | |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 10: Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 6.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.413 |

**Intersection Setup**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 11.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 11.00 | 11.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 120.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 25.00 | | | 40.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 244 | 38 | 138 | 280 | 6 | 1 | 0 | 0 | 31 | 4 | 146 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 10.00 | 5.00 | 1.00 | 5.00 | 17.00 | 100.00 | 0.00 | 0.00 | 13.00 | 25.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 6 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Total Hourly Volume [veh/h] | 0 | 246 | 40 | 147 | 282 | 6 | 1 | 0 | 0 | 32 | 4 | 140 |
| Peak Hour Factor | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 65 | 10 | 39 | 74 | 2 | 0 | 0 | 0 | 8 | 1 | 37 |
| Total Analysis Volume [veh/h] | 0 | 258 | 42 | 154 | 296 | 6 | 1 | 0 | 0 | 34 | 4 | 147 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 38 | 0 | 0 | 38 | 0 | 0 | 13 | 0 | 0 | 13 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 9 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 |
| Detector Location [ft] | 0.0 | 210.0 | 0.0 | 0.0 | 210.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 6.0 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 26 | 26 | 26 | 26 | 26 | 26 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |
| g_i, Effective Green Time [s] | 11 | 11 | 7 | 7 | 7 | 7 |
| g / C, Green / Cycle | 0.41 | 0.41 | 0.29 | 0.29 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.18 | 0.29 | 0.00 | 0.00 | 0.03 | 0.12 |
| s, saturation flow rate [veh/h] | 1683 | 1567 | 264 | 1800 | 1292 | 1233 |
| c, Capacity [veh/h] | 826 | 825 | 298 | 516 | 529 | 353 |
| d1, Uniform Delay [s] | 5.59 | 6.26 | 10.84 | 0.00 | 8.70 | 7.64 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.27 | 0.58 | 0.00 | 0.00 | 0.05 | 0.82 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.36 | 0.55 | 0.00 | 0.00 | 0.06 | 0.43 |
| d, Delay for Lane Group [s/veh] | 5.86 | 6.84 | 10.85 | 0.00 | 8.75 | 8.46 |
| Lane Group LOS | A | A | B | A | A | A |
| Critical Lane Group | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.50 | 0.87 | 0.00 | 0.00 | 0.10 | 0.40 |
| 50th-Percentile Queue Length [ft/ln] | 12.41 | 21.79 | 0.11 | 0.00 | 2.38 | 10.02 |
| 95th-Percentile Queue Length [veh/ln] | 0.89 | 1.57 | 0.01 | 0.00 | 0.17 | 0.72 |
| 95th-Percentile Queue Length [ft/ln] | 22.34 | 39.22 | 0.19 | 0.00 | 4.28 | 18.04 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 5.86 | 5.86 | 5.86 | 6.84 | 6.84 | 6.84 | 10.85 | 0.00 | 0.00 | 8.75 | 8.46 | 8.46 |
| Movement LOS | A | A | A | A | A | A | B | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 5.86 | | | 6.84 | | | 10.85 | | | 8.51 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 6.86 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.413 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 45.55 | 66.02 | 0.11 | 0.00 | 29.48 | 130.92 |
| Stops [stops/h] | 68.19 | 119.72 | 0.59 | 0.00 | 13.05 | 55.07 |
| Fuel consumption [US gal/h] | 2.61 | 4.05 | 0.01 | 0.00 | 1.24 | 5.49 |
| CO [g/h] | 182.21 | 283.20 | 0.65 | 0.00 | 87.01 | 383.80 |
| NOx [g/h] | 35.45 | 55.10 | 0.13 | 0.00 | 16.93 | 74.67 |
| VOC [g/h] | 42.23 | 65.63 | 0.15 | 0.00 | 20.16 | 88.95 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 4.41 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.046 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2900 | 2900 | 992 | 992 |
| d_b, Bicycle Delay [s] | 2.65 | 2.65 | 3.33 | 3.33 |
| l_b,int, Bicycle LOS Score for Intersection | 2.061 | 2.312 | 1.561 | 1.878 |
| Bicycle LOS | B | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 11: Wood Avenue (SR 2017) & US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.243 |

**Intersection Setup**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 50.00 | 0.00 |
| Speed [mph] | 30.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | -0.03 | | 0.03 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 113 | 656 | 872 | 191 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 4.00 | 3.00 | 1.00 | 2.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 7 | 4 | 22 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 121 | 666 | 901 | 193 |
| Peak Hour Factor | 1.0000 | 1.0000 | 0.9180 | 0.9180 | 0.9180 | 0.9180 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 33 | 181 | 245 | 53 |
| Total Analysis Volume [veh/h] | 0 | 0 | 132 | 725 | 981 | 210 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.24 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 11.77 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.24 | 0.08 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 5.93 | 1.98 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 1.81 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.76 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 12: Wood Avenue (SR 2017) & US 22 East Off-Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 15.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.595 |

**Intersection Setup**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Thru | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | -0.04 | | -0.03 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 446 | 323 | 0 | 0 | 872 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 1.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 11 | 0 | 0 | 22 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 450 | 337 | 0 | 0 | 901 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 125 | 94 | 0 | 0 | 250 |
| Total Analysis Volume [veh/h] | 0 | 500 | 374 | 0 | 0 | 1001 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.59 | 0.00 | 0.00 | 0.00 | 0.01 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 15.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | A | | | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 4.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 100.62 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 15.37 | | 0.00 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.10 | | | | | |
| Intersection LOS | C | | | | | |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 7 2025 WD AM

Report File: C:\...\2025 WD AM.pdf
6/17/2024

## Turning Movement Volume: Summary

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | 8 | 2 | 14 | 178 | 178 | 27 | 407 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | 132 | 47 | 80 | 205 | 248 | 125 | 837 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | 8 | 11 | 51 | 286 | 310 | 29 | 695 |

| ID | Intersection Name | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | 23 | 106 | 314 | 233 | 665 | 1341 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | 159 | 126 | 5 | 57 | 138 | 632 | 368 | 165 | 125 | 6 | 232 | 66 | 2079 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | 97 | 507 | 161 | 7 | 413 | 185 | 79 | 143 | 304 | 184 | 15 | 22 | 2117 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | 22 | 132 | 188 | 14 | 128 | 62 | 71 | 206 | 17 | 49 | 290 | 19 | 1198 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012) /Nazareth Road (SR 0248) | 87 | 535 | 1 | 196 | 441 | 73 | 90 | 141 | 124 | 256 | 1944 |

| ID | Intersection Name | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | 397 | 415 | 72 | 538 | 34 | 48 | 123 | 4 | 119 | 81 | 113 | 1944 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | 0 | 246 | 44 | 147 | 282 | 6 | 1 | 0 | 0 | 32 | 4 | 148 | 910 |

| ID | Intersection Name | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|
| | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | 121 | 666 | 901 | 193 | 1881 |

| ID | Intersection Name | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|
| | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | 450 | 337 | 901 | 1688 |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 7 2025 WD AM

Report File: C:\...\2025 WD AM.pdf
6/17/2024

## Turning Movement Volume: Detail

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 0 | 0 | 0 | 176 | 176 | 0 | 352 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 8 | 2 | 14 | 0 | 0 | 27 | 51 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **8** | **2** | **14** | **178** | **178** | **27** | **407** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Final Base | 128 | 42 | 61 | 153 | 235 | 115 | 734 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 3 | 5 | 18 | 51 | 11 | 9 | 97 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **132** | **47** | **80** | **205** | **248** | **125** | **837** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 0 | 0 | 0 | 281 | 298 | 0 | 579 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 8 | 11 | 51 | 3 | 9 | 29 | 111 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **8** | **11** | **51** | **286** | **310** | **29** | **695** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Final Base | 23 | 89 | 300 | 209 | 659 | 1280 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 16 | 11 | 22 | 0 | 49 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **23** | **106** | **314** | **233** | **665** | **1341** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Final Base | 152 | 125 | 5 | 57 | 137 | 615 | 363 | 163 | 123 | 6 | 226 | 65 | 2037 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 6 | 0 | 0 | 0 | 0 | 12 | 2 | 1 | 1 | 0 | 4 | 0 | 26 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **159** | **126** | **5** | **57** | **138** | **632** | **368** | **165** | **125** | **6** | **232** | **66** | **2079** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Final Base | 96 | 503 | 144 | 7 | 409 | 183 | 78 | 117 | 301 | 179 | 15 | 22 | 2054 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 25 | 0 | 3 | 0 | 0 | 44 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **97** | **507** | **161** | **7** | **413** | **185** | **79** | **143** | **304** | **184** | **15** | **22** | **2117** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Final Base | 22 | 90 | 186 | 13 | 124 | 50 | 51 | 204 | 17 | 49 | 288 | 11 | 1105 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 41 | 0 | 1 | 3 | 12 | 20 | 0 | 0 | 0 | 0 | 8 | 85 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **22** | **132** | **188** | **14** | **128** | **62** | **71** | **206** | **17** | **49** | **290** | **19** | **1198** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Final Base | 86 | 530 | 1 | 178 | 437 | 72 | 85 | 140 | 121 | 244 | 1894 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 16 | 0 | 0 | 4 | 0 | 2 | 10 | 32 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **87** | **535** | **1** | **196** | **441** | **73** | **90** | **141** | **124** | **256** | **1944** |

| ID | Intersection Name | Volume Type | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Final Base | 392 | 404 | 71 | 521 | 34 | 48 | 122 | 1 | 118 | 80 | 112 | 1903 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 2 | 8 | 0 | 13 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 26 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **397** | **415** | **72** | **538** | **34** | **48** | **123** | **4** | **119** | **81** | **113** | **1944** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Final Base | 0 | 244 | 38 | 138 | 280 | 6 | 1 | 0 | 0 | 31 | 4 | 146 | 888 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 6 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 16 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **0** | **246** | **44** | **147** | **282** | **6** | **1** | **0** | **0** | **32** | **4** | **148** | **910** |

| ID | Intersection Name | Volume Type | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Final Base | 113 | 656 | 872 | 191 | 1832 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 7 | 4 | 22 | 0 | 33 |
| | | Other | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **121** | **666** | **901** | **193** | **1881** |

| ID | Intersection Name | Volume Type | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|---|
| | | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Final Base | 446 | 323 | 872 | 1641 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 11 | 22 | 33 |
| | | Other | 0 | 0 | 0 | 0 |
| | | **Future Total** | **450** | **337** | **901** | **1688** |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 7 2025 WD AM

Report File: C:\...\2025 WD AM.pdf
6/17/2024

## Trip Generation summary

### Added Trips

| Zone ID: Name | Land Use variables | Code | Ind. Var. | Rate | Quantity | % In | % Out | % Int. Capture | Trips In Adj. | Trips Out Adj. | Total Trips Adj. | % of Total Trips |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1: Passenger | | 155 | SF | | 0.000 | 50.00 | 50.00 | 0.00 | 112 | 19 | 131 | 86.75 |
| 16: Truck | | 155 | SF | | 0.000 | 50.00 | 50.00 | 0.00 | 10 | 10 | 20 | 13.25 |
| | | | | | **Added Trips Total** | | | | **122** | **29** | **151** | **100.00** |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 7 2025 WD AM

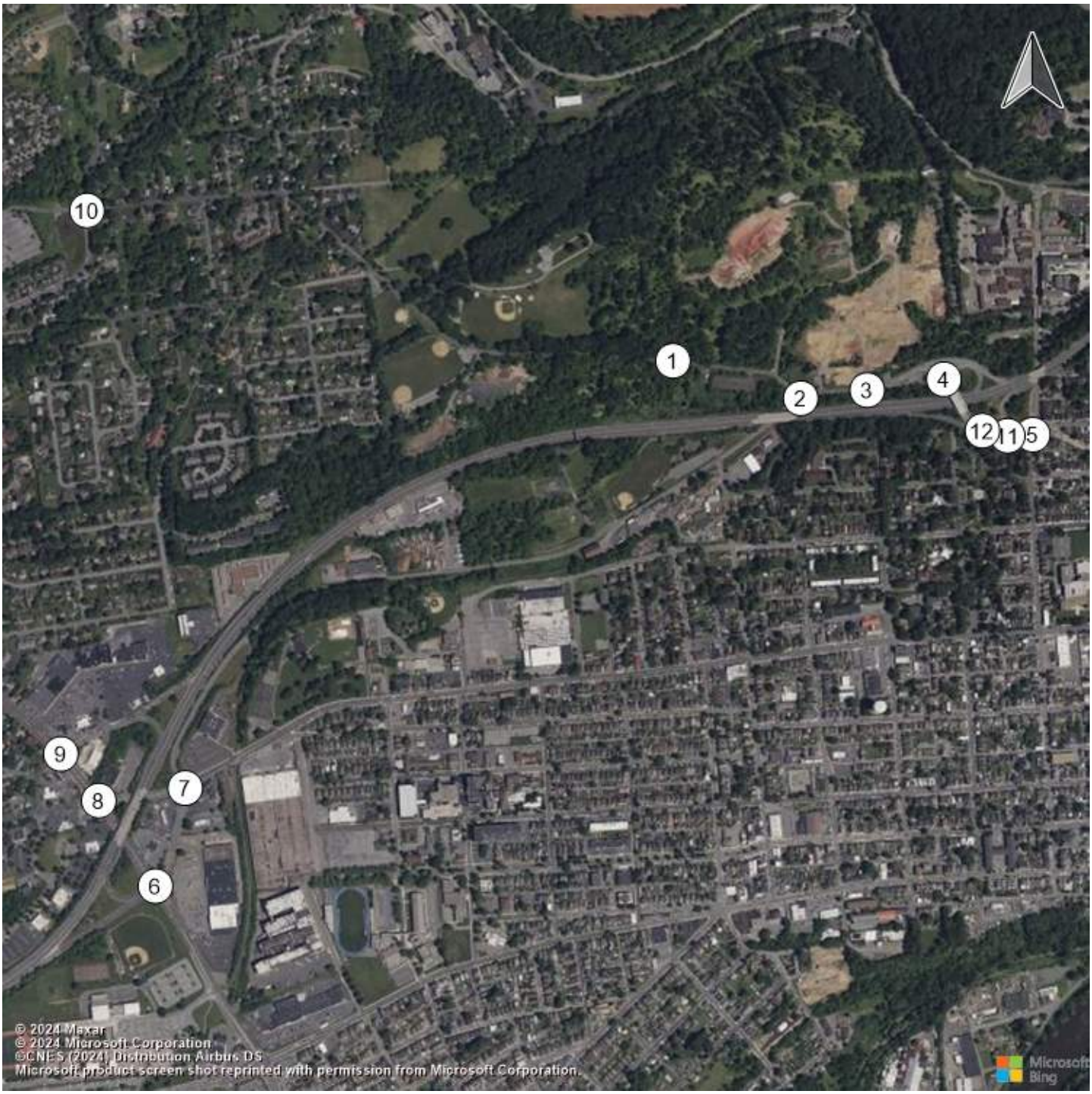
Report File: C:\...\2025 WD AM.pdf
6/17/2024

## Trip Distribution summary

| Zone / Gate | Zone 1: Passenger | | | |
|---|---|---|---|---|
| | To Passenger: | | From Passenger: | |
| | Share % | Trips | Share % | Trips |
| 16: Truck | 0.00 | 0 | 0.00 | 0 |
| 2: Tatamy Rd | 7.00 | 8 | 7.00 | 1 |
| 3: Park Ave | 5.00 | 6 | 5.00 | 1 |
| 4: Nazareth Rd | 12.00 | 13 | 12.00 | 2 |
| 5: Northampton St (East) | 7.00 | 8 | 7.00 | 1 |
| 6: To/From West via US 22 | 18.00 | 20 | 18.00 | 3 |
| 7: Northampton St (West) | 4.00 | 4 | 4.00 | 1 |
| 8: Sales St | 3.00 | 3 | 3.00 | 1 |
| 9: 25th S | 14.00 | 16 | 14.00 | 3 |
| 10: To/From East via US 22 | 10.00 | 11 | 10.00 | 2 |
| 11: Wood Ave (Easton) | 4.00 | 4 | 4.00 | 1 |
| 12: 13th St (South) | 5.00 | 6 | 5.00 | 1 |
| 13: 13th St (North) | 11.00 | 12 | 11.00 | 2 |
| **Total** | **100.00** | **111** | **100.00** | **19** |

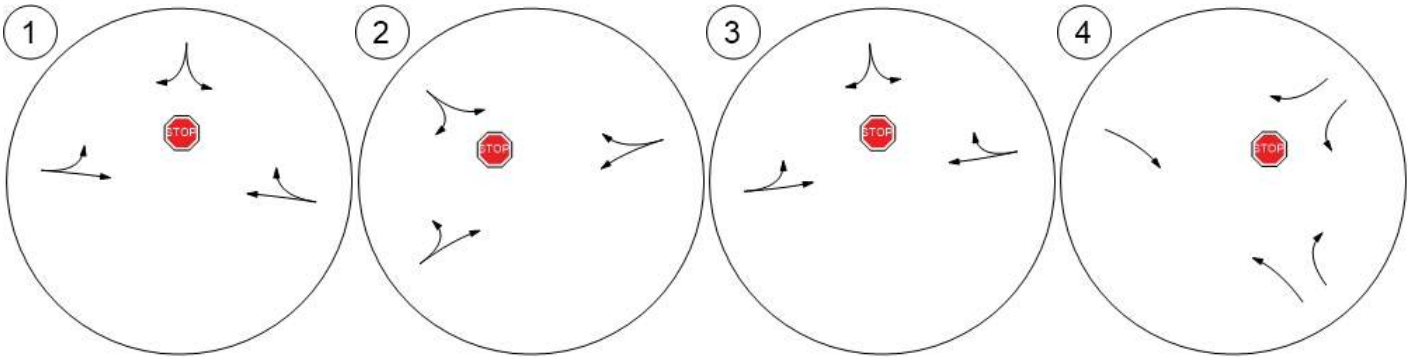
| Zone / Gate | Zone 16: Truck | | | |
|---|---|---|---|---|
| | To Truck: | | From Truck: | |
| | Share % | Trips | Share % | Trips |
| 1: Passenger | 0.00 | 0 | 0.00 | 0 |
| 2: Tatamy Rd | 0.00 | 0 | 0.00 | 0 |
| 3: Park Ave | 0.00 | 0 | 0.00 | 0 |
| 4: Nazareth Rd | 0.00 | 0 | 0.00 | 0 |
| 5: Northampton St (East) | 0.00 | 0 | 0.00 | 0 |
| 6: To/From West via US 22 | 50.00 | 5 | 50.00 | 5 |
| 7: Northampton St (West) | 0.00 | 0 | 0.00 | 0 |
| 8: Sales St | 0.00 | 0 | 0.00 | 0 |
| 9: 25th S | 0.00 | 0 | 0.00 | 0 |
| 10: To/From East via US 22 | 50.00 | 5 | 50.00 | 5 |
| 11: Wood Ave (Easton) | 0.00 | 0 | 0.00 | 0 |
| 12: 13th St (South) | 0.00 | 0 | 0.00 | 0 |
| 13: 13th St (North) | 0.00 | 0 | 0.00 | 0 |
| **Total** | **100.00** | **10** | **100.00** | **10** |

Report Figure 1: Study Intersections

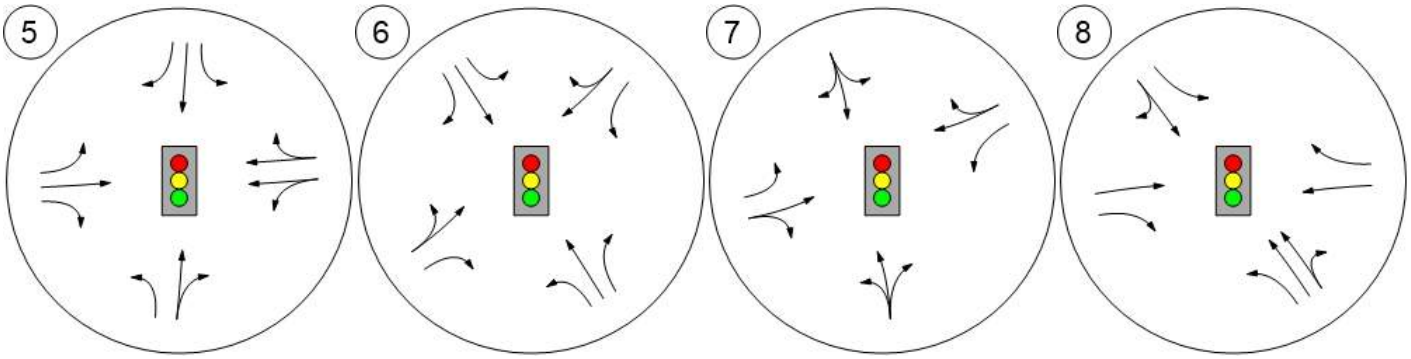


Report Figure 2: Lane Configuration and Traffic Control

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

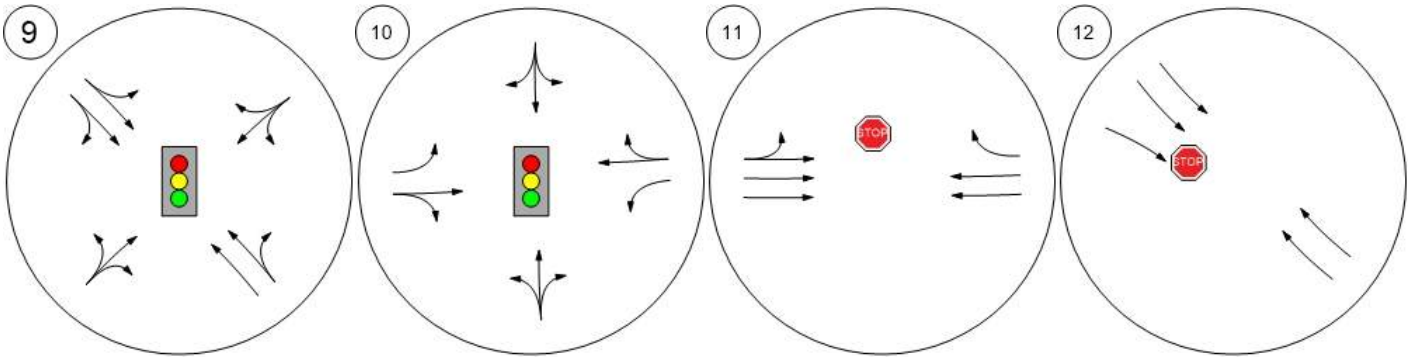



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024



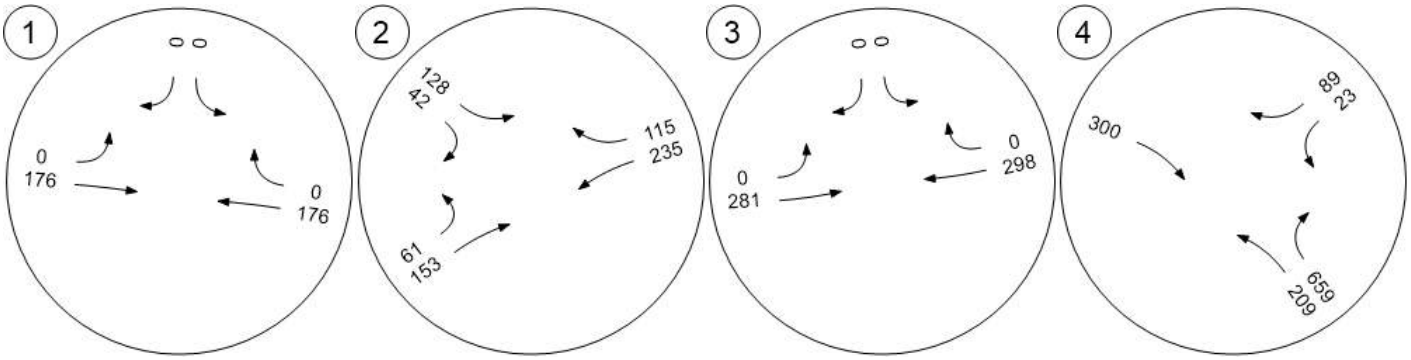
Report Figure 2: Lane Configuration and Traffic Control

Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) / Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

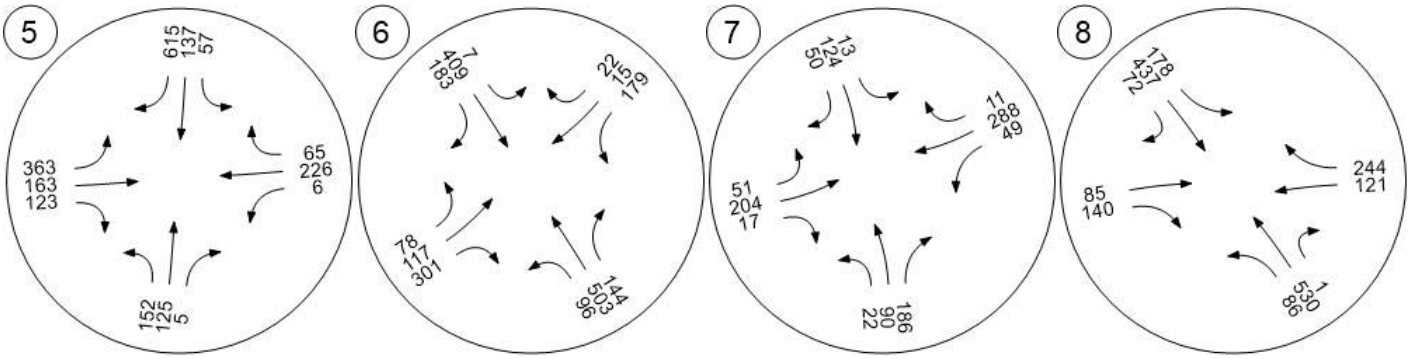


Report Figure 3a: Traffic Volume - Base Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

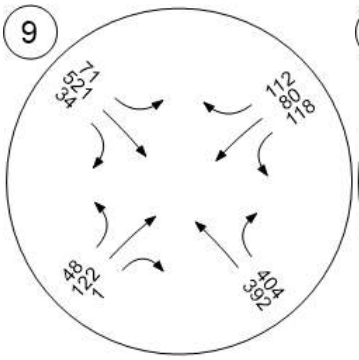



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024

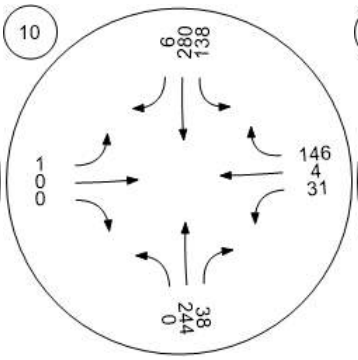


Report Figure 3a: Traffic Volume - Base Volume

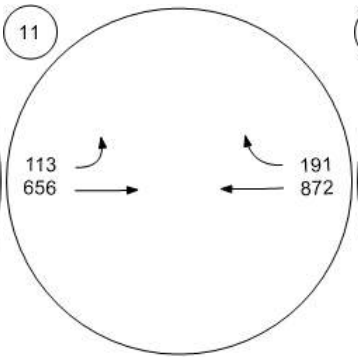
Nazareth Road (SR 0248) &



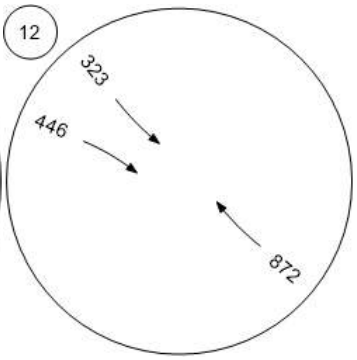

Hackett Avenue (SR 2017) /




Wood Avenue (SR 2017) & U

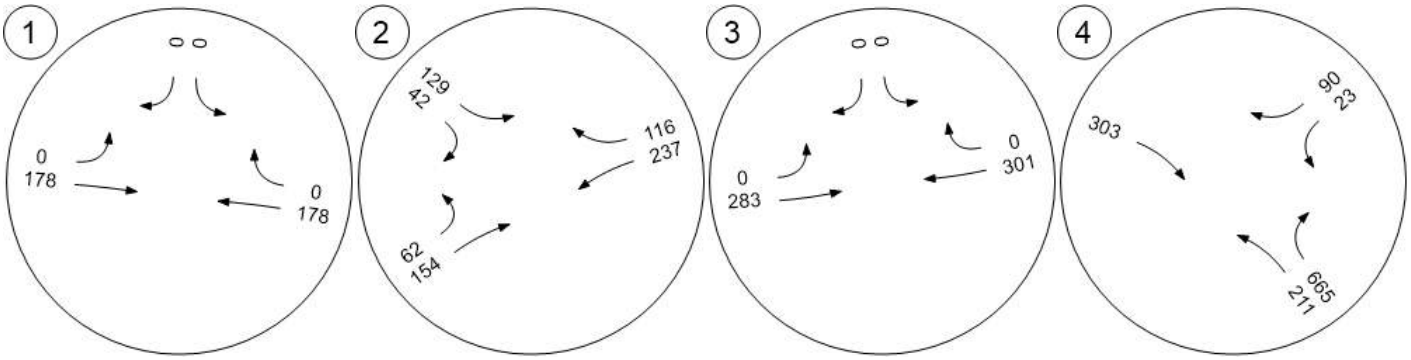



Wood Avenue (SR 2017) & U

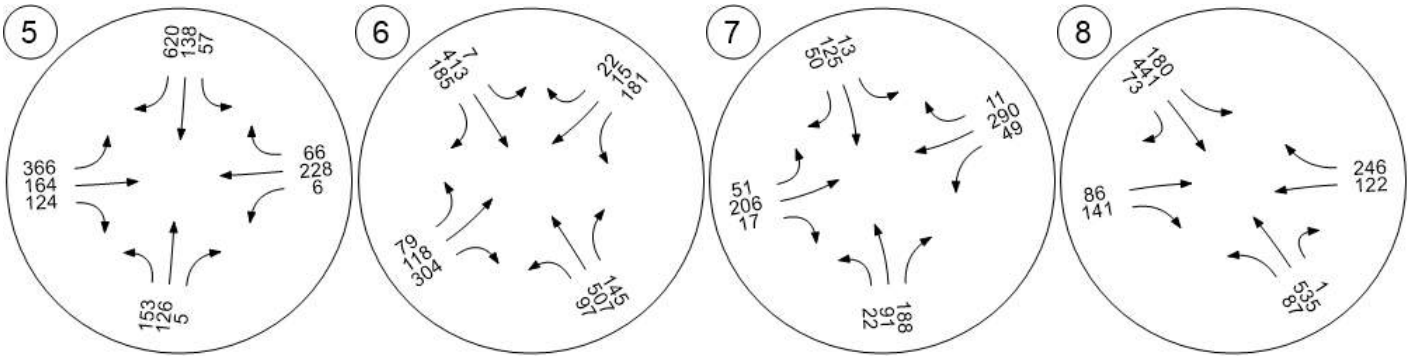


Report Figure 3c: Traffic Volume - Future Background Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

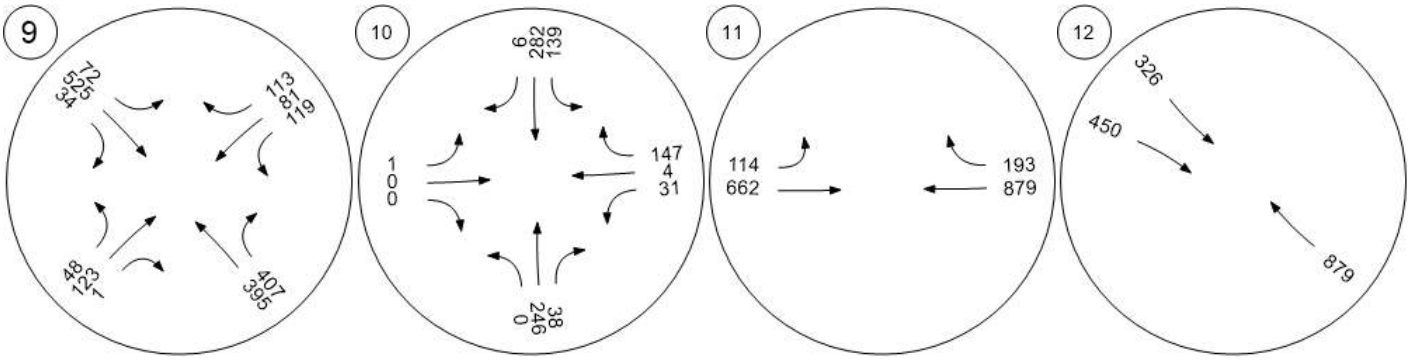



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024



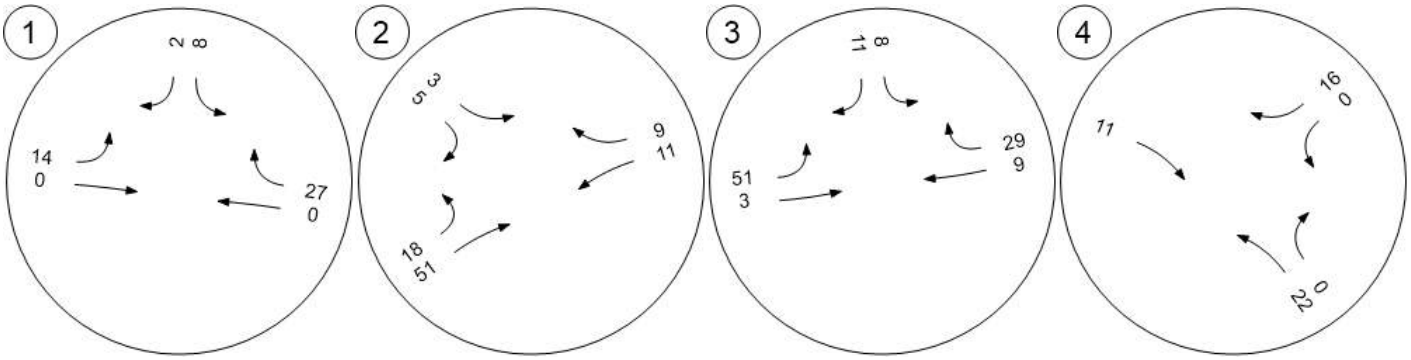
Report Figure 3c: Traffic Volume - Future Background Volume

Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) / Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

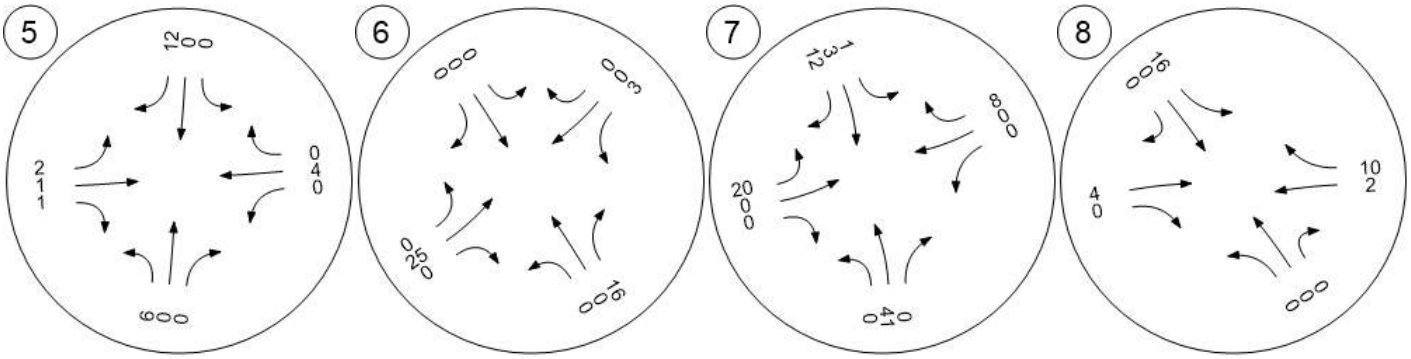


Report Figure 3d: Traffic Volume - Net New Site Trips

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

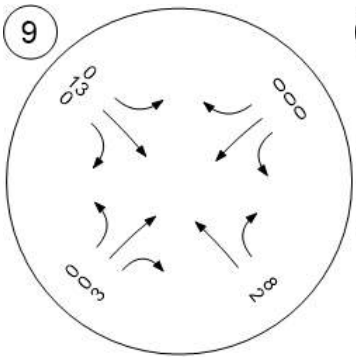



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024

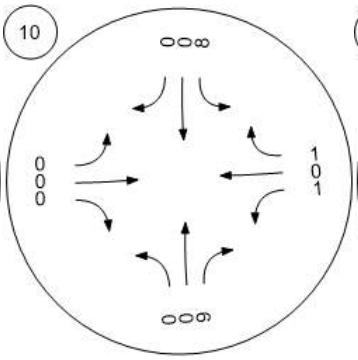


Report Figure 3d: Traffic Volume - Net New Site Trips

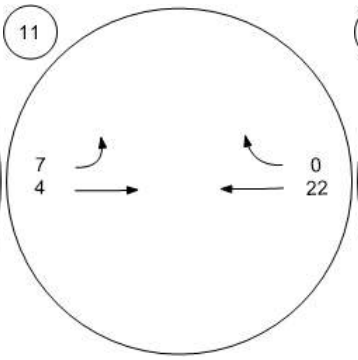
Nazareth Road (SR 0248) &



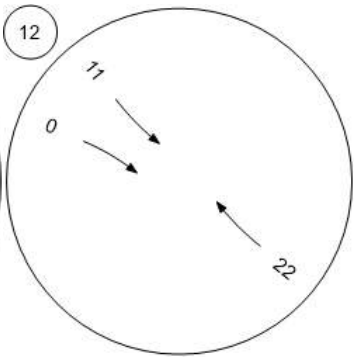

Hackett Avenue (SR 2017) /




Wood Avenue (SR 2017) & U

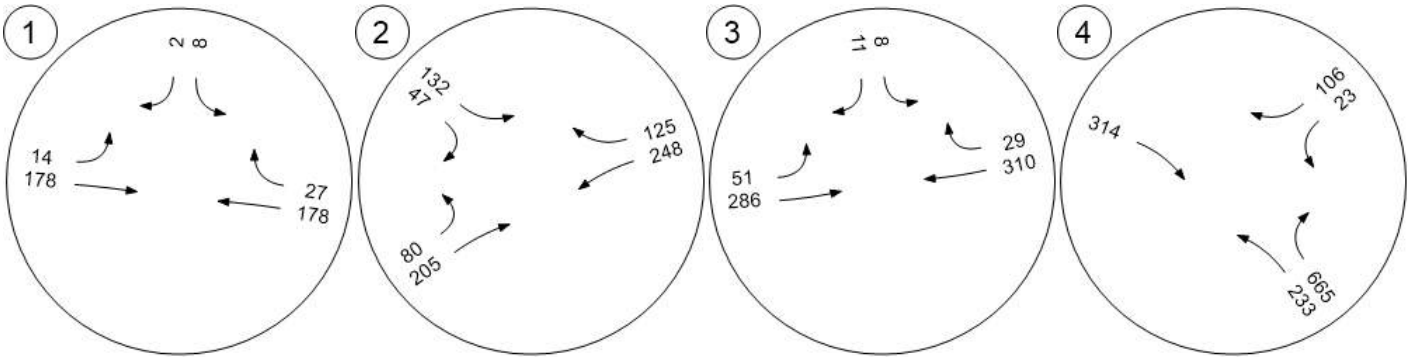



Wood Avenue (SR 2017) & U

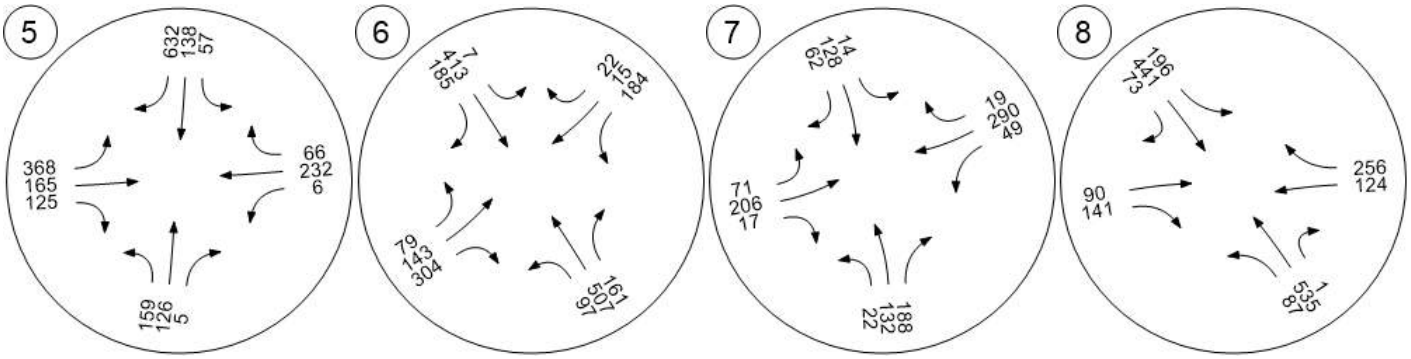


Report Figure 3f: Traffic Volume - Future Total Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

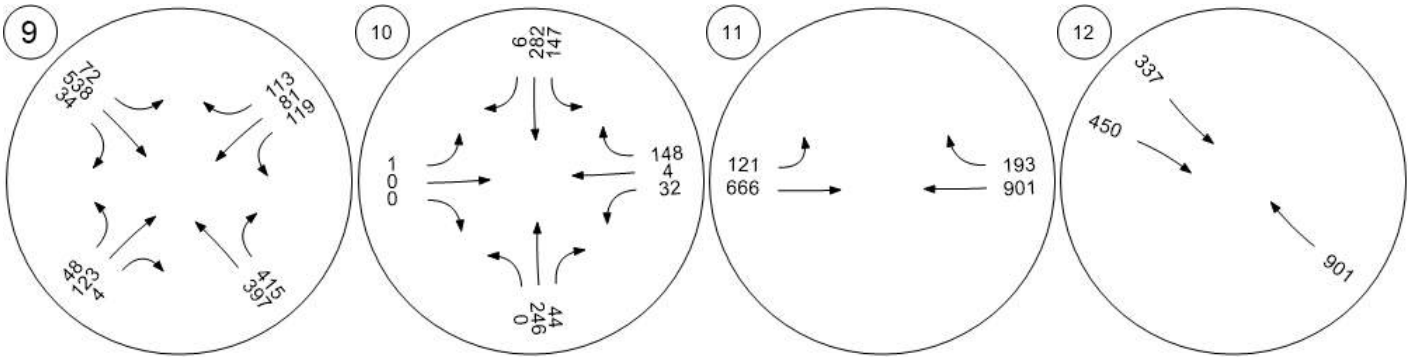



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024



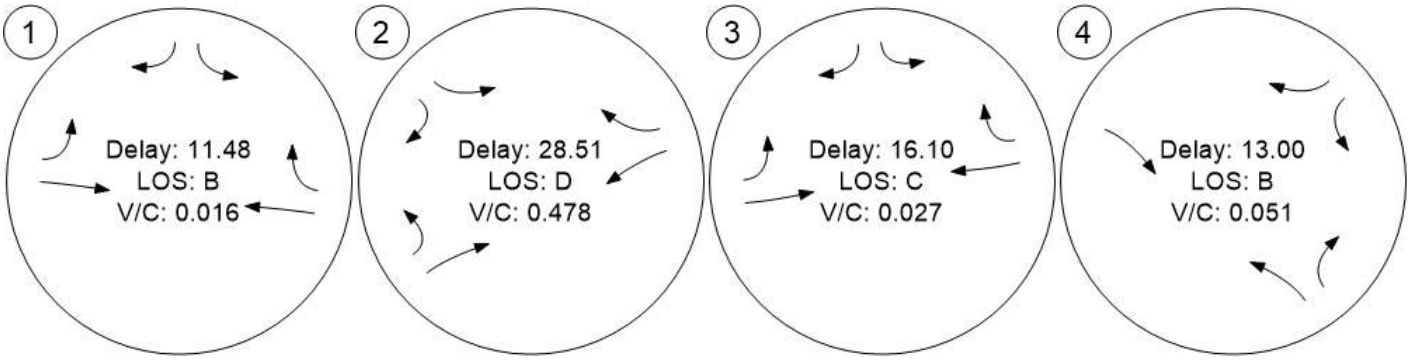
Report Figure 3f: Traffic Volume - Future Total Volume

Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) / Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

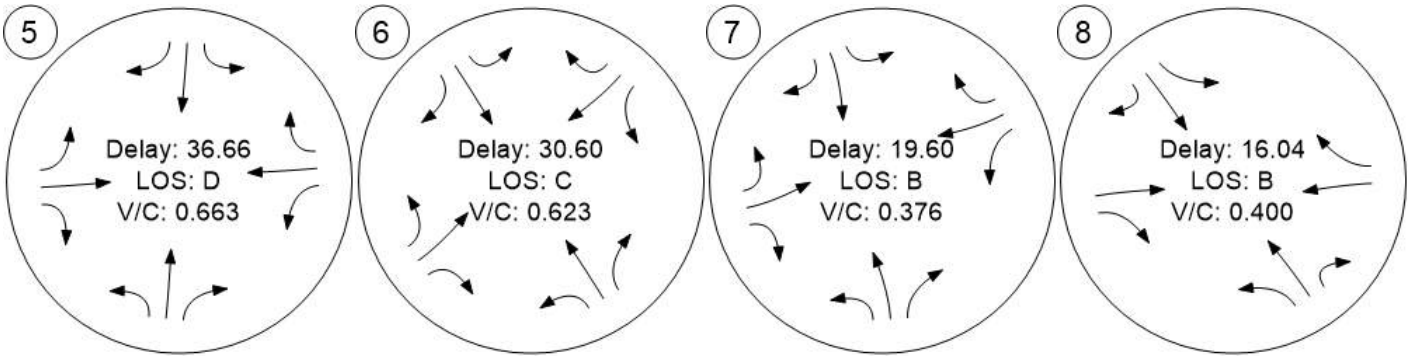


Report Figure 4: Traffic Conditions

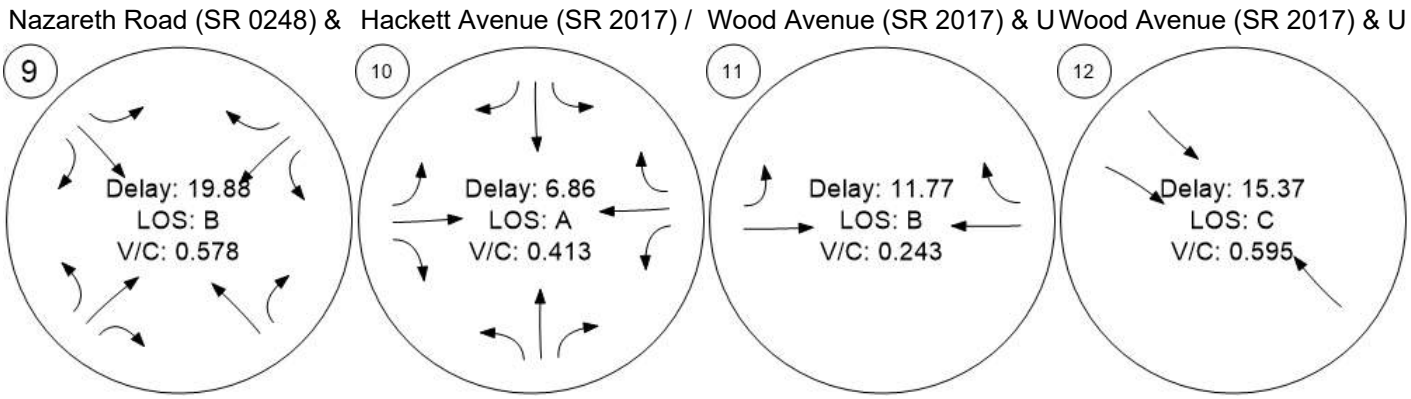
Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U




Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024



Report Figure 4: Traffic Conditions



# PTV Vistro 2024 Reports

*With Development Conditions (2025) – Weekday PM*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

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Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 8 2025 WD PM

Report File: C:\...\2025 WD PM.pdf
6/17/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | SB Left | 0.058 | 13.7 | B |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Two-way stop | HCM 7th Edition | SB Left | 0.881 | 109.3 | F |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | SB Left | 0.088 | 20.1 | C |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Two-way stop | HCM 7th Edition | SB Left | 0.209 | 19.4 | C |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Signalized | HCM 7th Edition | SB Right | 0.677 | 65.5 | E |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Signalized | HCM 7th Edition | NB Left | 0.652 | 35.7 | D |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Signalized | HCM 7th Edition | NB Thru | 0.462 | 18.8 | B |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Signalized | HCM 7th Edition | WB Thru | 0.492 | 18.8 | B |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Signalized | HCM 7th Edition | NB Right | 0.824 | 34.5 | C |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Signalized | HCM 7th Edition | EB Left | 0.527 | 8.5 | A |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Two-way stop | HCM 7th Edition | EB Left | 0.155 | 11.0 | B |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Two-way stop | HCM 7th Edition | NB Thru | 0.670 | 18.6 | C |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**

**Intersection 1: Hackett Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 13.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.058 |

**Intersection Setup**

| Name | Proposed Site Access | | Hackett Avenue (SR 2017) | | Hackett Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | 40.00 | | 40.00 | |
| Grade [%] | 0.03 | | 0.05 | | -0.05 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Proposed Site Access | | Hackett Avenue (SR 2017) | | Hackett Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 205 | 331 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 9.00 | 0.00 | 0.00 | 2.00 | 2.00 | 7.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 23 | 12 | 7 | 0 | 0 | 14 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 23 | 12 | 7 | 207 | 334 | 14 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 3 | 2 | 58 | 93 | 4 |
| Total Analysis Volume [veh/h] | 26 | 13 | 8 | 230 | 371 | 16 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.06 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 13.69 | 10.84 | 9.08 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.25 | 0.25 | 0.01 | 0.01 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 6.26 | 6.26 | 0.33 | 0.33 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 12.74 | | 0.31 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.86 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**

**Intersection 2: Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 109.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.881 |

**Intersection Setup**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.01 | | 0.01 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 151 | 62 | 98 | 204 | 246 | 233 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.00 | 3.00 | 3.00 | 3.00 | 3.00 | 2.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 8 | 15 | 10 | 26 | 41 | 4 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 160 | 78 | 109 | 232 | 289 | 239 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 44 | 21 | 30 | 64 | 79 | 66 |
| Total Analysis Volume [veh/h] | 176 | 86 | 120 | 255 | 318 | 263 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.88 | 0.14 | 0.16 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 109.25 | 97.21 | 10.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | F | F | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 10.31 | 10.31 | 0.21 | 0.21 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 257.74 | 257.74 | 5.35 | 5.35 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 105.30 | | 3.20 | | 0.00 | |
| Approach LOS | F | | A | | A | |
| d_I, Intersection Delay [s/veh] | 23.64 | | | | | |
| Intersection LOS | F | | | | | |

**Intersection Level Of Service Report**
**Intersection 3: Wood Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 20.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.088 |

**Intersection Setup**

| Name | Proposed Site Access | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Proposed Site Access | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 355 | 483 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 5.00 | 5.00 | 8.00 | 2.00 | 2.00 | 19.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 22 | 41 | 26 | 8 | 4 | 16 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 22 | 41 | 26 | 366 | 491 | 16 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 11 | 7 | 102 | 136 | 4 |
| Total Analysis Volume [veh/h] | 24 | 46 | 29 | 407 | 546 | 18 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.09 | 0.08 | 0.04 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 20.08 | 13.31 | 9.74 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.61 | 0.61 | 0.05 | 0.05 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 15.29 | 15.29 | 1.23 | 1.23 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 15.63 | | 0.65 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.29 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 4: Wood Avenue (SR 2017) & US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 19.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.209 |

**Intersection Setup**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | |  | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.05 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 61 | 235 | 0 | 357 | 248 | 534 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 100.00 | 4.00 | 2.00 | 2.00 | 4.00 | 2.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 9 | 0 | 30 | 11 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 62 | 246 | 0 | 390 | 261 | 539 |
| Peak Hour Factor | 0.9440 | 0.9440 | 1.0000 | 0.9440 | 0.9440 | 0.9440 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 16 | 65 | 0 | 103 | 69 | 143 |
| Total Analysis Volume [veh/h] | 66 | 261 | 0 | 413 | 276 | 571 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.21 | 0.34 | 0.00 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 19.37 | 11.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.77 | 1.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 19.32 | 37.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 13.44 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.77 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Wood Avenue (SR 2017) & N. 13th Street (SR 2019)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 65.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.677 |

**Intersection Setup**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 12.00 | 11.00 | 12.00 | 15.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 20.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 105.00 | 100.00 | 285.00 | 115.00 | 100.00 | 100.00 | 100.00 | 100.00 | 75.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.09 | | | 0.10 | | | -0.05 | | | -0.02 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 153 | 154 | 17 | 74 | 171 | 479 | 459 | 195 | 148 | 6 | 231 | 57 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.00 | 5.00 | 12.00 | 7.00 | 2.00 | 5.00 | 2.00 | 2.00 | 3.00 | 0.00 | 1.00 | 14.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 3 | 0 | 0 | 0 | 0 | 6 | 10 | 4 | 5 | 0 | 2 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 210 | 0 | 0 | 74 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 157 | 155 | 16 | 75 | 172 | 279 | 473 | 201 | 80 | 6 | 235 | 57 |
| Peak Hour Factor | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 41 | 40 | 4 | 19 | 45 | 72 | 122 | 52 | 21 | 2 | 61 | 15 |
| Total Analysis Volume [veh/h] | 163 | 160 | 17 | 78 | 178 | 289 | 490 | 208 | 83 | 6 | 243 | 59 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 7 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 21 | 49 | 0 | 10 | 22 | 0 |
| Amber [s] | 4.5 | 4.5 | 0.0 | 4.5 | 4.5 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 19 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 3.5 | 3.5 | 0.0 | 3.5 | 3.5 | 0.0 | 2.5 | 2.5 | 0.0 | 4.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 20 | 0 | 0 | 0 | 18 | 0 | 0 | 35 | 0 | 0 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | | No | |
| Maximum Recall | No | Yes | | No | Yes | | No | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | C | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 | 0.00 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 11 | 17 | 7 | 13 | 13 | 38 | 38 | 38 | 12 | 12 |
| g / C, Green / Cycle | 0.14 | 0.21 | 0.09 | 0.17 | 0.17 | 0.48 | 0.48 | 0.48 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.10 | 0.06 | 0.13 | 0.24 | 0.34 | 0.12 | 0.06 | 0.09 | 0.10 |
| s, saturation flow rate [veh/h] | 1659 | 1699 | 1265 | 1399 | 1199 | 1455 | 1771 | 1493 | 1639 | 1582 |
| c, Capacity [veh/h] | 229 | 362 | 113 | 231 | 198 | 752 | 853 | 719 | 295 | 239 |
| d1, Uniform Delay [s] | 32.49 | 27.26 | 34.84 | 31.53 | 32.95 | 16.22 | 12.01 | 11.23 | 31.12 | 31.45 |
| k, delay calibration | 0.11 | 0.50 | 0.11 | 0.50 | 0.50 | 0.12 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.05 | 4.65 | 7.18 | 21.82 | 233.90 | 1.11 | 0.15 | 0.07 | 1.45 | 2.81 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 11.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.71 | 0.49 | 0.69 | 0.77 | 1.46 | 0.65 | 0.24 | 0.12 | 0.53 | 0.64 |
| d, Delay for Lane Group [s/veh] | 36.55 | 31.91 | 42.01 | 53.35 | 266.85 | 28.53 | 12.16 | 11.30 | 32.57 | 34.26 |
| Lane Group LOS | D | C | D | D | F | C | B | B | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 3.11 | 3.25 | 1.62 | 4.49 | 16.42 | 6.11 | 1.98 | 0.74 | 2.75 | 2.80 |
| 50th-Percentile Queue Length [ft/ln] | 77.66 | 81.35 | 40.60 | 112.23 | 410.56 | 152.81 | 49.40 | 18.45 | 68.71 | 70.03 |
| 95th-Percentile Queue Length [veh/ln] | 5.59 | 5.86 | 2.92 | 7.96 | 26.76 | 10.17 | 3.56 | 1.33 | 4.95 | 5.04 |
| 95th-Percentile Queue Length [ft/ln] | 139.78 | 146.43 | 73.09 | 199.10 | 669.12 | 254.17 | 88.92 | 33.21 | 123.68 | 126.05 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.55 | 31.91 | 31.91 | 42.01 | 53.35 | 266.85 | 28.53 | 12.16 | 11.30 | 32.57 | 33.22 | 34.26 |
| Movement LOS | D | C | C | D | D | F | C | B | B | C | C | C |
| d_A, Approach Delay [s/veh] | 34.13 | | | 164.94 | | | 22.34 | | | 33.41 | | |
| Approach LOS | C | | | F | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 65.47 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.677 | | | | | | | | | | | |

**Emissions**

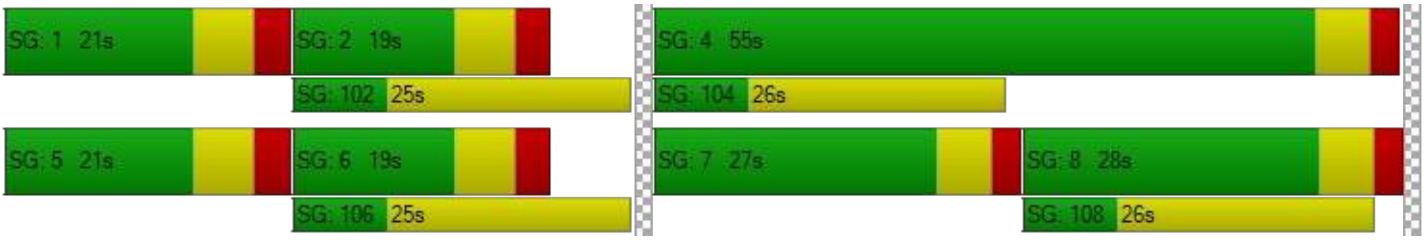
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.21 | 10.00 | 8.21 | 18.74 | 30.42 | 16.68 | 7.08 | 2.83 | 15.39 | 15.13 |
| Stops [stops/h] | 141.96 | 148.71 | 74.22 | 205.15 | 750.50 | 279.33 | 90.31 | 33.73 | 125.60 | 128.01 |
| Fuel consumption [US gal/h] | 2.63 | 2.65 | 1.54 | 4.19 | 22.49 | 5.58 | 1.46 | 0.55 | 2.56 | 2.60 |
| CO [g/h] | 183.89 | 185.15 | 107.51 | 292.84 | 1572.38 | 390.13 | 102.32 | 38.59 | 178.96 | 182.06 |
| NOx [g/h] | 35.78 | 36.02 | 20.92 | 56.98 | 305.93 | 75.90 | 19.91 | 7.51 | 34.82 | 35.42 |
| VOC [g/h] | 42.62 | 42.91 | 24.92 | 67.87 | 364.41 | 90.42 | 23.71 | 8.94 | 41.48 | 42.19 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 29.16 | 29.16 | 29.16 | 29.16 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.201 | 2.914 | 2.755 | 2.222 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 305 | 305 | 1244 | 559 |
| d_b, Bicycle Delay [s] | 28.30 | 28.30 | 5.63 | 20.46 |
| l_b,int, Bicycle LOS Score for Intersection | 2.122 | 2.805 | 2.970 | 1.814 |
| Bicycle LOS | B | C | C | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 6: S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.652 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 | 12.00 | 13.00 | 12.00 | 14.00 | 11.00 | 13.00 | 23.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 300.00 | 100.00 | 420.00 | 265.00 | 100.00 | 280.00 | 100.00 | 100.00 | 100.00 | 400.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 350.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 40.00 | | | 35.00 | | |
| Grade [%] | -0.06 | | | 0.05 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 77 | 556 | 215 | 21 | 429 | 207 | 138 | 180 | 318 | 125 | 30 | 34 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 3.00 | 5.00 | 0.00 | 1.00 | 1.00 | 0.00 | 4.00 | 3.00 | 2.00 | 0.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 13 | 0 | 13 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 131 | 0 | 0 | 84 | 0 | 0 | 220 | 0 | 0 | 23 |
| Total Hourly Volume [veh/h] | 78 | 561 | 94 | 21 | 433 | 125 | 139 | 195 | 101 | 139 | 30 | 11 |
| Peak Hour Factor | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 144 | 24 | 5 | 111 | 32 | 36 | 50 | 26 | 36 | 8 | 3 |
| Total Analysis Volume [veh/h] | 80 | 577 | 97 | 22 | 445 | 129 | 143 | 201 | 104 | 143 | 31 | 11 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 95.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 7 | 42 | 0 | 5 | 42 | 0 | 0 | 23 | 0 | 10 | 39 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 6 | 0 | 0 | 6 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 50.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 35.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 13 | 42 | 0 | 13 | 42 | 0 | 0 | 32 | 0 | 13 | 45 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 0 | 10 | 0 | 7 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | | No | | No | No | |
| Maximum Recall | No | Yes | | No | Yes | | | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 |
| g_i, Effective Green Time [s] | 7 | 41 | 41 | 4 | 38 | 38 | 27 | 27 | 40 | 40 |
| g / C, Green / Cycle | 0.07 | 0.41 | 0.41 | 0.04 | 0.38 | 0.38 | 0.27 | 0.27 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.33 | 0.07 | 0.01 | 0.28 | 0.09 | 0.25 | 0.07 | 0.12 | 0.02 |
| s, saturation flow rate [veh/h] | 1672 | 1756 | 1469 | 1540 | 1603 | 1363 | 1388 | 1554 | 1226 | 1777 |
| c, Capacity [veh/h] | 124 | 714 | 597 | 67 | 603 | 512 | 426 | 420 | 347 | 711 |
| d1, Uniform Delay [s] | 45.03 | 26.21 | 18.84 | 46.44 | 26.94 | 21.50 | 36.81 | 28.56 | 23.70 | 18.44 |
| k, delay calibration | 0.13 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.41 | 0.11 | 0.48 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 6.79 | 9.54 | 0.58 | 2.86 | 7.89 | 1.18 | 12.71 | 0.31 | 3.43 | 0.03 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.65 | 0.81 | 0.16 | 0.33 | 0.74 | 0.25 | 0.81 | 0.25 | 0.41 | 0.06 |
| d, Delay for Lane Group [s/veh] | 51.83 | 35.74 | 19.42 | 49.30 | 34.83 | 22.68 | 49.52 | 28.86 | 27.13 | 18.47 |
| Lane Group LOS | D | D | B | D | C | C | D | C | C | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.13 | 13.37 | 1.48 | 0.58 | 10.08 | 2.19 | 9.34 | 1.92 | 2.49 | 0.59 |
| 50th-Percentile Queue Length [ft/ln] | 53.34 | 334.15 | 37.08 | 14.42 | 251.98 | 54.84 | 233.50 | 48.09 | 62.34 | 14.75 |
| 95th-Percentile Queue Length [veh/ln] | 3.84 | 19.36 | 2.67 | 1.04 | 15.29 | 3.95 | 14.35 | 3.46 | 4.49 | 1.06 |
| 95th-Percentile Queue Length [ft/ln] | 96.01 | 484.05 | 66.75 | 25.96 | 382.14 | 98.71 | 358.80 | 86.57 | 112.21 | 26.55 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 51.83 | 35.74 | 19.42 | 49.30 | 34.83 | 22.68 | 49.52 | 49.52 | 28.86 | 27.13 | 18.47 | 18.47 |
| Movement LOS | D | D | B | D | C | C | D | D | C | C | B | B |
| d_A, Approach Delay [s/veh] | 35.35 | | | 32.73 | | | 44.73 | | | 25.17 | | |
| Approach LOS | D | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 35.73 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.652 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 7.66 | 55.26 | 9.29 | 3.03 | 61.38 | 17.79 | 25.54 | 7.72 | 20.27 | 5.95 |
| Stops [stops/h] | 76.81 | 481.18 | 53.40 | 20.77 | 362.85 | 78.97 | 336.24 | 69.25 | 89.77 | 21.24 |
| Fuel consumption [US gal/h] | 1.71 | 9.92 | 1.14 | 0.49 | 8.22 | 1.87 | 7.68 | 1.57 | 2.24 | 0.54 |
| CO [g/h] | 119.77 | 693.56 | 79.62 | 34.43 | 574.74 | 130.53 | 537.13 | 109.58 | 156.39 | 38.06 |
| NOx [g/h] | 23.30 | 134.94 | 15.49 | 6.70 | 111.82 | 25.40 | 104.51 | 21.32 | 30.43 | 7.41 |
| VOC [g/h] | 27.76 | 160.74 | 18.45 | 7.98 | 133.20 | 30.25 | 124.49 | 25.40 | 36.24 | 8.82 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 10.0 | 10.0 | 8.0 | 8.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 40.50 | 40.50 | 42.32 | 42.32 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.913 | 2.956 | 2.662 | 2.277 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 720 | 720 | 520 | 780 |
| d_b, Bicycle Delay [s] | 20.48 | 20.48 | 27.38 | 18.61 |
| l_b,int, Bicycle LOS Score for Intersection | 3.020 | 2.682 | 2.662 | 1.903 |
| Bicycle LOS | C | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 7: Northampton Street (SR 0248) & Wood Avenue (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.462 |

**Intersection Setup**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 17.00 | 12.00 | 22.00 | 10.00 | 10.00 | 10.00 | 11.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.01 | | | -0.03 | | | -0.05 | | | 0.06 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | No | | | Yes | | |

**Volumes**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 37 | 133 | 231 | 16 | 73 | 78 | 58 | 299 | 31 | 80 | 395 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 6.00 | 4.00 | 0.00 | 2.00 | 10.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 5.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 21 | 0 | 7 | 13 | 36 | 11 | 0 | 0 | 0 | 0 | 4 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 139 | 0 | 0 | 38 | 0 | 0 | 5 | 0 | 0 | 2 |
| Total Hourly Volume [veh/h] | 37 | 155 | 94 | 23 | 87 | 77 | 69 | 302 | 26 | 81 | 398 | 17 |
| Peak Hour Factor | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 10 | 40 | 24 | 6 | 23 | 20 | 18 | 79 | 7 | 21 | 104 | 4 |
| Total Analysis Volume [veh/h] | 39 | 161 | 98 | 24 | 91 | 80 | 72 | 314 | 27 | 84 | 414 | 18 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 66.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 38 | 0 | 0 | 38 | 0 | 0 | 50 | 0 | 0 | 50 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 12 | 0 | 0 | 12 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 44 | 0 | 0 | 44 | 0 | 0 | 56 | 0 | 0 | 56 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | Yes | | | Yes | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 22 | 22 | 68 | 68 | 68 | 68 |
| g / C, Green / Cycle | 0.22 | 0.22 | 0.68 | 0.68 | 0.68 | 0.68 |
| (v / s)_i Volume / Saturation Flow Rate | 0.19 | 0.12 | 0.07 | 0.19 | 0.09 | 0.28 |
| s, saturation flow rate [veh/h] | 1602 | 1574 | 970 | 1760 | 925 | 1566 |
| c, Capacity [veh/h] | 393 | 386 | 571 | 1197 | 592 | 1065 |
| d1, Uniform Delay [s] | 37.23 | 34.52 | 12.73 | 6.34 | 10.55 | 7.06 |
| k, delay calibration | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.03 | 1.02 | 0.45 | 0.60 | 0.50 | 1.15 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.76 | 0.50 | 0.13 | 0.28 | 0.14 | 0.41 |
| d, Delay for Lane Group [s/veh] | 40.26 | 35.54 | 13.18 | 6.94 | 11.06 | 8.21 |
| Lane Group LOS | D | D | B | A | B | A |
| Critical Lane Group | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 7.28 | 4.32 | 0.91 | 2.82 | 0.96 | 4.04 |
| 50th-Percentile Queue Length [ft/ln] | 181.99 | 108.02 | 22.81 | 70.57 | 23.98 | 101.02 |
| 95th-Percentile Queue Length [veh/ln] | 11.70 | 7.73 | 1.64 | 5.08 | 1.73 | 7.27 |
| 95th-Percentile Queue Length [ft/ln] | 292.62 | 193.24 | 41.06 | 127.02 | 43.17 | 181.84 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 40.26 | 40.26 | 40.26 | 35.54 | 35.54 | 35.54 | 13.18 | 6.94 | 6.94 | 11.06 | 8.21 | 8.21 |
| Movement LOS | D | D | D | D | D | D | B | A | A | B | A | A |
| d_A, Approach Delay [s/veh] | 40.26 | | | 35.54 | | | 8.03 | | | 8.67 | | |
| Approach LOS | D | | | D | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 18.79 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.462 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 42.24 | 207.94 | 8.50 | 40.26 | 22.71 | 116.82 |
| Stops [stops/h] | 262.07 | 155.54 | 32.85 | 101.62 | 34.54 | 145.47 |
| Fuel consumption [US gal/h] | 5.35 | 11.36 | 0.70 | 2.68 | 1.34 | 6.53 |
| CO [g/h] | 373.70 | 793.92 | 49.04 | 187.48 | 93.87 | 456.66 |
| NOx [g/h] | 72.71 | 154.47 | 9.54 | 36.48 | 18.26 | 88.85 |
| VOC [g/h] | 86.61 | 184.00 | 11.36 | 43.45 | 21.76 | 105.84 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 16.0 | 16.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.28 | 35.28 | 0.00 | 39.61 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.294 | 2.069 | 0.000 | 2.278 |
| Crosswalk LOS | B | B | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 760 | 760 | 1000 | 1000 |
| d_b, Bicycle Delay [s] | 19.22 | 19.22 | 12.50 | 12.50 |
| l_b,int, Bicycle LOS Score for Intersection | 2.281 | 1.944 | 2.249 | 2.414 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 8: Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.492 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 13.00 | 12.00 | 20.00 | 12.00 | 12.00 | 11.00 | 13.00 | 12.00 | 12.00 | 13.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 40.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.02 | | | -0.02 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 69 | 644 | 8 | 282 | 549 | 36 | 0 | 113 | 94 | 0 | 153 | 356 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 3.00 | 0.00 | 0.00 | 1.00 | 6.00 | 2.00 | 2.00 | 3.00 | 2.00 | 4.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 2 | 0 | 0 | 7 | 29 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 23 | 0 | 0 | 93 |
| Total Hourly Volume [veh/h] | 70 | 650 | 8 | 293 | 554 | 22 | 0 | 116 | 72 | 0 | 161 | 295 |
| Peak Hour Factor | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 1.0000 | 0.9800 | 0.9800 | 1.0000 | 0.9800 | 0.9800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 166 | 2 | 75 | 141 | 6 | 0 | 30 | 18 | 0 | 41 | 75 |
| Total Analysis Volume [veh/h] | 71 | 663 | 8 | 299 | 565 | 22 | 0 | 118 | 73 | 0 | 164 | 301 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 2.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Overlap | Permiss | Permiss | Overlap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 5 | 0 | 8 | 1 |
| Auxiliary Signal Groups | | | | | | | | | 4,5 | | | 1,8 |
| Maximum Green [s] | 16 | 31 | 0 | 16 | 31 | 0 | 0 | 35 | 16 | 0 | 35 | 16 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Walk [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 40.0 | 40.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 13 | 37 | 0 | 22 | 46 | 0 | 0 | 41 | 13 | 0 | 41 | 22 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 0 | 10 | 7 | 0 | 10 | 7 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 |
| Minimum Recall | No | No | | No | No | | | No | No | | No | No |
| Maximum Recall | No | Yes | | No | Yes | | | No | No | | No | No |
| Pedestrian Recall | No | No | | No | No | | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | R | C | R |
|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| g_i, Effective Green Time [s] | 71 | 49 | 49 | 71 | 59 | 19 | 31 | 19 | 41 |
| g / C, Green / Cycle | 0.71 | 0.49 | 0.49 | 0.71 | 0.59 | 0.19 | 0.31 | 0.19 | 0.41 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.19 | 0.19 | 0.29 | 0.32 | 0.07 | 0.05 | 0.09 | 0.19 |
| s, saturation flow rate [veh/h] | 937 | 1758 | 1750 | 1037 | 1845 | 1772 | 1554 | 1744 | 1566 |
| c, Capacity [veh/h] | 606 | 854 | 850 | 746 | 1079 | 345 | 474 | 340 | 633 |
| d1, Uniform Delay [s] | 7.17 | 16.35 | 16.35 | 6.97 | 12.64 | 34.73 | 25.33 | 35.79 | 21.97 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.39 | 1.36 | 1.37 | 1.61 | 1.97 | 0.58 | 0.15 | 1.06 | 2.55 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.12 | 0.39 | 0.39 | 0.40 | 0.54 | 0.34 | 0.15 | 0.48 | 0.48 |
| d, Delay for Lane Group [s/veh] | 7.56 | 17.71 | 17.72 | 8.57 | 14.61 | 35.32 | 25.48 | 36.85 | 24.51 |
| Lane Group LOS | A | B | B | A | B | D | C | D | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.46 | 4.97 | 4.95 | 2.18 | 7.63 | 2.49 | 1.26 | 3.59 | 5.46 |
| 50th-Percentile Queue Length [ft/ln] | 11.56 | 124.13 | 123.68 | 54.62 | 190.82 | 62.30 | 31.52 | 89.72 | 136.44 |
| 95th-Percentile Queue Length [veh/ln] | 0.83 | 8.62 | 8.59 | 3.93 | 12.16 | 4.49 | 2.27 | 6.46 | 9.29 |
| 95th-Percentile Queue Length [ft/ln] | 20.81 | 215.49 | 214.87 | 98.32 | 304.09 | 112.15 | 56.74 | 161.50 | 232.22 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 7.56 | 17.72 | 17.72 | 8.57 | 14.61 | 14.61 | 0.00 | 35.32 | 25.48 | 0.00 | 36.85 | 24.51 |
| Movement LOS | A | B | B | A | B | B | | D | C | | D | C |
| d_A, Approach Delay [s/veh] | 16.74 | | | 12.57 | | | 31.56 | | | 28.87 | | |
| Approach LOS | B | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 18.83 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.492 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.79 | 46.37 | 46.18 | 24.27 | 47.65 | 8.28 | 5.12 | 19.36 | 35.54 |
| Stops [stops/h] | 16.64 | 178.74 | 178.09 | 78.66 | 274.77 | 89.72 | 45.40 | 129.20 | 196.47 |
| Fuel consumption [US gal/h] | 0.61 | 4.32 | 4.31 | 2.16 | 6.15 | 1.84 | 0.92 | 2.94 | 4.33 |
| CO [g/h] | 42.48 | 302.20 | 301.07 | 151.26 | 430.01 | 128.50 | 63.96 | 205.47 | 302.94 |
| NOx [g/h] | 8.26 | 58.80 | 58.58 | 29.43 | 83.66 | 25.00 | 12.44 | 39.98 | 58.94 |
| VOC [g/h] | 9.84 | 70.04 | 69.78 | 35.06 | 99.66 | 29.78 | 14.82 | 47.62 | 70.21 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 19.0 | 0.0 | 18.0 | 18.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.81 | 0.00 | 33.62 | 33.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.485 | 0.000 | 2.217 | 2.759 |
| Crosswalk LOS | B | F | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 620 | 800 | 700 | 700 |
| d_b, Bicycle Delay [s] | 23.81 | 18.00 | 21.13 | 21.13 |
| l_b,int, Bicycle LOS Score for Intersection | 2.172 | 3.045 | 1.913 | 2.480 |
| Bicycle LOS | B | C | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 9: Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 34.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.824 |

**Intersection Setup**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 13.00 | 13.00 | 12.00 | 12.00 | 12.00 | 18.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 25.00 | | | 35.00 | | |
| Grade [%] | 0.04 | | | -0.04 | | | -0.01 | | | 0.01 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | No | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 594 | 405 | 55 | 645 | 39 | 79 | 69 | 6 | 218 | 176 | 250 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 4.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 11 | 18 | 0 | 7 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 141 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 108 |
| Total Hourly Volume [veh/h] | 0 | 610 | 285 | 55 | 658 | 37 | 80 | 70 | 7 | 220 | 178 | 144 |
| Peak Hour Factor | 1.0000 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 159 | 74 | 14 | 172 | 10 | 21 | 18 | 2 | 57 | 46 | 38 |
| Total Analysis Volume [veh/h] | 0 | 637 | 297 | 57 | 687 | 39 | 84 | 73 | 7 | 230 | 186 | 150 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 99.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 39 | 0 | 7 | 52 | 0 | 0 | 36 | 0 | 0 | 36 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 165.0 | 165.0 | 0.0 | 0.0 | -5.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 6.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 13 | 55 | 0 | 0 | 45 | 0 | 0 | 45 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | Yes | No | | | No | | | No | |
| Maximum Recall | | Yes | | No | Yes | | | No | | | No | |
| Pedestrian Recall | | No | | No | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | C | C | C | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 2.50 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 37 | 37 | 50 | 50 | 40 | 40 |
| g / C, Green / Cycle | 0.37 | 0.37 | 0.50 | 0.50 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.28 | 0.32 | 0.34 | 0.26 | 0.15 | 0.38 |
| s, saturation flow rate [veh/h] | 1641 | 1475 | 1095 | 1598 | 1105 | 1494 |
| c, Capacity [veh/h] | 610 | 548 | 484 | 801 | 495 | 646 |
| d1, Uniform Delay [s] | 27.60 | 28.89 | 18.20 | 16.73 | 20.67 | 29.51 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.44 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 8.90 | 15.34 | 11.03 | 2.35 | 0.39 | 13.91 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.77 | 0.85 | 0.77 | 0.51 | 0.33 | 0.88 |
| d, Delay for Lane Group [s/veh] | 36.50 | 44.22 | 29.23 | 19.08 | 21.06 | 43.41 |
| Lane Group LOS | D | D | C | B | C | D |
| Critical Lane Group | No | Yes | Yes | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 10.74 | 12.00 | 6.56 | 6.36 | 2.71 | 14.93 |
| 50th-Percentile Queue Length [ft/ln] | 268.45 | 299.94 | 163.97 | 159.09 | 67.82 | 373.19 |
| 95th-Percentile Queue Length [veh/ln] | 16.11 | 17.68 | 10.76 | 10.50 | 4.88 | 21.26 |
| 95th-Percentile Queue Length [ft/ln] | 402.80 | 441.96 | 268.98 | 262.51 | 122.08 | 531.60 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 38.56 | 44.22 | 29.23 | 23.72 | 19.08 | 21.06 | 21.06 | 21.06 | 43.41 | 43.41 | 43.41 |
| Movement LOS | | D | D | C | C | B | C | C | C | D | D | D |
| d_A, Approach Delay [s/veh] | 40.36 | | | 23.89 | | | 21.06 | | | 43.41 | | |
| Approach LOS | D | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 34.50 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.824 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 37.91 | 37.91 | 27.18 | 30.16 | 6.95 | 39.01 |
| Stops [stops/h] | 386.57 | 431.92 | 236.12 | 229.08 | 97.66 | 537.39 |
| Fuel consumption [US gal/h] | 8.62 | 9.80 | 5.50 | 4.93 | 1.39 | 10.53 |
| CO [g/h] | 602.80 | 685.27 | 384.53 | 344.56 | 97.18 | 735.96 |
| NOx [g/h] | 117.28 | 133.33 | 74.81 | 67.04 | 18.91 | 143.19 |
| VOC [g/h] | 139.71 | 158.82 | 89.12 | 79.85 | 22.52 | 170.57 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 9.0 | 9.0 | 9.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 0.00 | 41.41 | 41.41 | 41.41 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 0.000 | 2.833 | 1.882 | 2.791 | |
| Crosswalk LOS | F | C | A | C | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 720 | 980 | 780 | 780 | |
| d_b, Bicycle Delay [s] | 20.48 | 13.01 | 18.61 | 18.61 | |
| l_b,int, Bicycle LOS Score for Intersection | 2.446 | 2.207 | 1.832 | 2.672 | |
| Bicycle LOS | B | B | A | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 10: Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.527 |

**Intersection Setup**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 11.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 11.00 | 11.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 120.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 25.00 | | | 40.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 256 | 32 | 163 | 270 | 26 | 32 | 10 | 3 | 76 | 24 | 236 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 6.00 | 0.00 | 1.00 | 3.00 | 0.00 | 3.00 | 0.00 | 0.00 | 1.00 | 13.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 7 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| Total Hourly Volume [veh/h] | 0 | 258 | 31 | 168 | 272 | 26 | 32 | 10 | 3 | 82 | 24 | 236 |
| Peak Hour Factor | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 70 | 8 | 46 | 74 | 7 | 9 | 3 | 1 | 22 | 7 | 64 |
| Total Analysis Volume [veh/h] | 0 | 281 | 34 | 183 | 296 | 28 | 35 | 11 | 3 | 89 | 26 | 257 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 38 | 0 | 0 | 38 | 0 | 0 | 13 | 0 | 0 | 13 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 9 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 |
| Detector Location [ft] | 0.0 | 210.0 | 0.0 | 0.0 | 210.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 6.0 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 30 | 30 | 30 | 30 | 30 | 30 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |
| g_i, Effective Green Time [s] | 12 | 12 | 10 | 10 | 10 | 10 |
| g / C, Green / Cycle | 0.41 | 0.41 | 0.32 | 0.32 | 0.32 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.18 | 0.32 | 0.03 | 0.01 | 0.06 | 0.20 |
| s, saturation flow rate [veh/h] | 1731 | 1565 | 1087 | 1734 | 1411 | 1392 |
| c, Capacity [veh/h] | 839 | 813 | 304 | 553 | 566 | 444 |
| d1, Uniform Delay [s] | 6.27 | 7.29 | 13.75 | 7.03 | 9.48 | 8.76 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.28 | 0.79 | 0.17 | 0.02 | 0.13 | 1.53 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.38 | 0.62 | 0.12 | 0.03 | 0.16 | 0.64 |
| d, Delay for Lane Group [s/veh] | 6.55 | 8.08 | 13.92 | 7.05 | 9.61 | 10.29 |
| Lane Group LOS | A | A | B | A | A | B |
| Critical Lane Group | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.74 | 1.45 | 0.20 | 0.05 | 0.31 | 1.01 |
| 50th-Percentile Queue Length [ft/ln] | 18.61 | 36.14 | 5.03 | 1.13 | 7.76 | 25.37 |
| 95th-Percentile Queue Length [veh/ln] | 1.34 | 2.60 | 0.36 | 0.08 | 0.56 | 1.83 |
| 95th-Percentile Queue Length [ft/ln] | 33.50 | 65.05 | 9.05 | 2.04 | 13.97 | 45.67 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 6.55 | 6.55 | 6.55 | 8.08 | 8.08 | 8.08 | 13.92 | 7.05 | 7.05 | 9.61 | 10.29 | 10.29 |
| Movement LOS | A | A | A | A | A | A | B | A | A | A | B | B |
| d_A, Approach Delay [s/veh] | 6.55 | | | 8.08 | | | 11.96 | | | 10.13 | | |
| Approach LOS | A | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 8.46 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.527 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 47.83 | 73.41 | 3.78 | 1.51 | 77.17 | 245.37 |
| Stops [stops/h] | 89.46 | 173.70 | 24.17 | 5.44 | 37.30 | 121.97 |
| Fuel consumption [US gal/h] | 2.92 | 4.94 | 0.36 | 0.11 | 3.30 | 10.58 |
| CO [g/h] | 203.81 | 345.16 | 25.30 | 7.62 | 230.99 | 739.55 |
| NOx [g/h] | 39.65 | 67.16 | 4.92 | 1.48 | 44.94 | 143.89 |
| VOC [g/h] | 47.23 | 79.99 | 5.86 | 1.77 | 53.53 | 171.40 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 6.00 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.178 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2537 | 2537 | 868 | 868 |
| d_b, Bicycle Delay [s] | 1.08 | 1.08 | 4.80 | 4.80 |
| l_b,int, Bicycle LOS Score for Intersection | 2.086 | 2.396 | 1.640 | 2.188 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 11: Wood Avenue (SR 2017) & US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.155 |

**Intersection Setup**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 50.00 | 0.00 |
| Speed [mph] | 30.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | -0.03 | | 0.03 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 77 | 803 | 782 | 96 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 4.00 | 2.00 | 2.00 | 0.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 11 | 19 | 11 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 89 | 829 | 800 | 97 |
| Peak Hour Factor | 1.0000 | 1.0000 | 0.9430 | 0.9430 | 0.9430 | 0.9430 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 24 | 220 | 212 | 26 |
| Total Analysis Volume [veh/h] | 0 | 0 | 94 | 879 | 848 | 103 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.15 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 11.03 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.17 | 0.06 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 4.13 | 1.38 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 1.07 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.54 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 12: Wood Avenue (SR 2017) & US 22 East Off-Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 18.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.670 |

**Intersection Setup**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Thru | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | -0.04 | | -0.03 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 462 | 418 | 0 | 0 | 782 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 30 | 0 | 0 | 11 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 466 | 452 | 0 | 0 | 800 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 129 | 126 | 0 | 0 | 222 |
| Total Analysis Volume [veh/h] | 0 | 518 | 502 | 0 | 0 | 889 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.67 | 0.01 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 0.00 | 18.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | A | | | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 5.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 130.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 18.58 | | 0.00 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.04 | | | | | |
| Intersection LOS | C | | | | | |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Report File: C:\...\2025 WD PM.pdf

Scenario 8 2025 WD PM
6/17/2024

## Turning Movement Volume: Summary

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | 23 | 12 | 7 | 207 | 334 | 14 | 597 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | 160 | 78 | 109 | 232 | 289 | 239 | 1107 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | 22 | 41 | 26 | 366 | 491 | 16 | 962 |

| ID | Intersection Name | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | 62 | 246 | 390 | 261 | 539 | 1498 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | 157 | 155 | 17 | 75 | 172 | 489 | 473 | 201 | 154 | 6 | 235 | 57 | 2191 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | 78 | 561 | 225 | 21 | 433 | 209 | 139 | 195 | 321 | 139 | 30 | 34 | 2385 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | 37 | 155 | 233 | 23 | 87 | 115 | 69 | 302 | 31 | 81 | 398 | 19 | 1550 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012) /Nazareth Road (SR 0248) | 70 | 650 | 8 | 293 | 554 | 36 | 116 | 95 | 161 | 388 | 2371 |

| ID | Intersection Name | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | 610 | 426 | 55 | 658 | 39 | 80 | 70 | 8 | 220 | 178 | 252 | 2596 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | 0 | 258 | 35 | 168 | 272 | 26 | 32 | 10 | 3 | 82 | 24 | 245 | 1155 |

| ID | Intersection Name | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|
| | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | 89 | 829 | 800 | 97 | 1815 |

| ID | Intersection Name | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|
| | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | 466 | 452 | 800 | 1718 |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 8 2025 WD PM

Report File: C:\...\2025 WD PM.pdf
6/17/2024

## Turning Movement Volume: Detail

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 0 | 0 | 0 | 205 | 331 | 0 | 536 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 23 | 12 | 7 | 0 | 0 | 14 | 56 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **23** | **12** | **7** | **207** | **334** | **14** | **597** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Final Base | 151 | 62 | 98 | 204 | 246 | 233 | 994 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 8 | 15 | 10 | 26 | 41 | 4 | 104 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **160** | **78** | **109** | **232** | **289** | **239** | **1107** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 0 | 0 | 0 | 355 | 483 | 0 | 838 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 22 | 41 | 26 | 8 | 4 | 16 | 117 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **22** | **41** | **26** | **366** | **491** | **16** | **962** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Final Base | 61 | 235 | 357 | 248 | 534 | 1435 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 9 | 30 | 11 | 0 | 50 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **62** | **246** | **390** | **261** | **539** | **1498** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Final Base | 153 | 154 | 17 | 74 | 171 | 479 | 459 | 195 | 148 | 6 | 231 | 57 | 2144 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 3 | 0 | 0 | 0 | 0 | 6 | 10 | 4 | 5 | 0 | 2 | 0 | 30 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **157** | **155** | **17** | **75** | **172** | **489** | **473** | **201** | **154** | **6** | **235** | **57** | **2191** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Final Base | 77 | 556 | 215 | 21 | 429 | 207 | 138 | 180 | 318 | 125 | 30 | 34 | 2330 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 13 | 0 | 13 | 0 | 0 | 34 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **78** | **561** | **225** | **21** | **433** | **209** | **139** | **195** | **321** | **139** | **30** | **34** | **2385** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Final Base | 37 | 133 | 231 | 16 | 73 | 78 | 58 | 299 | 31 | 80 | 395 | 15 | 1446 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 21 | 0 | 7 | 13 | 36 | 11 | 0 | 0 | 0 | 0 | 4 | 92 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **37** | **155** | **233** | **23** | **87** | **115** | **69** | **302** | **31** | **81** | **398** | **19** | **1550** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Final Base | 69 | 644 | 8 | 282 | 549 | 36 | 113 | 94 | 153 | 356 | 2304 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 9 | 0 | 0 | 2 | 0 | 7 | 29 | 47 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **70** | **650** | **8** | **293** | **554** | **36** | **116** | **95** | **161** | **388** | **2371** |

| ID | Intersection Name | Volume Type | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Final Base | 594 | 405 | 55 | 645 | 39 | 79 | 69 | 6 | 218 | 176 | 250 | 2536 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 11 | 18 | 0 | 7 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 38 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **610** | **426** | **55** | **658** | **39** | **80** | **70** | **8** | **220** | **178** | **252** | **2596** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Final Base | 0 | 256 | 32 | 163 | 270 | 26 | 32 | 10 | 3 | 76 | 24 | 236 | 1128 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 7 | 19 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **0** | **258** | **35** | **168** | **272** | **26** | **32** | **10** | **3** | **82** | **24** | **245** | **1155** |

| ID | Intersection Name | Volume Type | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Final Base | 77 | 803 | 782 | 96 | 1758 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 11 | 19 | 11 | 0 | 41 |
| | | Other | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **89** | **829** | **800** | **97** | **1815** |

| ID | Intersection Name | Volume Type | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|---|
| | | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Final Base | 462 | 418 | 782 | 1662 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 30 | 11 | 41 |
| | | Other | 0 | 0 | 0 | 0 |
| | | **Future Total** | **466** | **452** | **800** | **1718** |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 8 2025 WD PM

Report File: C:\...\2025 WD PM.pdf
6/17/2024

## Trip Generation summary

### Added Trips

| Zone ID: Name | Land Use variables | Code | Ind. Var. | Rate | Quantity | % In | % Out | % Int. Capture | Trips In Adj. | Trips Out Adj. | Total Trips Adj. | % of Total Trips |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1: Passenger | | 155 | SF | | 0.000 | 50.00 | 50.00 | 0.00 | 58 | 93 | 151 | 93.79 |
| 16: Truck | | 155 | SF | | 0.000 | 50.00 | 50.00 | 0.00 | 5 | 5 | 10 | 6.21 |
| | | | | | **Added Trips Total** | | | | **63** | **98** | **161** | **100.00** |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 8 2025 WD PM

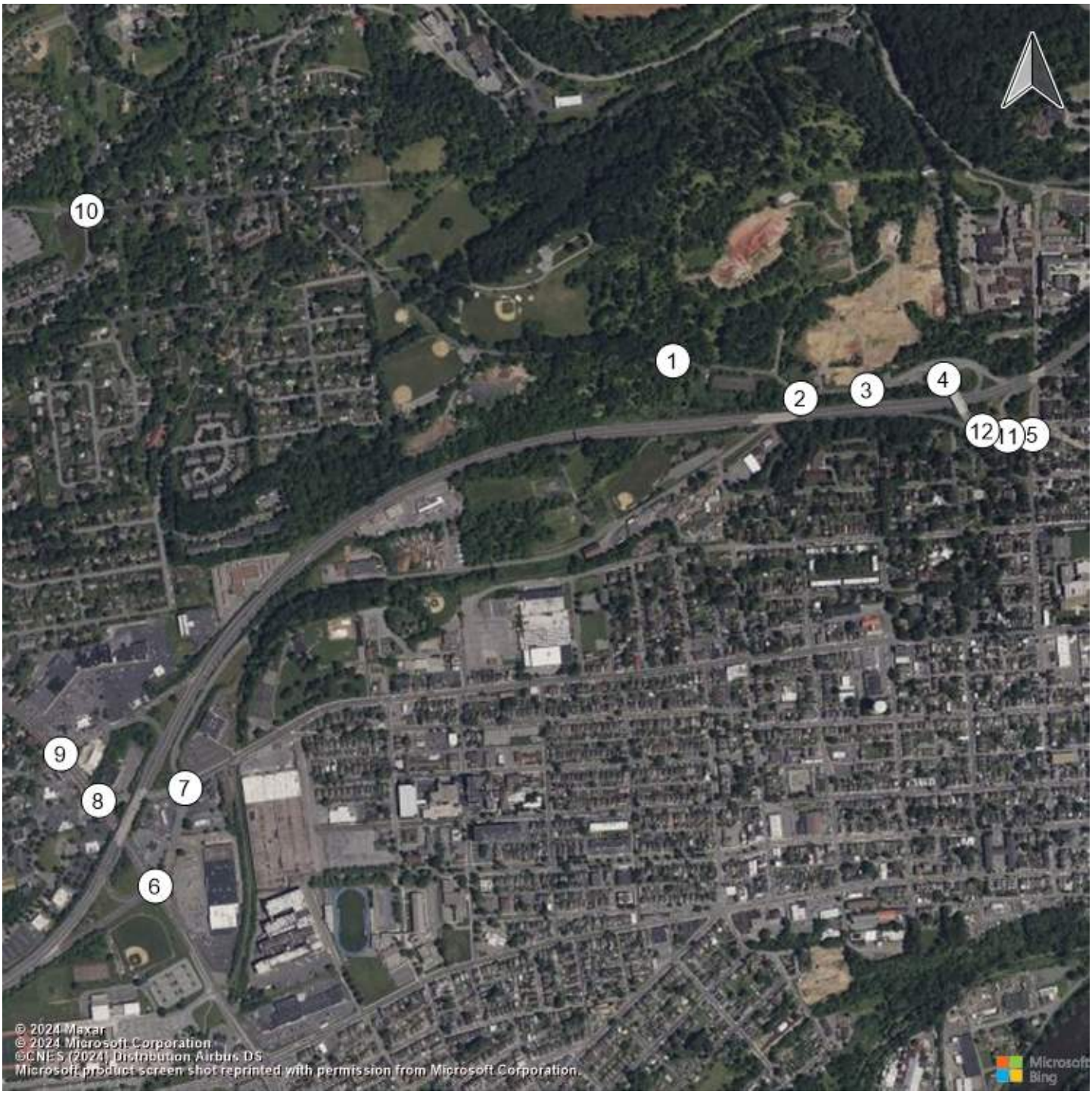
Report File: C:\...\2025 WD PM.pdf
6/17/2024

## Trip Distribution summary

| Zone / Gate | Zone 1: Passenger | | | |
|---|---|---|---|---|
| | To Passenger: | | From Passenger: | |
| | Share % | Trips | Share % | Trips |
| 16: Truck | 0.00 | 0 | 0.00 | 0 |
| 2: Tatamy Rd | 7.00 | 4 | 7.00 | 7 |
| 3: Park Ave | 5.00 | 3 | 5.00 | 5 |
| 4: Nazareth Rd | 12.00 | 7 | 12.00 | 11 |
| 5: Northampton St (East) | 7.00 | 4 | 7.00 | 7 |
| 6: To/From West via US 22 | 18.00 | 10 | 18.00 | 15 |
| 7: Northampton St (West) | 4.00 | 2 | 4.00 | 4 |
| 8: Sales St | 3.00 | 2 | 3.00 | 3 |
| 9: 25th S | 14.00 | 8 | 14.00 | 13 |
| 10: To/From East via US 22 | 10.00 | 6 | 10.00 | 9 |
| 11: Wood Ave (Easton) | 4.00 | 2 | 4.00 | 4 |
| 12: 13th St (South) | 5.00 | 3 | 5.00 | 5 |
| 13: 13th St (North) | 11.00 | 6 | 11.00 | 10 |
| **Total** | **100.00** | **57** | **100.00** | **93** |

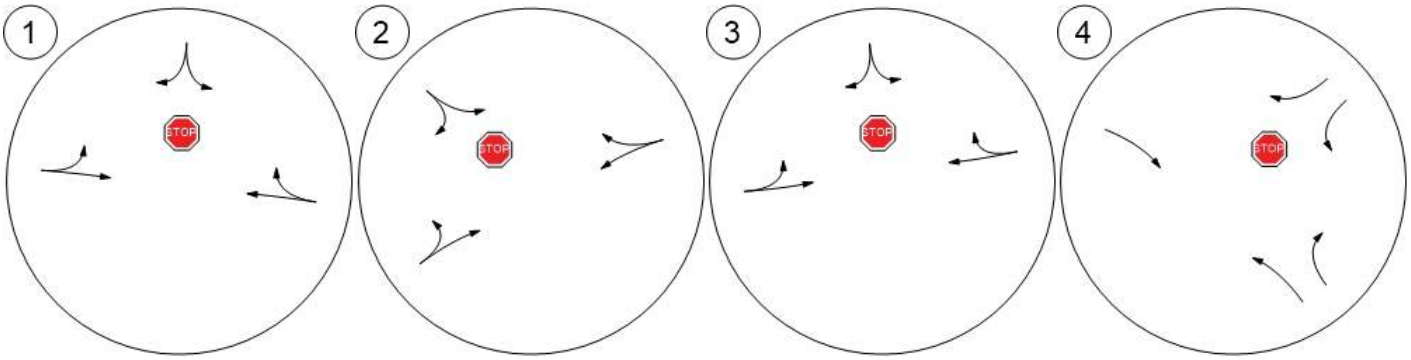
| Zone / Gate | Zone 16: Truck | | | |
|---|---|---|---|---|
| | To Truck: | | From Truck: | |
| | Share % | Trips | Share % | Trips |
| 1: Passenger | 0.00 | 0 | 0.00 | 0 |
| 2: Tatamy Rd | 0.00 | 0 | 0.00 | 0 |
| 3: Park Ave | 0.00 | 0 | 0.00 | 0 |
| 4: Nazareth Rd | 0.00 | 0 | 0.00 | 0 |
| 5: Northampton St (East) | 0.00 | 0 | 0.00 | 0 |
| 6: To/From West via US 22 | 50.00 | 3 | 50.00 | 3 |
| 7: Northampton St (West) | 0.00 | 0 | 0.00 | 0 |
| 8: Sales St | 0.00 | 0 | 0.00 | 0 |
| 9: 25th S | 0.00 | 0 | 0.00 | 0 |
| 10: To/From East via US 22 | 50.00 | 3 | 50.00 | 2 |
| 11: Wood Ave (Easton) | 0.00 | 0 | 0.00 | 0 |
| 12: 13th St (South) | 0.00 | 0 | 0.00 | 0 |
| 13: 13th St (North) | 0.00 | 0 | 0.00 | 0 |
| **Total** | **100.00** | **6** | **100.00** | **5** |

Report Figure 1: Study Intersections

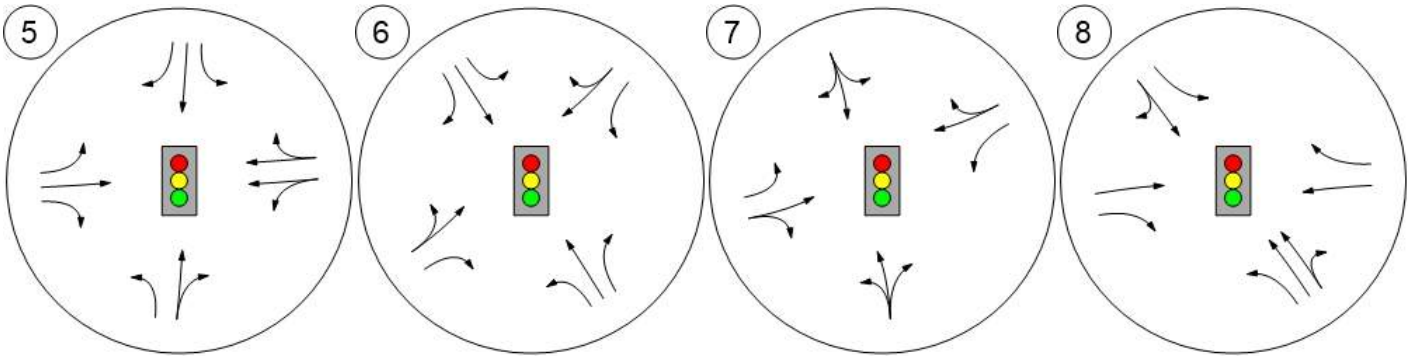


Report Figure 2: Lane Configuration and Traffic Control

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

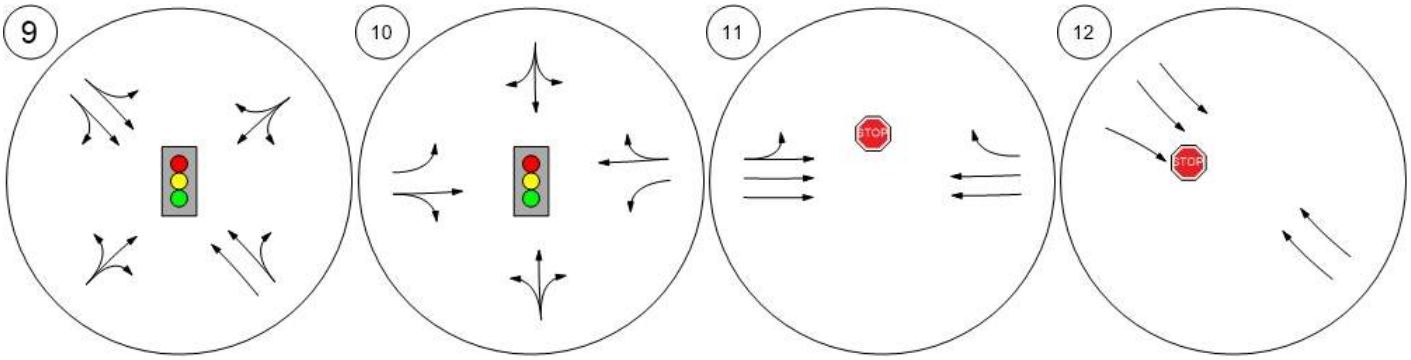



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024



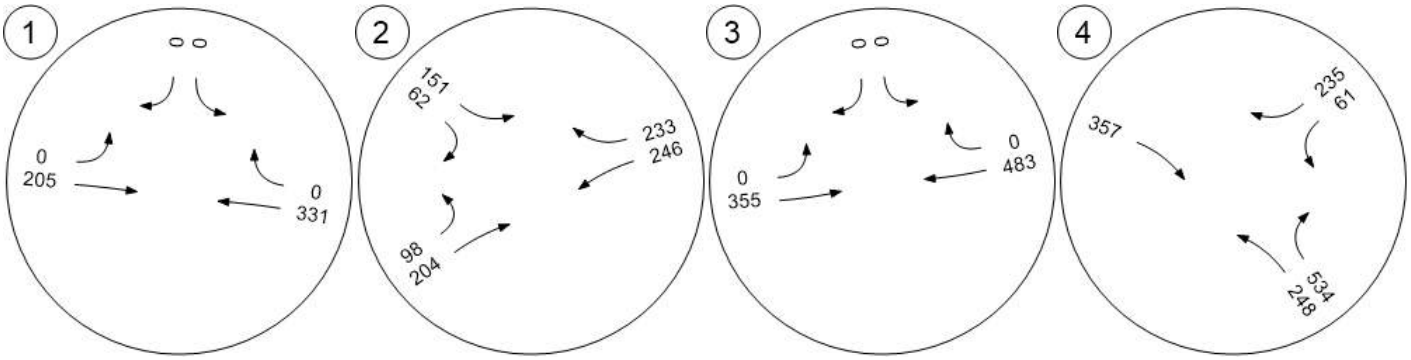
Report Figure 2: Lane Configuration and Traffic Control

Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) / Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

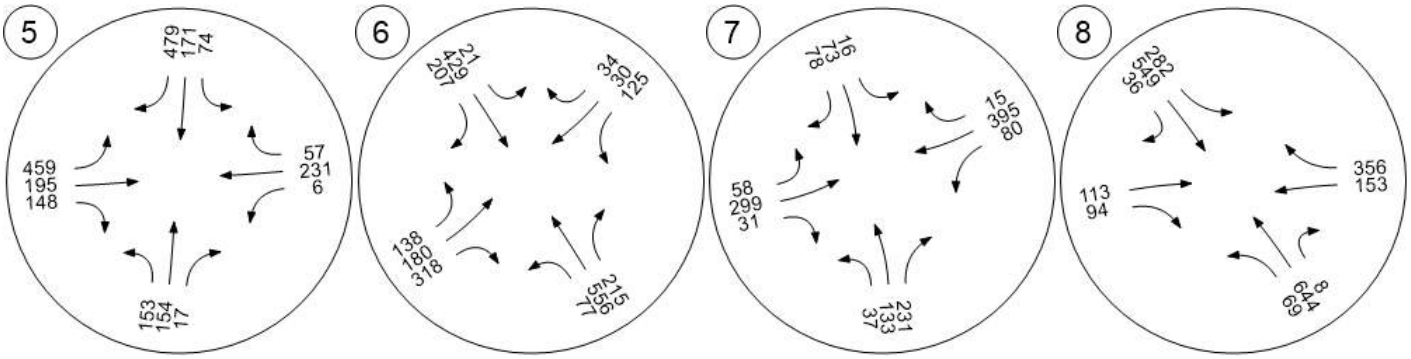


Report Figure 3a: Traffic Volume - Base Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

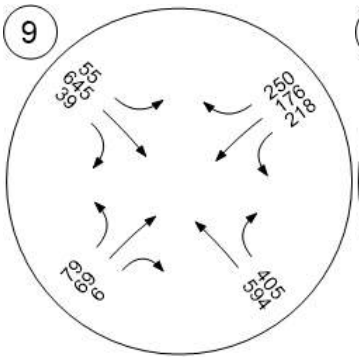



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024

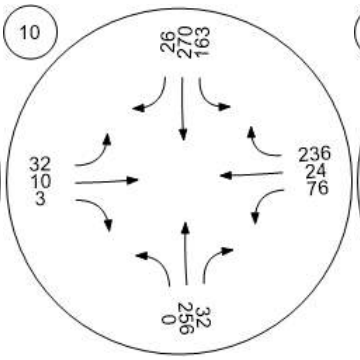


Report Figure 3a: Traffic Volume - Base Volume

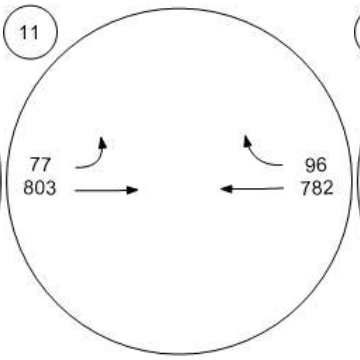
Nazareth Road (SR 0248) &



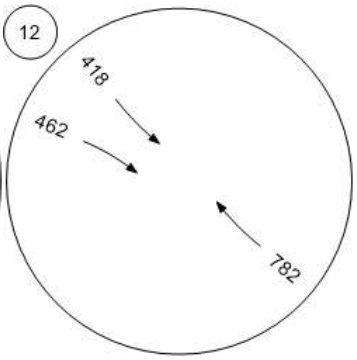

Hackett Avenue (SR 2017) /




Wood Avenue (SR 2017) & U

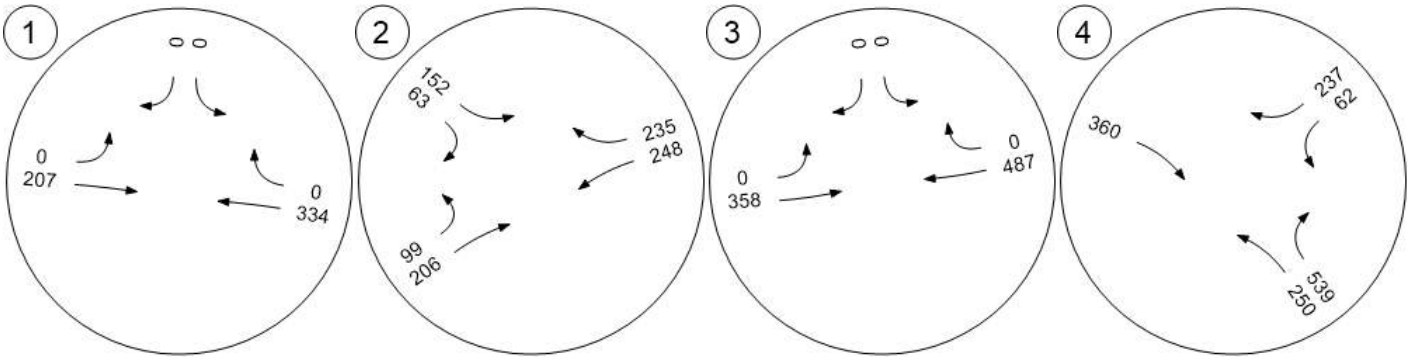



Wood Avenue (SR 2017) & U

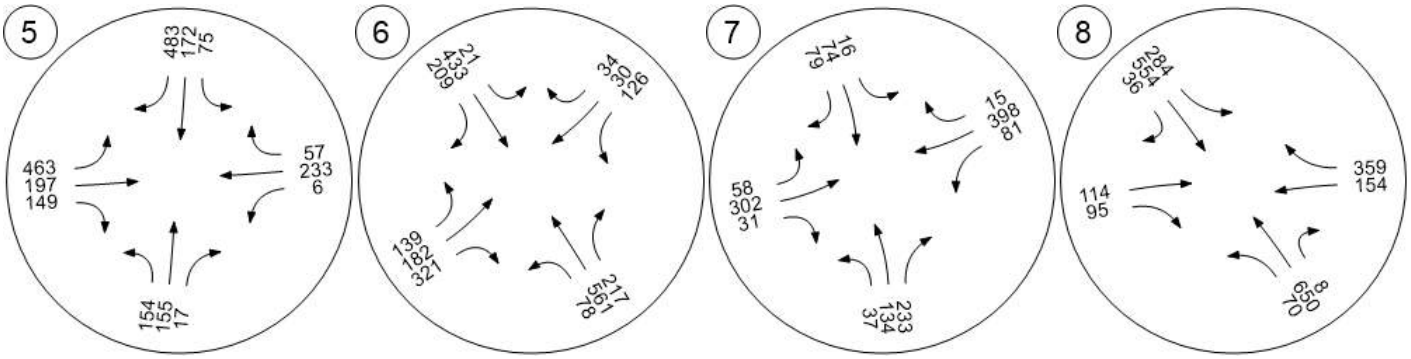


Report Figure 3c: Traffic Volume - Future Background Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

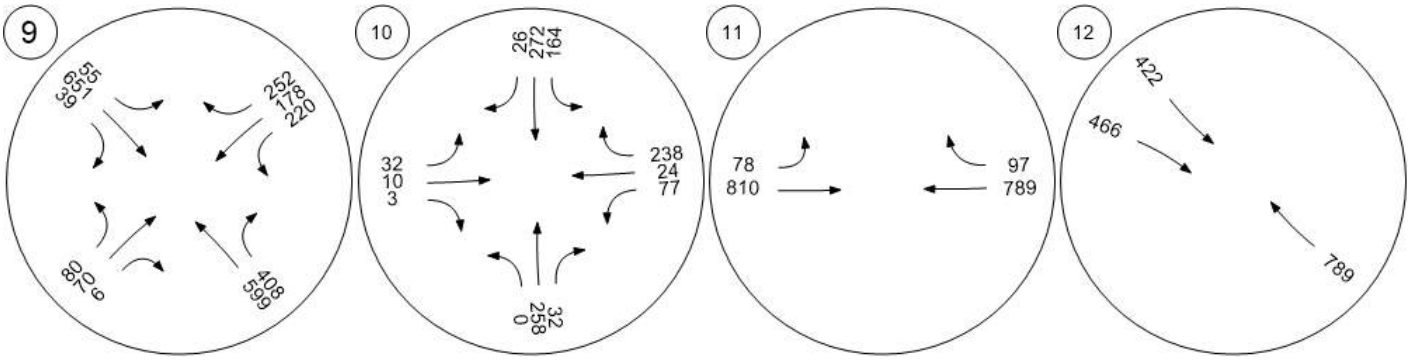



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024



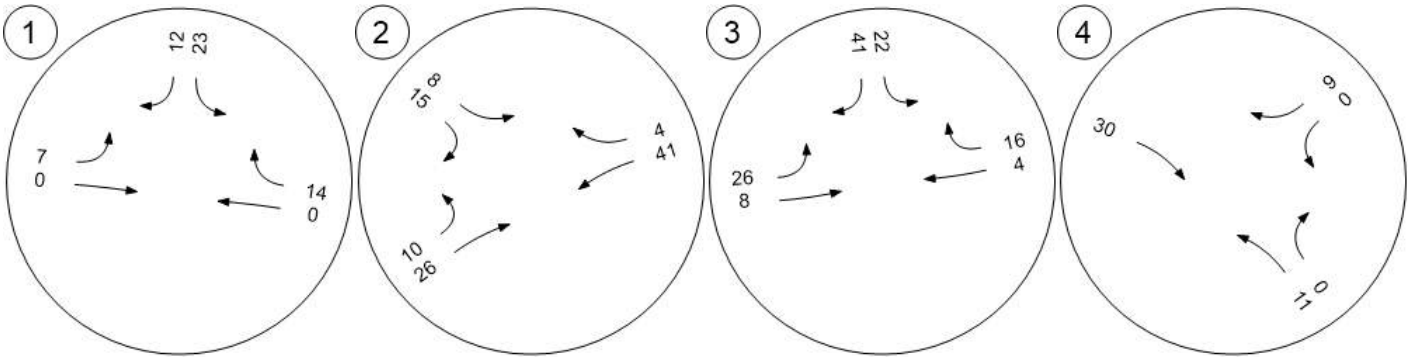
Report Figure 3c: Traffic Volume - Future Background Volume

Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) / Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

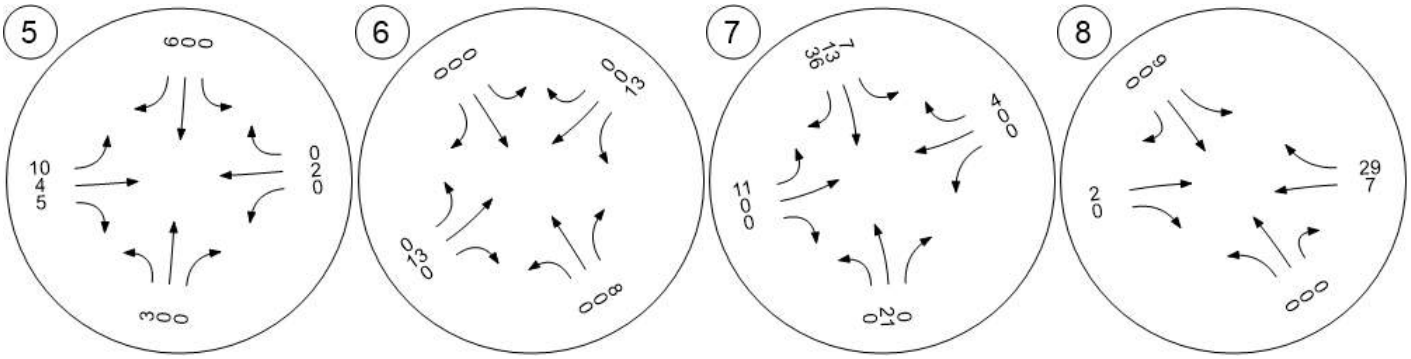


Report Figure 3d: Traffic Volume - Net New Site Trips

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

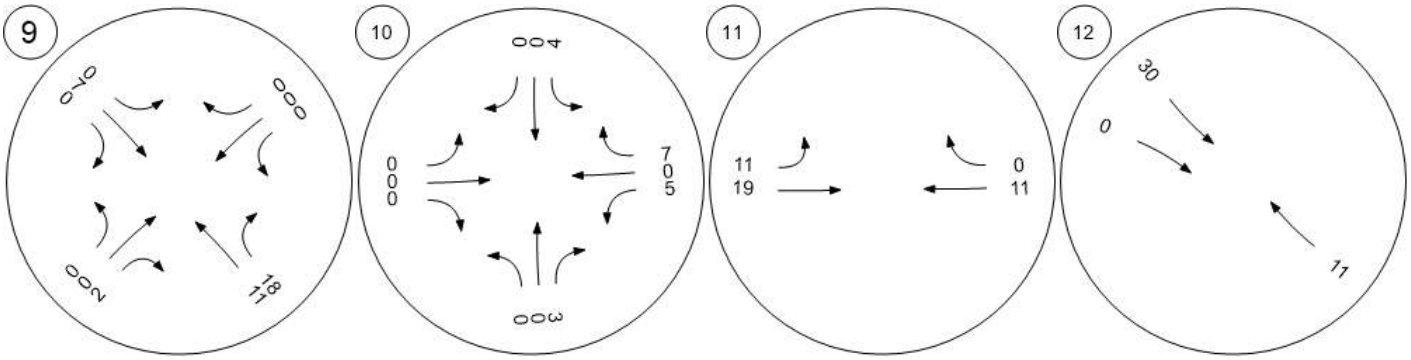



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024



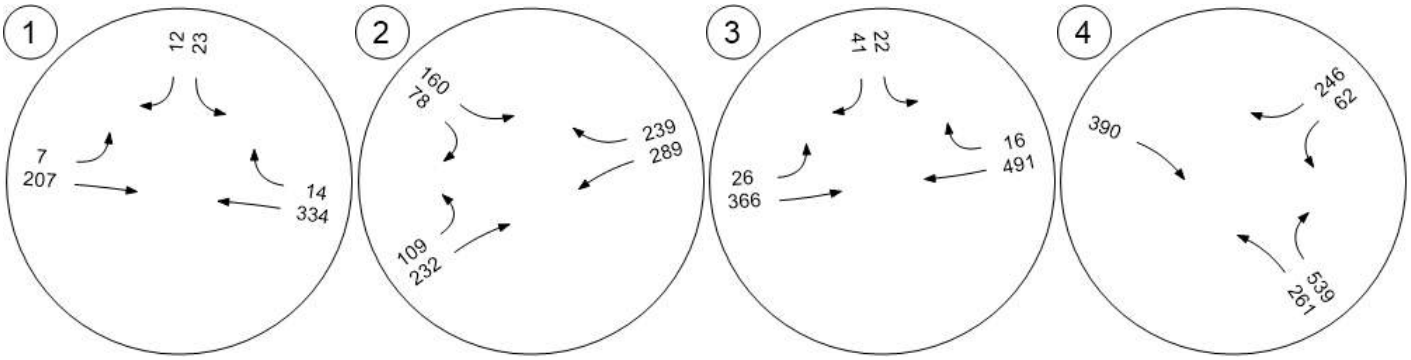
Report Figure 3d: Traffic Volume - Net New Site Trips

Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) / Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

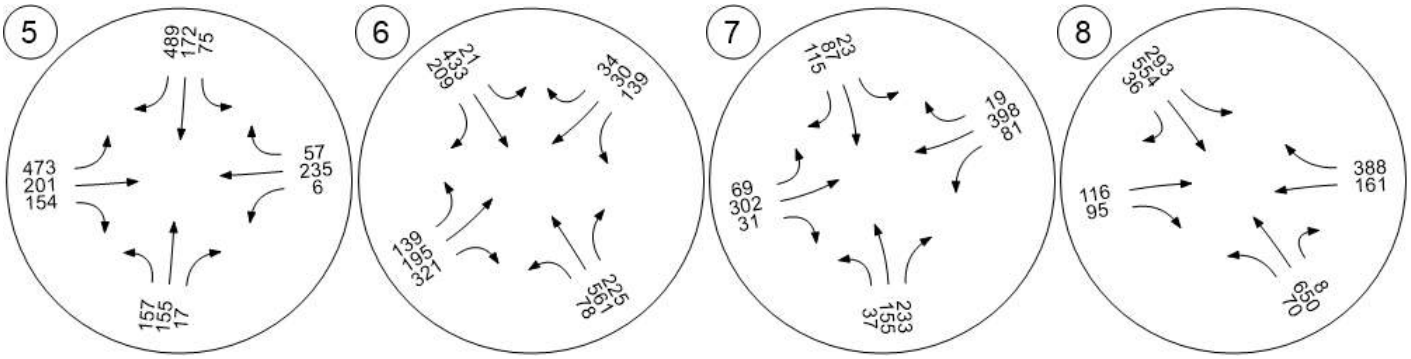


Report Figure 3f: Traffic Volume - Future Total Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

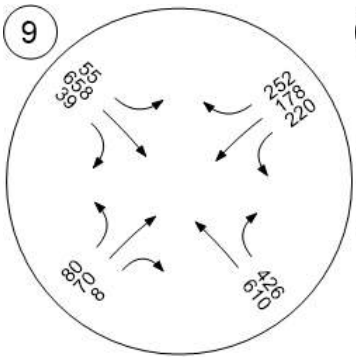



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024

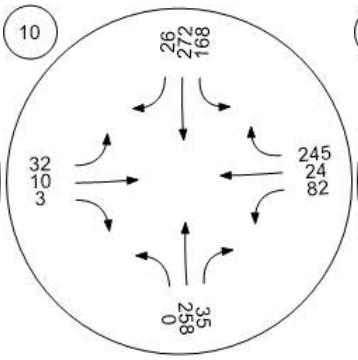


Report Figure 3f: Traffic Volume - Future Total Volume

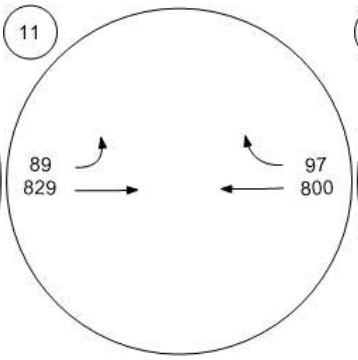
Nazareth Road (SR 0248) &



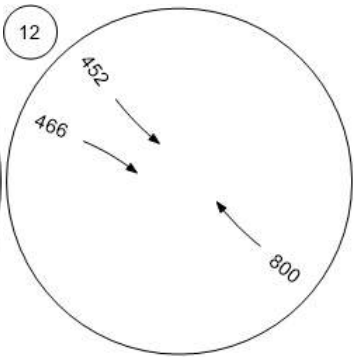

Hackett Avenue (SR 2017) /




Wood Avenue (SR 2017) & U

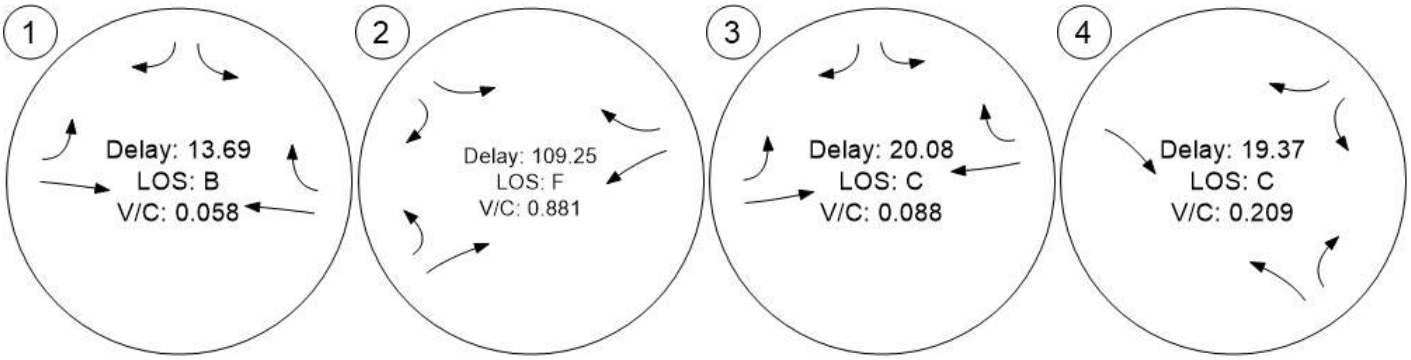



Wood Avenue (SR 2017) & U

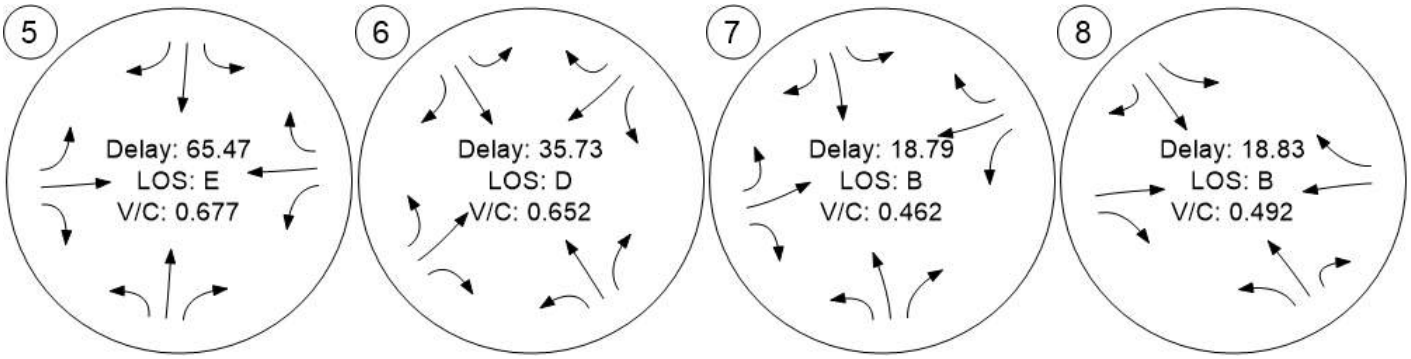


Report Figure 4: Traffic Conditions

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

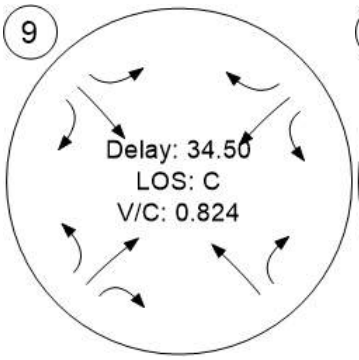



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024

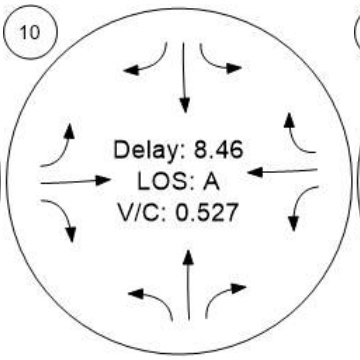


Report Figure 4: Traffic Conditions

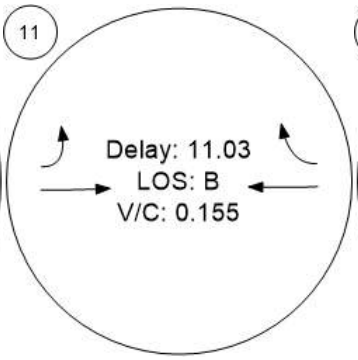
Nazareth Road (SR 0248) &



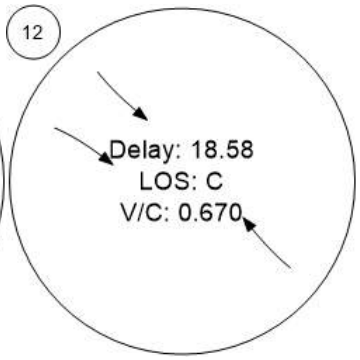

Hackett Avenue (SR 2017) /




Wood Avenue (SR 2017) & U




Wood Avenue (SR 2017) & U



# PTV Vistro 2024 Reports

*Without Development Conditions (2030) – Weekday AM*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

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Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro Scenario 9 2030 WO AM

Report File: C:\...\20230 No Dev AM.pdf 6/17/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Two-way stop | HCM 7th Edition | SB Left | 0.392 | 21.7 | C |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Two-way stop | HCM 7th Edition | SB Left | 0.051 | 12.7 | B |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Signalized | HCM 7th Edition | SB Right | 0.668 | 36.8 | D |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Signalized | HCM 7th Edition | SB Left | 0.617 | 29.9 | C |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Signalized | HCM 7th Edition | NB Thru | 0.350 | 18.8 | B |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Signalized | HCM 7th Edition | WB Thru | 0.402 | 16.0 | B |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Signalized | HCM 7th Edition | WB Left | 0.587 | 20.2 | C |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Signalized | HCM 7th Edition | EB Left | 0.415 | 6.9 | A |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Two-way stop | HCM 7th Edition | EB Left | 0.231 | 11.8 | B |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Two-way stop | HCM 7th Edition | NB Thru | 0.606 | 15.6 | C |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**

**Intersection 2: Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 21.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.392 |

**Intersection Setup**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.01 | | 0.01 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 128 | 42 | 61 | 153 | 235 | 115 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 2.00 | 5.00 | 5.00 | 6.00 | 2.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 132 | 43 | 63 | 158 | 242 | 119 |
| Peak Hour Factor | 0.9040 | 0.9040 | 0.9040 | 0.9040 | 0.9040 | 0.9040 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 12 | 17 | 44 | 67 | 33 |
| Total Analysis Volume [veh/h] | 146 | 48 | 70 | 175 | 268 | 132 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.39 | 0.07 | 0.08 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 21.72 | 17.10 | 9.28 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | C | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 2.36 | 2.36 | 0.12 | 0.12 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 58.91 | 58.91 | 3.03 | 3.03 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 20.58 | | 2.65 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.53 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 4: Wood Avenue (SR 2017) & US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.051 |

**Intersection Setup**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | |  | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.05 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 23 | 89 | 0 | 300 | 209 | 659 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 3.00 | 2.00 | 4.00 | 2.00 | 1.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 24 | 92 | 0 | 309 | 215 | 679 |
| Peak Hour Factor | 0.9760 | 0.9760 | 1.0000 | 0.9760 | 0.9760 | 0.9760 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 24 | 0 | 79 | 55 | 174 |
| Total Analysis Volume [veh/h] | 25 | 94 | 0 | 317 | 220 | 696 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.05 | 0.11 | 0.00 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 12.68 | 9.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.16 | 0.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 3.99 | 9.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.40 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.92 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Wood Avenue (SR 2017) & N. 13th Street (SR 2019)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 36.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.668 |

**Intersection Setup**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 12.00 | 11.00 | 12.00 | 15.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 20.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 105.00 | 100.00 | 285.00 | 115.00 | 100.00 | 100.00 | 100.00 | 100.00 | 75.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.09 | | | 0.10 | | | -0.05 | | | -0.02 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 152 | 125 | 5 | 57 | 137 | 615 | 363 | 163 | 123 | 6 | 226 | 65 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 3.00 | 0.00 | 4.00 | 7.00 | 3.00 | 4.00 | 2.00 | 1.00 | 0.00 | 1.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 334 | 0 | 0 | 71 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 157 | 129 | 4 | 59 | 141 | 300 | 374 | 168 | 56 | 6 | 233 | 67 |
| Peak Hour Factor | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 42 | 34 | 1 | 16 | 38 | 80 | 100 | 45 | 15 | 2 | 62 | 18 |
| Total Analysis Volume [veh/h] | 168 | 138 | 4 | 63 | 151 | 321 | 400 | 179 | 60 | 6 | 249 | 72 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 7 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 11 | 27 | 0 | 11 | 27 | 0 | 18 | 52 | 0 | 10 | 28 | 0 |
| Amber [s] | 4.5 | 4.5 | 0.0 | 4.5 | 4.5 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 19 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 3.5 | 3.5 | 0.0 | 3.5 | 3.5 | 0.0 | 2.5 | 2.5 | 0.0 | 4.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | | No | |
| Maximum Recall | No | Yes | | No | Yes | | No | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | C | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 | 0.00 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 12 | 33 | 7 | 28 | 28 | 37 | 37 | 37 | 13 | 13 |
| g / C, Green / Cycle | 0.13 | 0.35 | 0.07 | 0.30 | 0.30 | 0.40 | 0.40 | 0.40 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.08 | 0.05 | 0.11 | 0.26 | 0.29 | 0.10 | 0.04 | 0.10 | 0.10 |
| s, saturation flow rate [veh/h] | 1686 | 1747 | 1305 | 1328 | 1224 | 1396 | 1771 | 1517 | 1652 | 1566 |
| c, Capacity [veh/h] | 214 | 616 | 93 | 394 | 363 | 577 | 702 | 602 | 275 | 223 |
| d1, Uniform Delay [s] | 39.98 | 21.56 | 42.83 | 26.39 | 31.70 | 24.12 | 19.13 | 17.90 | 38.34 | 38.70 |
| k, delay calibration | 0.24 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 13.13 | 0.87 | 8.41 | 2.82 | 25.53 | 1.52 | 0.19 | 0.07 | 2.12 | 4.35 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.78 | 0.23 | 0.68 | 0.38 | 0.88 | 0.69 | 0.25 | 0.10 | 0.60 | 0.72 |
| d, Delay for Lane Group [s/veh] | 53.11 | 22.44 | 51.24 | 29.20 | 57.22 | 25.65 | 19.32 | 17.98 | 40.46 | 43.05 |
| Lane Group LOS | D | C | D | C | E | C | B | B | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 4.47 | 2.29 | 1.62 | 2.92 | 9.25 | 7.10 | 2.57 | 0.81 | 3.71 | 3.75 |
| 50th-Percentile Queue Length [ft/ln] | 111.87 | 57.36 | 40.62 | 73.10 | 231.32 | 177.39 | 64.26 | 20.17 | 92.73 | 93.77 |
| 95th-Percentile Queue Length [veh/ln] | 7.94 | 4.13 | 2.92 | 5.26 | 14.24 | 11.46 | 4.63 | 1.45 | 6.68 | 6.75 |
| 95th-Percentile Queue Length [ft/ln] | 198.60 | 103.25 | 73.12 | 131.58 | 356.04 | 286.60 | 115.67 | 36.30 | 166.91 | 168.79 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 53.11 | 22.44 | 22.44 | 51.24 | 29.20 | 57.22 | 25.65 | 19.32 | 17.98 | 40.46 | 41.39 | 43.05 |
| Movement LOS | D | C | C | D | C | E | C | B | B | D | D | D |
| d_A, Approach Delay [s/veh] | 39.06 | | | 48.61 | | | 23.15 | | | 41.74 | | |
| Approach LOS | D | | | D | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 36.75 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.668 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.49 | 8.02 | 6.63 | 15.90 | 33.79 | 13.62 | 6.09 | 2.04 | 16.44 | 15.96 |
| Stops [stops/h] | 170.53 | 87.43 | 61.92 | 111.42 | 352.60 | 270.39 | 97.95 | 30.74 | 141.34 | 142.93 |
| Fuel consumption [US gal/h] | 3.46 | 1.61 | 1.38 | 2.34 | 7.68 | 4.64 | 1.67 | 0.53 | 3.06 | 3.09 |
| CO [g/h] | 241.83 | 112.65 | 96.14 | 163.66 | 536.67 | 324.34 | 116.92 | 36.94 | 213.61 | 216.30 |
| NOx [g/h] | 47.05 | 21.92 | 18.70 | 31.84 | 104.42 | 63.10 | 22.75 | 7.19 | 41.56 | 42.08 |
| VOC [g/h] | 56.05 | 26.11 | 22.28 | 37.93 | 124.38 | 75.17 | 27.10 | 8.56 | 49.51 | 50.13 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.88 | 36.88 | 36.88 | 36.88 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.179 | 3.070 | 2.762 | 2.225 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 572 | 572 | 1101 | 593 |
| d_b, Bicycle Delay [s] | 24.09 | 24.09 | 9.55 | 23.38 |
| l_b,int, Bicycle LOS Score for Intersection | 2.073 | 2.993 | 2.731 | 1.829 |
| Bicycle LOS | B | C | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 6: S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 29.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.617 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 | 12.00 | 13.00 | 12.00 | 14.00 | 11.00 | 13.00 | 23.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 300.00 | 100.00 | 420.00 | 265.00 | 100.00 | 280.00 | 100.00 | 100.00 | 100.00 | 400.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 350.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 40.00 | | | 35.00 | | |
| Grade [%] | -0.06 | | | 0.05 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 96 | 503 | 144 | 7 | 409 | 183 | 78 | 117 | 301 | 179 | 15 | 22 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 7.00 | 15.00 | 0.00 | 6.00 | 1.00 | 3.00 | 4.00 | 15.00 | 8.00 | 0.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 62 | 0 | 0 | 95 | 0 | 0 | 225 | 0 | 0 | 12 |
| Total Hourly Volume [veh/h] | 99 | 518 | 86 | 7 | 421 | 94 | 80 | 121 | 85 | 184 | 15 | 11 |
| Peak Hour Factor | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 27 | 141 | 23 | 2 | 115 | 26 | 22 | 33 | 23 | 50 | 4 | 3 |
| Total Analysis Volume [veh/h] | 108 | 564 | 94 | 8 | 458 | 102 | 87 | 132 | 92 | 200 | 16 | 12 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 88.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 13 | 36 | 0 | 7 | 33 | 0 | 0 | 20 | 0 | 17 | 36 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 6 | 0 | 0 | 6 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 50.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 35.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 19 | 47 | 0 | 13 | 41 | 0 | 0 | 26 | 0 | 14 | 40 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 0 | 10 | 0 | 7 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | | No | | No | No | |
| Maximum Recall | No | Yes | | No | Yes | | | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 |
| g_i, Effective Green Time [s] | 9 | 50 | 50 | 2 | 43 | 43 | 19 | 19 | 33 | 33 |
| g / C, Green / Cycle | 0.09 | 0.50 | 0.50 | 0.02 | 0.43 | 0.43 | 0.19 | 0.19 | 0.33 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.33 | 0.07 | 0.01 | 0.30 | 0.07 | 0.15 | 0.07 | 0.16 | 0.02 |
| s, saturation flow rate [veh/h] | 1686 | 1700 | 1349 | 1540 | 1532 | 1363 | 1421 | 1405 | 1268 | 1728 |
| c, Capacity [veh/h] | 158 | 844 | 670 | 38 | 654 | 582 | 319 | 266 | 363 | 569 |
| d1, Uniform Delay [s] | 43.86 | 18.98 | 13.63 | 47.84 | 23.43 | 17.75 | 39.64 | 35.17 | 27.91 | 22.87 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.27 | 0.11 | 0.37 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 5.09 | 4.18 | 0.44 | 2.78 | 6.15 | 0.66 | 6.27 | 0.77 | 4.37 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.68 | 0.67 | 0.14 | 0.21 | 0.70 | 0.18 | 0.69 | 0.35 | 0.55 | 0.05 |
| d, Delay for Lane Group [s/veh] | 48.94 | 23.16 | 14.07 | 50.62 | 29.58 | 18.41 | 45.91 | 35.94 | 32.28 | 22.90 |
| Lane Group LOS | D | C | B | D | C | B | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.77 | 10.16 | 1.18 | 0.22 | 9.49 | 1.52 | 5.56 | 1.94 | 4.05 | 0.45 |
| 50th-Percentile Queue Length [ft/ln] | 69.23 | 254.12 | 29.52 | 5.55 | 237.25 | 37.98 | 139.07 | 48.62 | 101.30 | 11.18 |
| 95th-Percentile Queue Length [veh/ln] | 4.98 | 15.39 | 2.13 | 0.40 | 14.54 | 2.73 | 9.43 | 3.50 | 7.29 | 0.80 |
| 95th-Percentile Queue Length [ft/ln] | 124.62 | 384.84 | 53.14 | 9.99 | 363.56 | 68.36 | 235.78 | 87.51 | 182.33 | 20.12 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 48.94 | 23.16 | 14.07 | 50.62 | 29.58 | 18.41 | 45.91 | 45.91 | 35.94 | 32.28 | 22.90 | 22.90 |
| Movement LOS | D | C | B | D | C | B | D | D | D | C | C | C |
| d_A, Approach Delay [s/veh] | 25.68 | | | 27.87 | | | 42.97 | | | 31.13 | | |
| Approach LOS | C | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 29.88 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.617 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 10.34 | 54.02 | 9.00 | 1.10 | 63.17 | 14.07 | 16.26 | 6.83 | 28.35 | 3.97 |
| Stops [stops/h] | 99.70 | 365.94 | 42.51 | 7.99 | 341.64 | 54.69 | 200.27 | 70.01 | 145.87 | 16.10 |
| Fuel consumption [US gal/h] | 2.22 | 7.47 | 0.93 | 0.18 | 7.73 | 1.33 | 4.60 | 1.61 | 3.49 | 0.40 |
| CO [g/h] | 155.15 | 522.12 | 65.15 | 12.90 | 540.63 | 92.95 | 321.25 | 112.21 | 244.04 | 28.16 |
| NOx [g/h] | 30.19 | 101.59 | 12.68 | 2.51 | 105.19 | 18.08 | 62.50 | 21.83 | 47.48 | 5.48 |
| VOC [g/h] | 35.96 | 121.01 | 15.10 | 2.99 | 125.30 | 21.54 | 74.45 | 26.01 | 56.56 | 6.53 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 10.0 | 10.0 | 8.0 | 8.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 40.50 | 40.50 | 42.32 | 42.32 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.816 | 2.883 | 2.641 | 2.242 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 820 | 700 | 400 | 680 |
| d_b, Bicycle Delay [s] | 17.41 | 21.13 | 32.00 | 21.78 |
| l_b,int, Bicycle LOS Score for Intersection | 2.926 | 2.654 | 2.444 | 1.956 |
| Bicycle LOS | C | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 7: Northampton Street (SR 0248) & Wood Avenue (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.350 |

**Intersection Setup**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 17.00 | 12.00 | 22.00 | 10.00 | 10.00 | 10.00 | 11.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.01 | | | -0.03 | | | -0.05 | | | 0.06 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | No | | | Yes | | |

**Volumes**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 22 | 90 | 186 | 13 | 124 | 50 | 51 | 204 | 17 | 49 | 288 | 11 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 8.00 | 6.00 | 8.00 | 2.00 | 12.00 | 6.00 | 4.00 | 0.00 | 6.00 | 3.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 132 | 0 | 0 | 8 | 0 | 0 | 1 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 23 | 93 | 60 | 13 | 128 | 44 | 53 | 210 | 17 | 50 | 297 | 11 |
| Peak Hour Factor | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 26 | 17 | 4 | 36 | 12 | 15 | 59 | 5 | 14 | 83 | 3 |
| Total Analysis Volume [veh/h] | 26 | 104 | 67 | 15 | 143 | 49 | 59 | 235 | 19 | 56 | 332 | 12 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 16.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 36 | 0 | 0 | 36 | 0 | 0 | 52 | 0 | 0 | 52 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 12 | 0 | 0 | 12 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 0 | 42 | 0 | 0 | 58 | 0 | 0 | 58 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | Yes | | | Yes | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 16 | 16 | 74 | 74 | 74 | 74 |
| g / C, Green / Cycle | 0.16 | 0.16 | 0.74 | 0.74 | 0.74 | 0.74 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.12 | 0.06 | 0.15 | 0.06 | 0.22 |
| s, saturation flow rate [veh/h] | 1559 | 1694 | 1003 | 1720 | 957 | 1539 |
| c, Capacity [veh/h] | 290 | 309 | 692 | 1273 | 694 | 1139 |
| d1, Uniform Delay [s] | 40.29 | 40.18 | 7.76 | 3.96 | 6.49 | 4.35 |
| k, delay calibration | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.79 | 2.50 | 0.24 | 0.35 | 0.23 | 0.68 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.68 | 0.67 | 0.09 | 0.20 | 0.08 | 0.30 |
| d, Delay for Lane Group [s/veh] | 43.07 | 42.68 | 8.00 | 4.31 | 6.72 | 5.03 |
| Lane Group LOS | D | D | A | A | A | A |
| Critical Lane Group | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 4.88 | 5.09 | 0.54 | 1.48 | 0.46 | 2.23 |
| 50th-Percentile Queue Length [ft/ln] | 122.08 | 127.24 | 13.62 | 37.00 | 11.57 | 55.77 |
| 95th-Percentile Queue Length [veh/ln] | 8.51 | 8.79 | 0.98 | 2.66 | 0.83 | 4.02 |
| 95th-Percentile Queue Length [ft/ln] | 212.68 | 219.74 | 24.52 | 66.60 | 20.82 | 100.38 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 43.07 | 43.07 | 43.07 | 42.68 | 42.68 | 42.68 | 8.00 | 4.31 | 4.31 | 6.72 | 5.03 | 5.03 |
| Movement LOS | D | D | D | D | D | D | A | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 43.07 | | | 42.68 | | | 5.01 | | | 5.27 | | |
| Approach LOS | D | | | D | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 18.79 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.350 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 27.93 | 220.74 | 6.97 | 29.99 | 15.14 | 93.02 |
| Stops [stops/h] | 175.79 | 183.23 | 19.61 | 53.28 | 16.66 | 80.31 |
| Fuel consumption [US gal/h] | 3.66 | 12.43 | 0.48 | 1.78 | 0.82 | 4.84 |
| CO [g/h] | 255.61 | 868.63 | 33.88 | 124.15 | 57.42 | 338.55 |
| NOx [g/h] | 49.73 | 169.00 | 6.59 | 24.15 | 11.17 | 65.87 |
| VOC [g/h] | 59.24 | 201.31 | 7.85 | 28.77 | 13.31 | 78.46 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 16.0 | 16.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.28 | 35.28 | 0.00 | 39.61 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.205 | 1.969 | 0.000 | 2.196 |
| Crosswalk LOS | B | A | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 720 | 720 | 1040 | 1040 |
| d_b, Bicycle Delay [s] | 20.48 | 20.48 | 11.52 | 11.52 |
| l_b,int, Bicycle LOS Score for Intersection | 2.102 | 1.914 | 2.078 | 2.220 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 8: Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 16.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.402 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 13.00 | 12.00 | 20.00 | 12.00 | 12.00 | 11.00 | 13.00 | 12.00 | 12.00 | 13.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 40.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.02 | | | -0.02 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 86 | 530 | 1 | 178 | 437 | 72 | 0 | 85 | 140 | 0 | 121 | 244 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 7.00 | 0.00 | 3.00 | 3.00 | 6.00 | 2.00 | 8.00 | 1.00 | 2.00 | 6.00 | 4.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 55 | 0 | 0 | 85 |
| Total Hourly Volume [veh/h] | 89 | 546 | 1 | 183 | 450 | 45 | 0 | 88 | 89 | 0 | 125 | 166 |
| Peak Hour Factor | 0.9640 | 0.9640 | 0.9640 | 0.9640 | 0.9640 | 0.9640 | 1.0000 | 0.9640 | 0.9640 | 1.0000 | 0.9640 | 0.9640 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 23 | 142 | 0 | 47 | 117 | 12 | 0 | 23 | 23 | 0 | 32 | 43 |
| Total Analysis Volume [veh/h] | 92 | 566 | 1 | 190 | 467 | 47 | 0 | 91 | 92 | 0 | 130 | 172 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 2.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Overlap | Permiss | Permiss | Overlap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 5 | 0 | 8 | 1 |
| Auxiliary Signal Groups | | | | | | | | | 4,5 | | | 1,8 |
| Maximum Green [s] | 13 | 45 | 0 | 13 | 45 | 0 | 0 | 24 | 13 | 0 | 24 | 13 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Walk [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 40.0 | 40.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 14 | 43 | 0 | 16 | 45 | 0 | 0 | 41 | 14 | 0 | 41 | 16 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 0 | 10 | 7 | 0 | 10 | 7 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 |
| Minimum Recall | No | No | | No | No | | | No | No | | No | No |
| Maximum Recall | No | Yes | | No | Yes | | | No | No | | No | No |
| Pedestrian Recall | No | No | | No | No | | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | R | C | R |
|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| g_i, Effective Green Time [s] | 76 | 60 | 60 | 76 | 64 | 14 | 26 | 14 | 30 |
| g / C, Green / Cycle | 0.76 | 0.60 | 0.60 | 0.76 | 0.64 | 0.14 | 0.26 | 0.14 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.17 | 0.17 | 0.19 | 0.29 | 0.05 | 0.06 | 0.08 | 0.11 |
| s, saturation flow rate [veh/h] | 1000 | 1702 | 1700 | 985 | 1799 | 1688 | 1579 | 1716 | 1542 |
| c, Capacity [veh/h] | 733 | 1026 | 1025 | 789 | 1146 | 232 | 400 | 235 | 443 |
| d1, Uniform Delay [s] | 4.69 | 9.46 | 9.46 | 3.99 | 9.23 | 39.34 | 29.61 | 40.27 | 28.61 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.30 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.35 | 0.67 | 0.67 | 0.72 | 1.27 | 1.08 | 0.29 | 2.02 | 1.54 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.13 | 0.28 | 0.28 | 0.24 | 0.45 | 0.39 | 0.23 | 0.55 | 0.39 |
| d, Delay for Lane Group [s/veh] | 5.04 | 10.13 | 10.13 | 4.71 | 10.51 | 40.42 | 29.90 | 42.28 | 30.14 |
| Lane Group LOS | A | B | B | A | B | D | C | D | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.43 | 2.88 | 2.88 | 0.91 | 5.25 | 2.08 | 1.76 | 3.07 | 3.43 |
| 50th-Percentile Queue Length [ft/ln] | 10.86 | 71.93 | 71.90 | 22.73 | 131.17 | 51.95 | 43.93 | 76.72 | 85.64 |
| 95th-Percentile Queue Length [veh/ln] | 0.78 | 5.18 | 5.18 | 1.64 | 9.00 | 3.74 | 3.16 | 5.52 | 6.17 |
| 95th-Percentile Queue Length [ft/ln] | 19.56 | 129.48 | 129.41 | 40.92 | 225.08 | 93.51 | 79.07 | 138.10 | 154.15 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 5.04 | 10.13 | 10.13 | 4.71 | 10.51 | 10.51 | 0.00 | 40.42 | 29.90 | 0.00 | 42.28 | 30.14 |
| Movement LOS | A | B | B | A | B | B | | D | C | | D | C |
| d_A, Approach Delay [s/veh] | 9.42 | | | 8.94 | | | 35.13 | | | 35.37 | | |
| Approach LOS | A | | | A | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 16.02 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.402 | | | | | | | | | | | |

**Emissions**

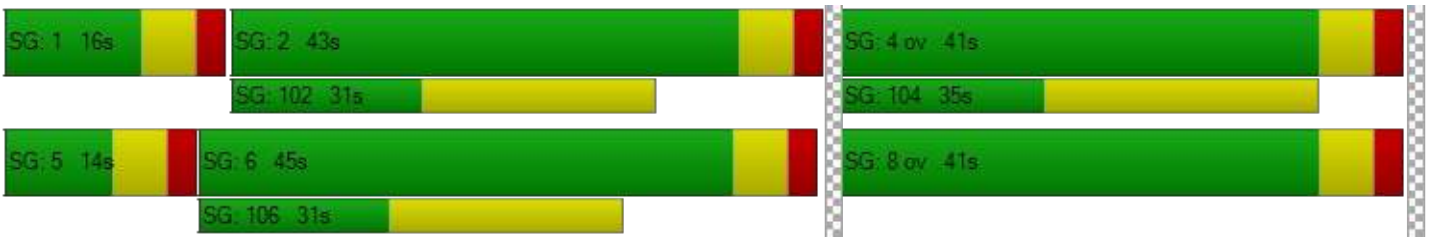
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 12.69 | 39.11 | 39.09 | 15.42 | 41.73 | 6.38 | 6.45 | 15.35 | 20.31 |
| Stops [stops/h] | 15.65 | 103.58 | 103.53 | 32.74 | 188.88 | 74.81 | 63.26 | 110.48 | 123.32 |
| Fuel consumption [US gal/h] | 0.70 | 2.85 | 2.85 | 1.06 | 4.45 | 1.55 | 1.28 | 2.53 | 2.76 |
| CO [g/h] | 48.63 | 199.52 | 199.42 | 73.83 | 311.00 | 108.65 | 89.58 | 177.16 | 192.69 |
| NOx [g/h] | 9.46 | 38.82 | 38.80 | 14.36 | 60.51 | 21.14 | 17.43 | 34.47 | 37.49 |
| VOC [g/h] | 11.27 | 46.24 | 46.22 | 17.11 | 72.08 | 25.18 | 20.76 | 41.06 | 44.66 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 19.0 | 0.0 | 18.0 | 18.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.81 | 0.00 | 33.62 | 33.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.470 | 0.000 | 2.307 | 2.610 |
| Crosswalk LOS | B | F | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 740 | 780 | 700 | 700 |
| d_b, Bicycle Delay [s] | 19.85 | 18.61 | 21.13 | 21.13 |
| l_b,int, Bicycle LOS Score for Intersection | 2.103 | 2.769 | 1.952 | 2.198 |
| Bicycle LOS | B | C | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 9: Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.587 |

**Intersection Setup**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 13.00 | 13.00 | 12.00 | 12.00 | 12.00 | 18.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 25.00 | | | 35.00 | | |
| Grade [%] | 0.04 | | | -0.04 | | | -0.01 | | | 0.01 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | No | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 392 | 404 | 71 | 521 | 34 | 48 | 122 | 1 | 118 | 80 | 112 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 7.00 | 9.00 | 3.00 | 4.00 | 0.00 | 2.00 | 1.00 | 0.00 | 2.00 | 1.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 137 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 49 |
| Total Hourly Volume [veh/h] | 0 | 404 | 279 | 73 | 537 | 33 | 49 | 126 | 1 | 122 | 82 | 66 |
| Peak Hour Factor | 1.0000 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 110 | 76 | 20 | 146 | 9 | 13 | 34 | 0 | 33 | 22 | 18 |
| Total Analysis Volume [veh/h] | 0 | 440 | 304 | 80 | 585 | 36 | 53 | 137 | 1 | 133 | 89 | 72 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 7 | 53 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 165.0 | 165.0 | 0.0 | 0.0 | -5.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 6.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 49 | 0 | 13 | 62 | 0 | 0 | 38 | 0 | 0 | 38 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | Yes | No | | | No | | | No | |
| Maximum Recall | | Yes | | No | Yes | | | No | | | No | |
| Pedestrian Recall | | No | | No | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | C | C | C | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 2.50 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 51 | 51 | 64 | 64 | 26 | 26 |
| g / C, Green / Cycle | 0.51 | 0.51 | 0.64 | 0.64 | 0.26 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.24 | 0.27 | 0.29 | 0.23 | 0.13 | 0.22 |
| s, saturation flow rate [veh/h] | 1570 | 1372 | 1184 | 1559 | 1461 | 1325 |
| c, Capacity [veh/h] | 805 | 703 | 728 | 1002 | 422 | 393 |
| d1, Uniform Delay [s] | 15.56 | 16.29 | 9.25 | 8.31 | 31.10 | 36.10 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.91 | 2.84 | 2.15 | 1.01 | 0.76 | 4.86 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.46 | 0.53 | 0.47 | 0.36 | 0.45 | 0.75 |
| d, Delay for Lane Group [s/veh] | 17.47 | 19.13 | 11.41 | 9.32 | 31.86 | 40.96 |
| Lane Group LOS | B | B | B | A | C | D |
| Critical Lane Group | No | Yes | Yes | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 5.41 | 5.77 | 3.35 | 3.39 | 3.98 | 7.22 |
| 50th-Percentile Queue Length [ft/ln] | 135.30 | 144.33 | 83.85 | 84.71 | 99.44 | 180.53 |
| 95th-Percentile Queue Length [veh/ln] | 9.23 | 9.71 | 6.04 | 6.10 | 7.16 | 11.63 |
| 95th-Percentile Queue Length [ft/ln] | 230.68 | 242.84 | 150.93 | 152.49 | 178.99 | 290.71 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 17.72 | 19.13 | 11.41 | 10.24 | 9.32 | 31.86 | 31.86 | 31.86 | 40.96 | 40.96 | 40.96 |
| Movement LOS | | B | B | B | B | A | C | C | C | D | D | D |
| d_A, Approach Delay [s/veh] | 18.30 | | | 10.33 | | | 31.86 | | | 40.96 | | |
| Approach LOS | B | | | B | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 20.20 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.587 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 30.20 | 30.20 | 24.90 | 26.44 | 8.10 | 20.26 |
| Stops [stops/h] | 194.83 | 207.83 | 120.75 | 121.99 | 143.19 | 259.97 |
| Fuel consumption [US gal/h] | 4.32 | 4.57 | 2.87 | 2.83 | 2.15 | 5.18 |
| CO [g/h] | 301.83 | 319.53 | 200.41 | 197.81 | 150.41 | 361.93 |
| NOx [g/h] | 58.73 | 62.17 | 38.99 | 38.49 | 29.26 | 70.42 |
| VOC [g/h] | 69.95 | 74.05 | 46.45 | 45.84 | 34.86 | 83.88 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 9.0 | 9.0 | 9.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 0.00 | 41.41 | 41.41 | 41.41 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 0.000 | 2.644 | 1.851 | 2.620 | |
| Crosswalk LOS | F | B | A | B | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 860 | 1120 | 640 | 640 | |
| d_b, Bicycle Delay [s] | 16.25 | 9.68 | 23.12 | 23.12 | |
| l_b,int, Bicycle LOS Score for Intersection | 2.286 | 2.140 | 1.875 | 2.126 | |
| Bicycle LOS | B | B | A | B | |

## Sequence

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 10: Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 6.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.415 |

**Intersection Setup**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 11.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 11.00 | 11.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 120.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 25.00 | | | 40.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 244 | 38 | 138 | 280 | 6 | 1 | 0 | 0 | 31 | 4 | 146 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 10.00 | 6.00 | 1.00 | 5.00 | 17.00 | 100.00 | 0.00 | 0.00 | 13.00 | 25.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Total Hourly Volume [veh/h] | 0 | 251 | 36 | 142 | 289 | 6 | 1 | 0 | 0 | 32 | 4 | 142 |
| Peak Hour Factor | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 66 | 9 | 37 | 76 | 2 | 0 | 0 | 0 | 8 | 1 | 37 |
| Total Analysis Volume [veh/h] | 0 | 263 | 38 | 149 | 303 | 6 | 1 | 0 | 0 | 34 | 4 | 149 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 38 | 0 | 0 | 38 | 0 | 0 | 13 | 0 | 0 | 13 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 9 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 |
| Detector Location [ft] | 0.0 | 210.0 | 0.0 | 0.0 | 210.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 6.0 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 26 | 26 | 26 | 26 | 26 | 26 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |
| g_i, Effective Green Time [s] | 11 | 11 | 8 | 8 | 8 | 8 |
| g / C, Green / Cycle | 0.41 | 0.41 | 0.29 | 0.29 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.18 | 0.29 | 0.00 | 0.00 | 0.03 | 0.12 |
| s, saturation flow rate [veh/h] | 1687 | 1572 | 263 | 1800 | 1292 | 1233 |
| c, Capacity [veh/h] | 827 | 824 | 298 | 518 | 530 | 355 |
| d1, Uniform Delay [s] | 5.61 | 6.29 | 10.87 | 0.00 | 8.69 | 7.65 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.27 | 0.59 | 0.00 | 0.00 | 0.05 | 0.83 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.36 | 0.56 | 0.00 | 0.00 | 0.06 | 0.43 |
| d, Delay for Lane Group [s/veh] | 5.88 | 6.88 | 10.87 | 0.00 | 8.74 | 8.48 |
| Lane Group LOS | A | A | B | A | A | A |
| Critical Lane Group | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.50 | 0.89 | 0.00 | 0.00 | 0.10 | 0.41 |
| 50th-Percentile Queue Length [ft/ln] | 12.57 | 22.13 | 0.11 | 0.00 | 2.38 | 10.19 |
| 95th-Percentile Queue Length [veh/ln] | 0.90 | 1.59 | 0.01 | 0.00 | 0.17 | 0.73 |
| 95th-Percentile Queue Length [ft/ln] | 22.62 | 39.83 | 0.20 | 0.00 | 4.28 | 18.34 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 5.88 | 5.88 | 5.88 | 6.88 | 6.88 | 6.88 | 10.87 | 0.00 | 0.00 | 8.74 | 8.48 | 8.48 |
| Movement LOS | A | A | A | A | A | A | B | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 5.88 | | | 6.88 | | | 10.87 | | | 8.52 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 6.89 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.415 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 45.70 | 66.31 | 0.11 | 0.00 | 29.48 | 132.66 |
| Stops [stops/h] | 68.92 | 121.34 | 0.60 | 0.00 | 13.04 | 55.86 |
| Fuel consumption [US gal/h] | 2.62 | 4.08 | 0.01 | 0.00 | 1.24 | 5.56 |
| CO [g/h] | 183.17 | 285.27 | 0.65 | 0.00 | 86.99 | 388.96 |
| NOx [g/h] | 35.64 | 55.50 | 0.13 | 0.00 | 16.93 | 75.68 |
| VOC [g/h] | 42.45 | 66.11 | 0.15 | 0.00 | 20.16 | 90.15 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 4.43 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.049 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2894 | 2894 | 990 | 990 |
| d_b, Bicycle Delay [s] | 2.62 | 2.62 | 3.35 | 3.35 |
| l_b,int, Bicycle LOS Score for Intersection | 2.061 | 2.315 | 1.561 | 1.881 |
| Bicycle LOS | B | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 11: Wood Avenue (SR 2017) & US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.231 |

**Intersection Setup**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 50.00 | 0.00 |
| Speed [mph] | 30.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | -0.03 | | 0.03 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 113 | 656 | 872 | 191 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 0.00 | 3.00 | 1.00 | 2.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 116 | 676 | 899 | 197 |
| Peak Hour Factor | 1.0000 | 1.0000 | 0.9180 | 0.9180 | 0.9180 | 0.9180 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 32 | 184 | 245 | 54 |
| Total Analysis Volume [veh/h] | 0 | 0 | 126 | 736 | 979 | 215 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.23 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 11.75 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.23 | 0.08 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 5.64 | 1.88 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 1.72 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.72 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 12: Wood Avenue (SR 2017) & US 22 East Off-Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 15.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.606 |

**Intersection Setup**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Thru | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | -0.04 | | -0.03 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 446 | 323 | 0 | 0 | 872 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 460 | 333 | 0 | 0 | 899 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 128 | 93 | 0 | 0 | 250 |
| Total Analysis Volume [veh/h] | 0 | 511 | 370 | 0 | 0 | 999 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.61 | 0.00 | 0.00 | 0.00 | 0.01 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 15.62 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | A | | | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 4.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 104.89 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 15.62 | | 0.00 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.25 | | | | | |
| Intersection LOS | C | | | | | |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 9 2030 WO AM

Report File: C:\...\20230 No Dev AM.pdf
6/17/2024

## Turning Movement Volume: Summary

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | 132 | 43 | 63 | 158 | 242 | 119 | 757 |

| ID | Intersection Name | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | 24 | 92 | 309 | 215 | 679 | 1319 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | 157 | 129 | 5 | 59 | 141 | 634 | 374 | 168 | 127 | 6 | 233 | 67 | 2100 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | 99 | 518 | 148 | 7 | 421 | 189 | 80 | 121 | 310 | 184 | 15 | 23 | 2115 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | 23 | 93 | 192 | 13 | 128 | 52 | 53 | 210 | 18 | 50 | 297 | 11 | 1140 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012) /Nazareth Road (SR 0248) | 89 | 546 | 1 | 183 | 450 | 74 | 88 | 144 | 125 | 251 | 1951 |

| ID | Intersection Name | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | 404 | 416 | 73 | 537 | 35 | 49 | 126 | 1 | 122 | 82 | 115 | 1960 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | 0 | 251 | 39 | 142 | 289 | 6 | 1 | 0 | 0 | 32 | 4 | 150 | 914 |

| ID | Intersection Name | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|
| | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | 116 | 676 | 899 | 197 | 1888 |

| ID | Intersection Name | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|
| | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | 460 | 333 | 899 | 1692 |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 9 2030 WO AM

Report File: C:\...\20230 No Dev AM.pdf
6/17/2024

## Turning Movement Volume: Detail

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Final Base | 128 | 42 | 61 | 153 | 235 | 115 | 734 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **132** | **43** | **63** | **158** | **242** | **119** | **757** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Final Base | 23 | 89 | 300 | 209 | 659 | 1280 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **24** | **92** | **309** | **215** | **679** | **1319** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Final Base | 152 | 125 | 5 | 57 | 137 | 615 | 363 | 163 | 123 | 6 | 226 | 65 | 2037 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **157** | **129** | **5** | **59** | **141** | **634** | **374** | **168** | **127** | **6** | **233** | **67** | **2100** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Final Base | 96 | 503 | 144 | 7 | 409 | 183 | 78 | 117 | 301 | 179 | 15 | 22 | 2054 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **99** | **518** | **148** | **7** | **421** | **189** | **80** | **121** | **310** | **184** | **15** | **23** | **2115** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Final Base | 22 | 90 | 186 | 13 | 124 | 50 | 51 | 204 | 17 | 49 | 288 | 11 | 1105 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **23** | **93** | **192** | **13** | **128** | **52** | **53** | **210** | **18** | **50** | **297** | **11** | **1140** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Final Base | 86 | 530 | 1 | 178 | 437 | 72 | 85 | 140 | 121 | 244 | 1894 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **89** | **546** | **1** | **183** | **450** | **74** | **88** | **144** | **125** | **251** | **1951** |

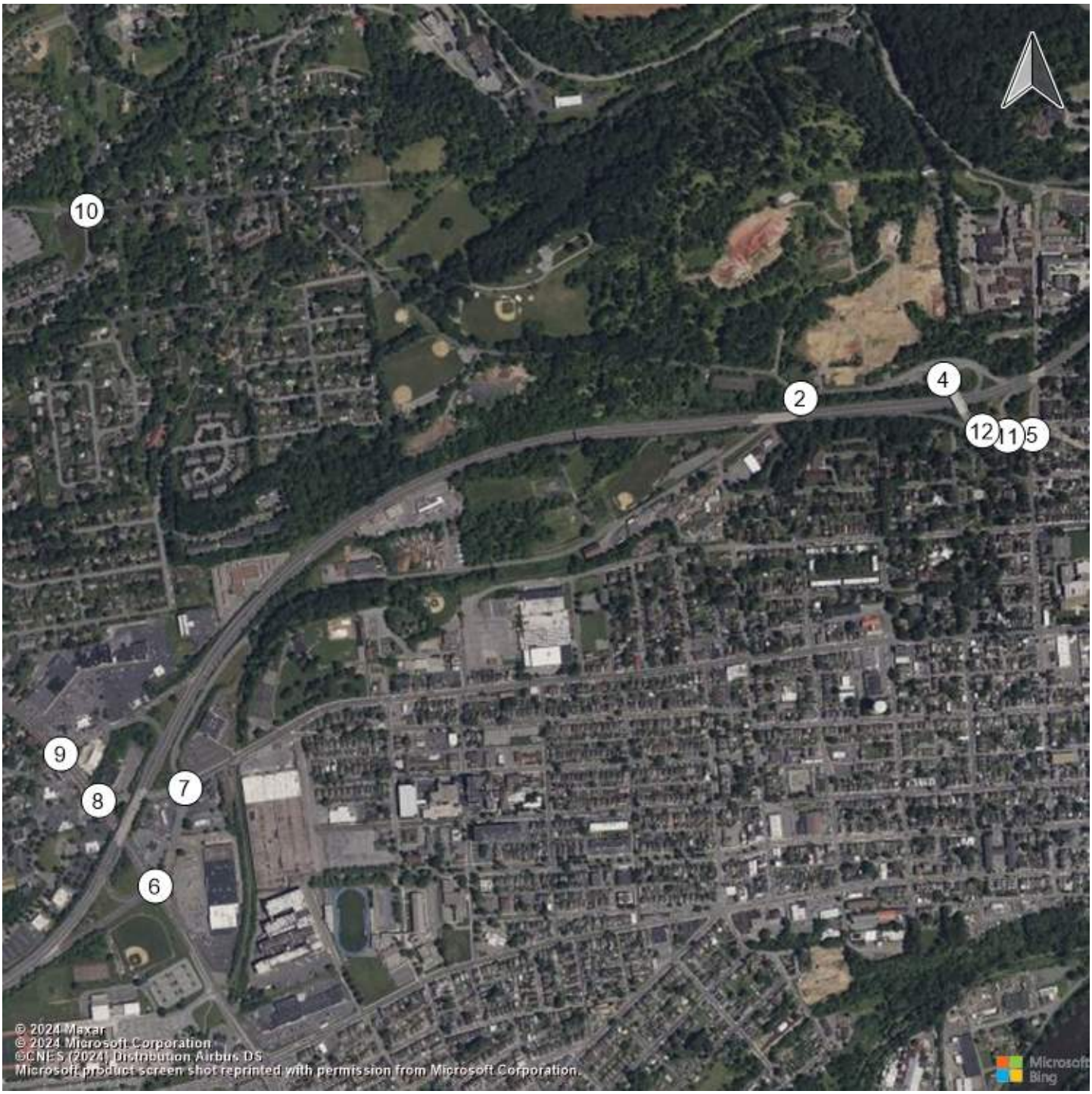
| ID | Intersection Name | Volume Type | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Final Base | 392 | 404 | 71 | 521 | 34 | 48 | 122 | 1 | 118 | 80 | 112 | 1903 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **404** | **416** | **73** | **537** | **35** | **49** | **126** | **1** | **122** | **82** | **115** | **1960** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Final Base | 0 | 244 | 38 | 138 | 280 | 6 | 1 | 0 | 0 | 31 | 4 | 146 | 888 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **0** | **251** | **39** | **142** | **289** | **6** | **1** | **0** | **0** | **32** | **4** | **150** | **914** |

| ID | Intersection Name | Volume Type | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Final Base | 113 | 656 | 872 | 191 | 1832 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **116** | **676** | **899** | **197** | **1888** |

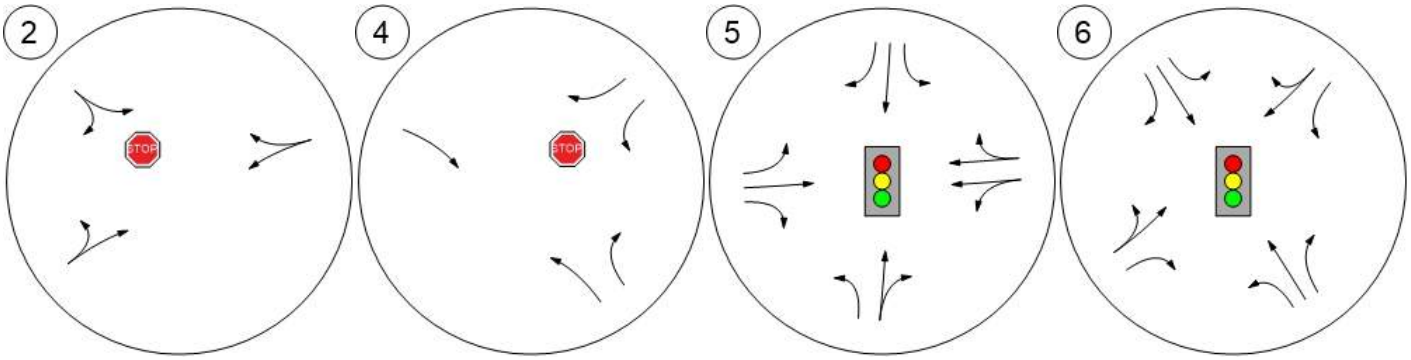
| ID | Intersection Name | Volume Type | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|---|
| | | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Final Base | 446 | 323 | 872 | 1641 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 |
| | | **Future Total** | **460** | **333** | **899** | **1692** |

Report Figure 1: Study Intersections

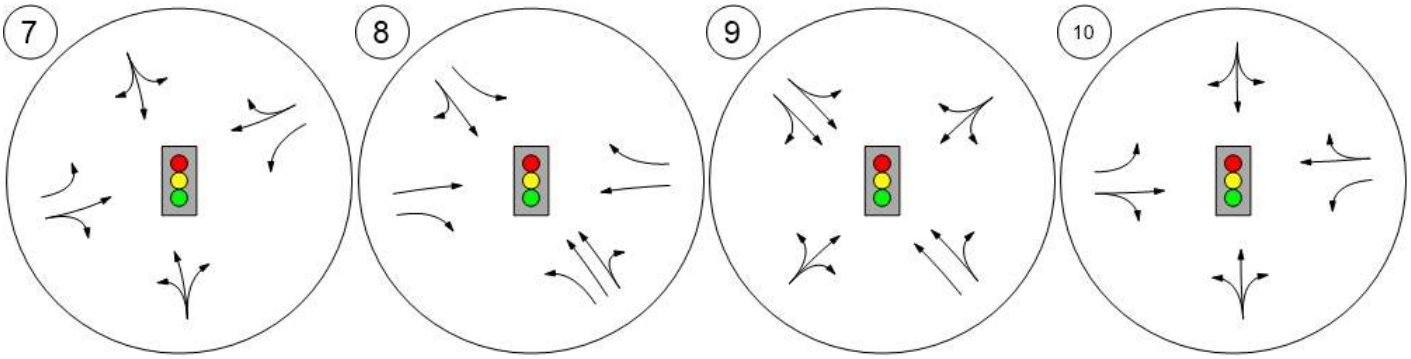


Report Figure 2: Lane Configuration and Traffic Control

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

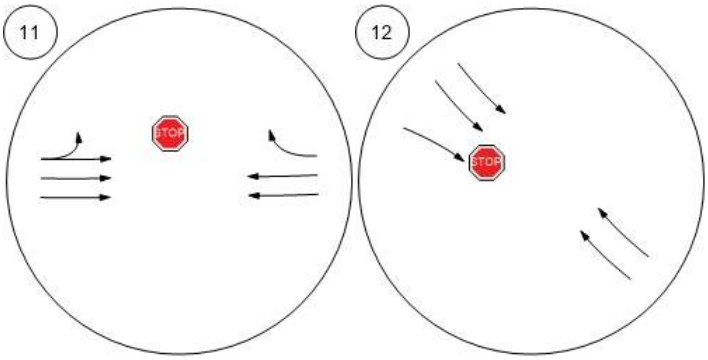



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



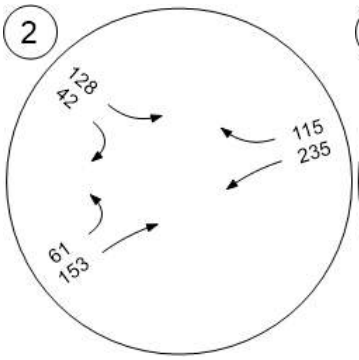
Report Figure 2: Lane Configuration and Traffic Control

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

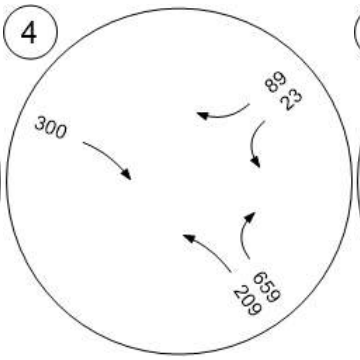


Report Figure 3a: Traffic Volume - Base Volume

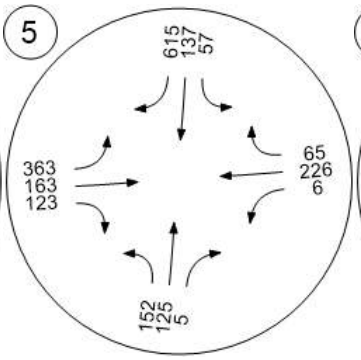
Hackett Avenue (SR 2017) &

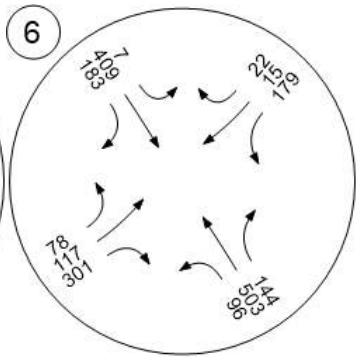



Wood Avenue (SR 2017) & U

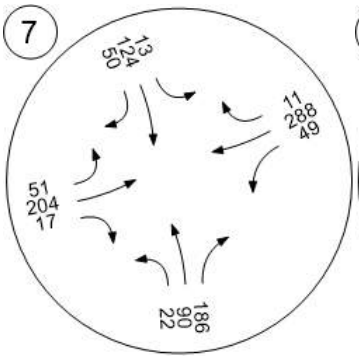



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

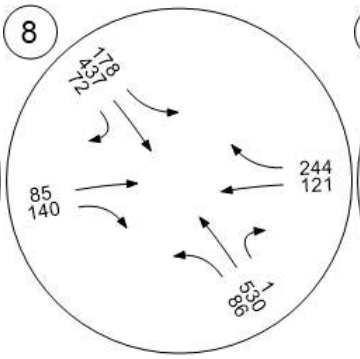


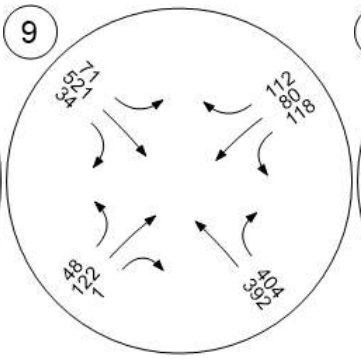

Northampton Street (SR 024



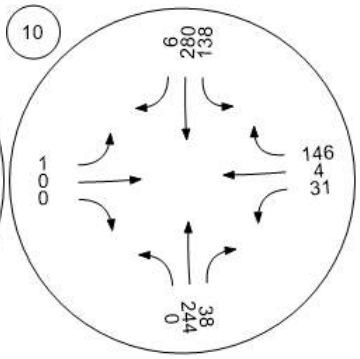

Northampton Street (SR 024




Nazareth Road (SR 0248) &

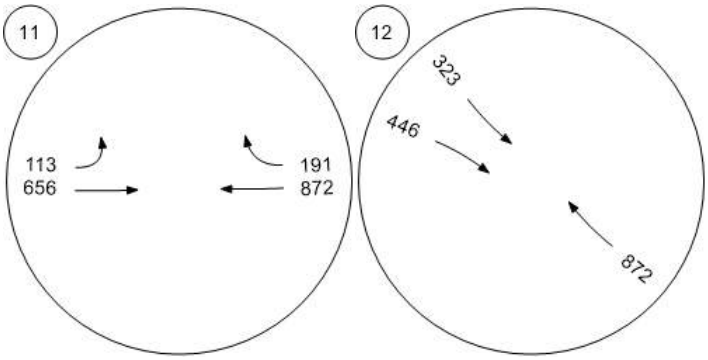



Hackett Avenue (SR 2017) /



Report Figure 3a: Traffic Volume - Base Volume

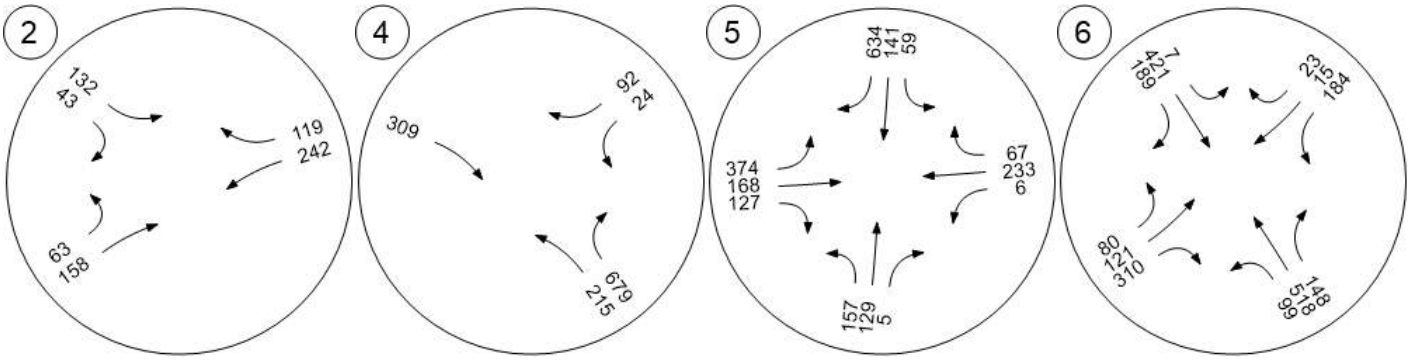
Wood Avenue (SR 2017) & U



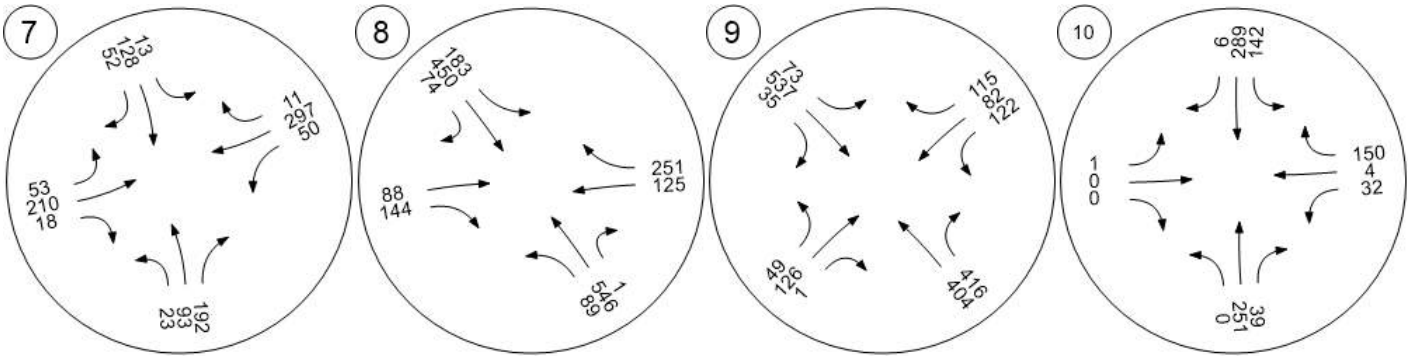

Wood Avenue (SR 2017) & U

Report Figure 3c: Traffic Volume - Future Background Volume

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

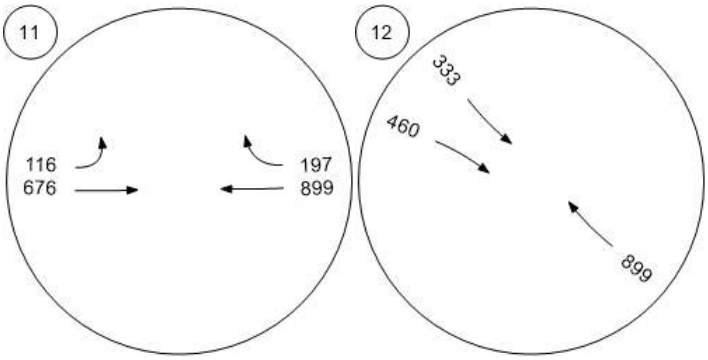



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



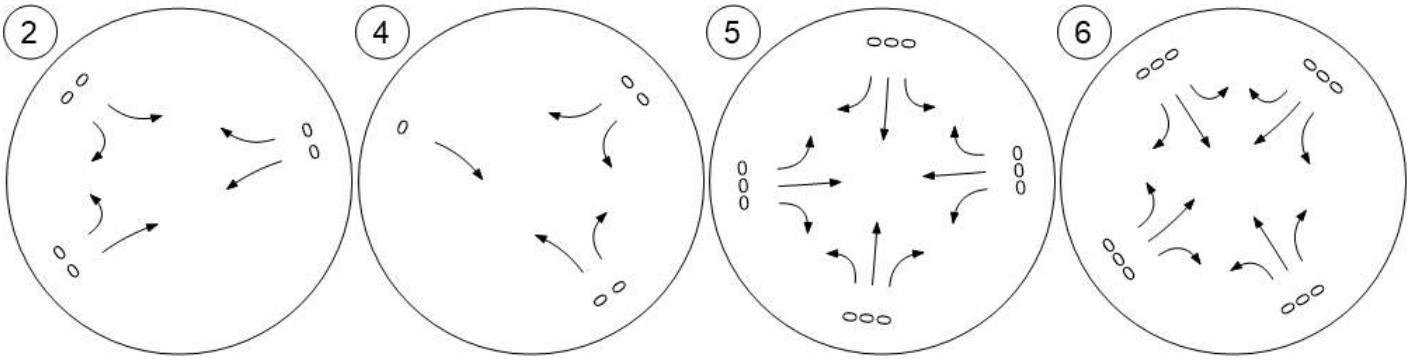
Report Figure 3c: Traffic Volume - Future Background Volume

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

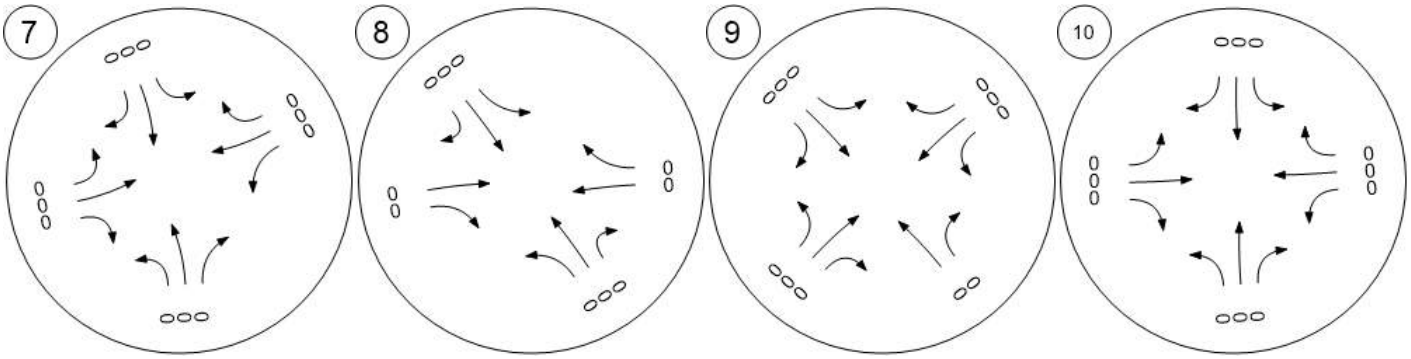


Report Figure 3d: Traffic Volume - Net New Site Trips

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

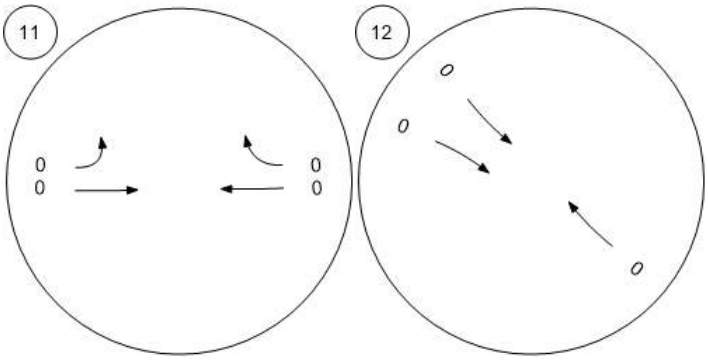



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



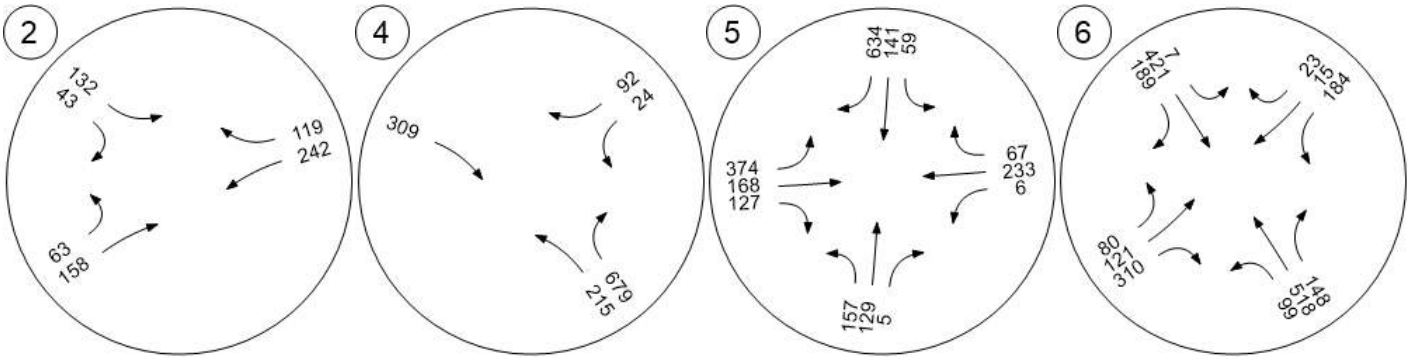
Report Figure 3d: Traffic Volume - Net New Site Trips

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

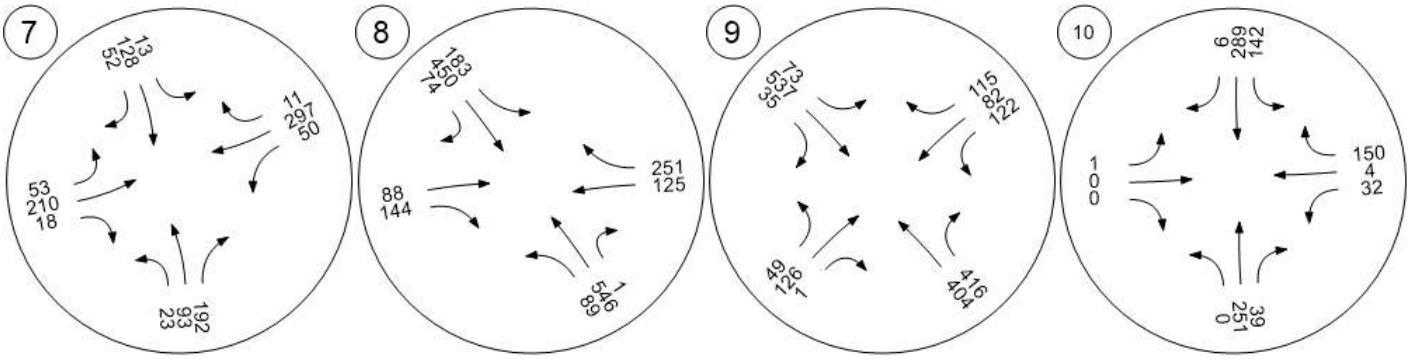


Report Figure 3f: Traffic Volume - Future Total Volume

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

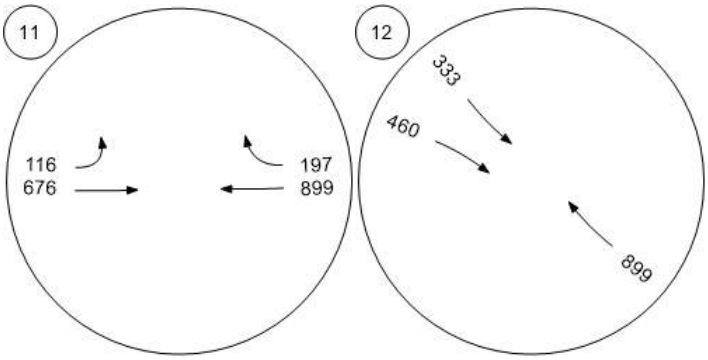



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



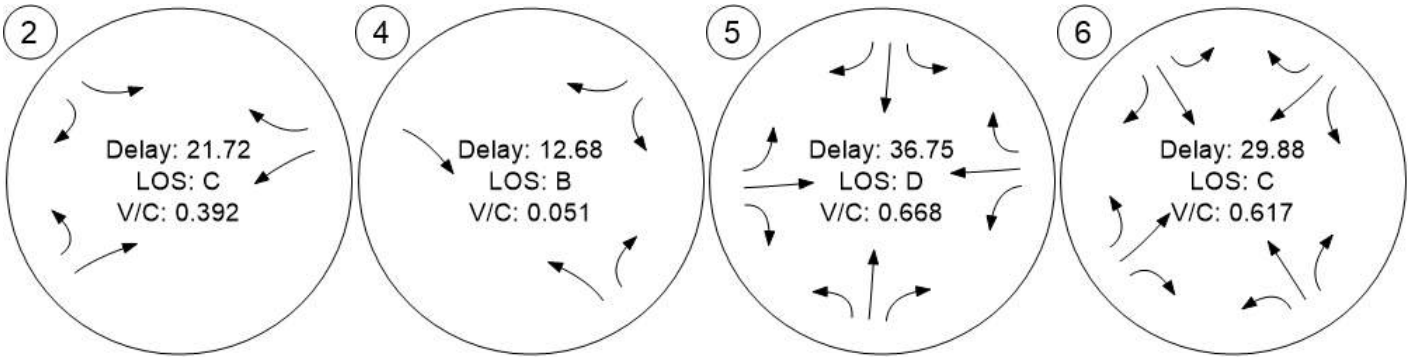
Report Figure 3f: Traffic Volume - Future Total Volume

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

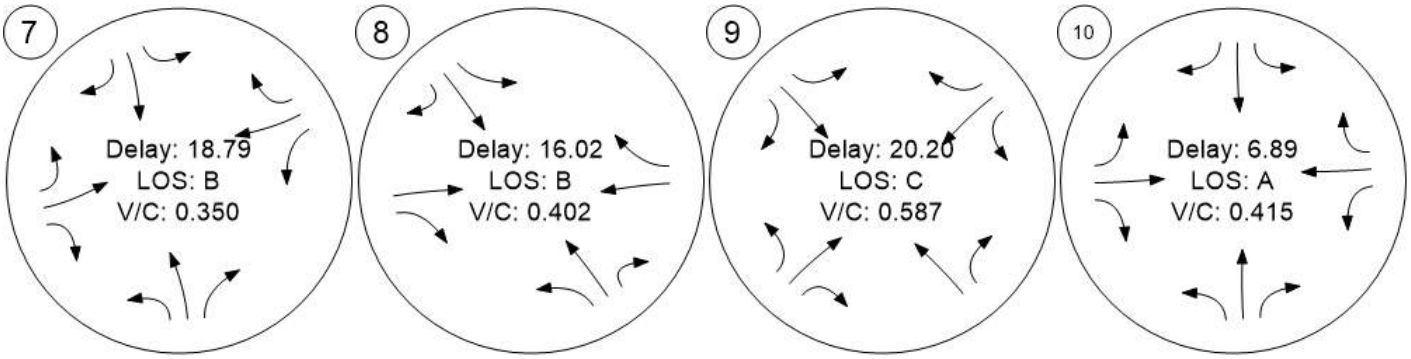


Report Figure 4: Traffic Conditions

Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W

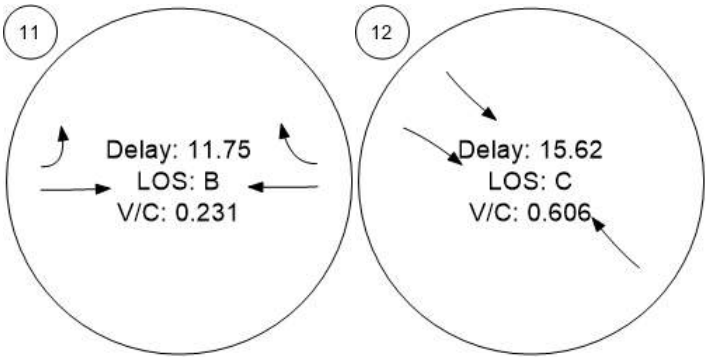



Northampton Street (SR 024 Northampton Street (SR 024 Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) /



Report Figure 4: Traffic Conditions

Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U



# PTV Vistro 2024 Reports

*Without Development Conditions (2030) – Weekday PM*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

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Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro Scenario 10 2030 WO PM

Report File: C:\...\2030 No Dev PM.pdf 6/17/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | WB Thru | 0.004 | 0.0 | A |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Two-way stop | HCM 7th Edition | SB Left | 0.725 | 61.0 | F |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | WB Thru | 0.006 | 0.0 | A |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Two-way stop | HCM 7th Edition | SB Left | 0.201 | 18.5 | C |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Signalized | HCM 7th Edition | SB Right | 0.682 | 66.7 | E |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Signalized | HCM 7th Edition | NB Left | 0.649 | 36.0 | D |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Signalized | HCM 7th Edition | NB Thru | 0.454 | 17.6 | B |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Signalized | HCM 7th Edition | WB Thru | 0.490 | 18.6 | B |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Signalized | HCM 7th Edition | WB Left | 0.831 | 35.1 | D |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Signalized | HCM 7th Edition | EB Left | 0.532 | 8.5 | A |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Two-way stop | HCM 7th Edition | EB Left | 0.139 | 11.1 | B |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Two-way stop | HCM 7th Edition | NB Thru | 0.676 | 18.7 | C |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**
**Intersection 1: Hackett Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 0.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.004 |

**Intersection Setup**

| Name | Hackett Avenue (SR 2017) | Hackett Avenue (SR 2017) |
|---|---|---|
| Approach | Eastbound | Westbound |
| Lane Configuration | |  |
| Turning Movement | Thru | Thru |
| Lane Width [ft] | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 |
| Speed [mph] | 40.00 | 40.00 |
| Grade [%] | 0.05 | -0.05 |
| Crosswalk | No | No |

**Volumes**

| Name | Hackett Avenue (SR 2017) | Hackett Avenue (SR 2017) |
|---|---|---|
| Base Volume Input [veh/h] | 205 | 331 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 |
| Growth Factor | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 |
| Total Hourly Volume [veh/h] | 211 | 341 |
| Peak Hour Factor | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 59 | 95 |
| Total Analysis Volume [veh/h] | 234 | 379 |
| Pedestrian Volume [ped/h] | 0 | 0 |

**Intersection Settings**

| | | |
|---|---|---|
| Priority Scheme | Free | Free |
| Flared Lane | | |
| Storage Area [veh] | 0 | 0 |
| Two-Stage Gap Acceptance | | |
| Number of Storage Spaces in Median | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | |
|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 |
| Movement LOS | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | 0.00 |
| Approach LOS | A | A |
| d_I, Intersection Delay [s/veh] | 0.00 | |
| Intersection LOS | A | |

**Intersection Level Of Service Report**

**Intersection 2: Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 61.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.725 |

**Intersection Setup**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.01 | | 0.01 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 151 | 62 | 98 | 204 | 246 | 233 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 2.00 | 2.00 | 2.00 | 3.00 | 2.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 156 | 64 | 101 | 210 | 254 | 240 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 43 | 18 | 28 | 58 | 70 | 66 |
| Total Analysis Volume [veh/h] | 171 | 70 | 111 | 231 | 279 | 264 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.73 | 0.11 | 0.15 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 61.03 | 51.42 | 9.84 | 0.00 | 0.00 | 0.00 |
| Movement LOS | F | F | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 6.99 | 6.99 | 0.20 | 0.20 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 174.66 | 174.66 | 4.92 | 4.92 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 58.24 | | 3.19 | | 0.00 | |
| Approach LOS | F | | A | | A | |
| d_I, Intersection Delay [s/veh] | 13.44 | | | | | |
| Intersection LOS | F | | | | | |

**Intersection Level Of Service Report**

**Intersection 3: Wood Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 0.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.006 |

**Intersection Setup**

| Name | Wood Avenue (SR 2017) | Wood Avenue (SR 2017) |
|---|---|---|
| Approach | Eastbound | Westbound |
| Lane Configuration |  |  |
| Turning Movement | Thru | Thru |
| Lane Width [ft] | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 |
| Speed [mph] | 35.00 | 35.00 |
| Grade [%] | 0.00 | 0.00 |
| Crosswalk | No | No |

**Volumes**

| Name | Wood Avenue (SR 2017) | Wood Avenue (SR 2017) |
|---|---|---|
| Base Volume Input [veh/h] | 355 | 483 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 |
| Growth Factor | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 |
| Total Hourly Volume [veh/h] | 366 | 498 |
| Peak Hour Factor | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 102 | 138 |
| Total Analysis Volume [veh/h] | 407 | 553 |
| Pedestrian Volume [ped/h] | 0 | 0 |

**Intersection Settings**

| | | |
|---|---|---|
| Priority Scheme | Free | Free |
| Flared Lane | | |
| Storage Area [veh] | 0 | 0 |
| Two-Stage Gap Acceptance | | |
| Number of Storage Spaces in Median | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | |
|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 |
| Movement LOS | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | 0.00 |
| Approach LOS | A | A |
| d_I, Intersection Delay [s/veh] | 0.00 | |
| Intersection LOS | A | |

**Intersection Level Of Service Report**
**Intersection 4: Wood Avenue (SR 2017) & US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 18.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.201 |

**Intersection Setup**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | |  | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.05 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 61 | 235 | 0 | 357 | 248 | 534 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 100.00 | 3.00 | 2.00 | 1.00 | 4.00 | 2.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 63 | 242 | 0 | 368 | 256 | 550 |
| Peak Hour Factor | 0.9440 | 0.9440 | 1.0000 | 0.9440 | 0.9440 | 0.9440 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 17 | 64 | 0 | 97 | 68 | 146 |
| Total Analysis Volume [veh/h] | 67 | 256 | 0 | 390 | 271 | 583 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.20 | 0.33 | 0.00 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 18.47 | 11.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.74 | 1.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 18.43 | 35.56 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 13.18 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.72 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Wood Avenue (SR 2017) & N. 13th Street (SR 2019)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 66.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.682 |

**Intersection Setup**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 12.00 | 11.00 | 12.00 | 15.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 20.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 105.00 | 100.00 | 285.00 | 115.00 | 100.00 | 100.00 | 100.00 | 100.00 | 75.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.09 | | | 0.10 | | | -0.05 | | | -0.02 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 153 | 154 | 17 | 74 | 171 | 479 | 459 | 195 | 148 | 6 | 231 | 57 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.00 | 5.00 | 13.00 | 7.00 | 2.00 | 5.00 | 2.00 | 2.00 | 3.00 | 0.00 | 1.00 | 14.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 212 | 0 | 0 | 73 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 158 | 159 | 17 | 76 | 176 | 282 | 473 | 201 | 80 | 6 | 238 | 59 |
| Peak Hour Factor | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 41 | 41 | 4 | 20 | 46 | 73 | 122 | 52 | 21 | 2 | 62 | 15 |
| Total Analysis Volume [veh/h] | 164 | 165 | 18 | 79 | 182 | 292 | 490 | 208 | 83 | 6 | 246 | 61 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 7 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 21 | 49 | 0 | 10 | 22 | 0 |
| Amber [s] | 4.5 | 4.5 | 0.0 | 4.5 | 4.5 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 19 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 3.5 | 3.5 | 0.0 | 3.5 | 3.5 | 0.0 | 2.5 | 2.5 | 0.0 | 4.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | | No | |
| Maximum Recall | No | Yes | | No | Yes | | No | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | C | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 | 0.00 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 11 | 17 | 7 | 13 | 13 | 38 | 38 | 38 | 12 | 12 |
| g / C, Green / Cycle | 0.14 | 0.21 | 0.09 | 0.16 | 0.16 | 0.48 | 0.48 | 0.48 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.11 | 0.06 | 0.13 | 0.24 | 0.34 | 0.12 | 0.06 | 0.10 | 0.10 |
| s, saturation flow rate [veh/h] | 1659 | 1698 | 1265 | 1399 | 1199 | 1453 | 1771 | 1493 | 1643 | 1580 |
| c, Capacity [veh/h] | 230 | 361 | 115 | 230 | 197 | 750 | 853 | 719 | 296 | 239 |
| d1, Uniform Delay [s] | 32.51 | 27.45 | 34.84 | 31.70 | 33.00 | 16.27 | 12.03 | 11.24 | 31.21 | 31.54 |
| k, delay calibration | 0.11 | 0.50 | 0.11 | 0.50 | 0.50 | 0.13 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.06 | 5.01 | 7.13 | 23.61 | 241.23 | 1.13 | 0.15 | 0.07 | 1.49 | 2.93 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.71 | 0.51 | 0.69 | 0.79 | 1.48 | 0.65 | 0.24 | 0.12 | 0.53 | 0.65 |
| d, Delay for Lane Group [s/veh] | 36.57 | 32.46 | 41.97 | 55.31 | 274.23 | 27.90 | 12.18 | 11.32 | 32.71 | 34.47 |
| Lane Group LOS | D | C | D | E | F | C | B | B | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 3.13 | 3.40 | 1.64 | 4.69 | 16.81 | 6.13 | 1.98 | 0.74 | 2.81 | 2.86 |
| 50th-Percentile Queue Length [ft/ln] | 78.23 | 85.04 | 41.12 | 117.19 | 420.16 | 153.21 | 49.51 | 18.49 | 70.19 | 71.39 |
| 95th-Percentile Queue Length [veh/ln] | 5.63 | 6.12 | 2.96 | 8.24 | 27.39 | 10.19 | 3.56 | 1.33 | 5.05 | 5.14 |
| 95th-Percentile Queue Length [ft/ln] | 140.81 | 153.07 | 74.01 | 205.95 | 684.87 | 254.71 | 89.11 | 33.28 | 126.34 | 128.51 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.57 | 32.46 | 32.46 | 41.97 | 55.31 | 274.23 | 27.90 | 12.18 | 11.32 | 32.71 | 33.38 | 34.47 |
| Movement LOS | D | C | C | D | E | F | C | B | B | C | C | C |
| d_A, Approach Delay [s/veh] | 34.40 | | | 169.00 | | | 21.95 | | | 33.58 | | |
| Approach LOS | C | | | F | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 66.72 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.682 | | | | | | | | | | | |

**Emissions**

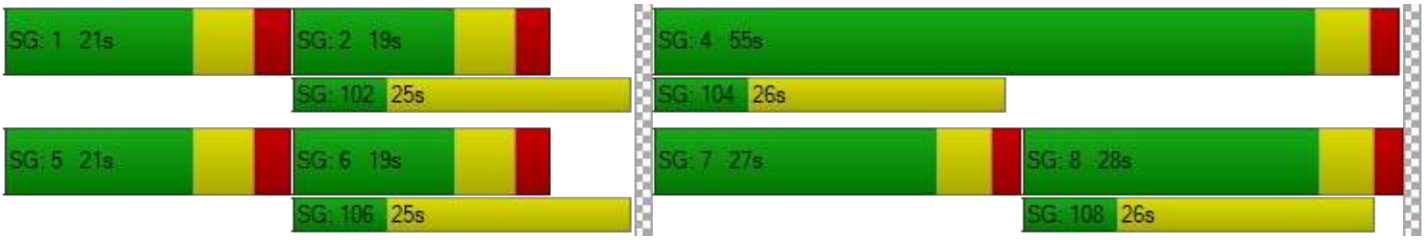
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.26 | 10.34 | 8.32 | 19.16 | 30.74 | 16.68 | 7.08 | 2.83 | 15.66 | 15.36 |
| Stops [stops/h] | 142.82 | 155.25 | 75.07 | 213.94 | 767.06 | 279.71 | 90.38 | 33.75 | 128.14 | 130.34 |
| Fuel consumption [US gal/h] | 2.65 | 2.77 | 1.56 | 4.39 | 23.23 | 5.52 | 1.47 | 0.55 | 2.61 | 2.65 |
| CO [g/h] | 185.07 | 193.65 | 108.78 | 306.69 | 1623.96 | 385.93 | 102.42 | 38.63 | 182.60 | 185.42 |
| NOx [g/h] | 36.01 | 37.68 | 21.17 | 59.67 | 315.96 | 75.09 | 19.93 | 7.52 | 35.53 | 36.08 |
| VOC [g/h] | 42.89 | 44.88 | 25.21 | 71.08 | 376.37 | 89.44 | 23.74 | 8.95 | 42.32 | 42.97 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 29.21 | 29.21 | 29.21 | 29.21 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.205 | 2.919 | 2.754 | 2.223 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 304 | 304 | 1242 | 558 |
| d_b, Bicycle Delay [s] | 28.35 | 28.35 | 5.66 | 20.51 |
| l_b,int, Bicycle LOS Score for Intersection | 2.134 | 2.822 | 2.969 | 1.818 |
| Bicycle LOS | B | C | C | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 6: S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 36.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.649 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 | 12.00 | 13.00 | 12.00 | 14.00 | 11.00 | 13.00 | 23.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 300.00 | 100.00 | 420.00 | 265.00 | 100.00 | 280.00 | 100.00 | 100.00 | 100.00 | 400.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 350.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 40.00 | | | 35.00 | | |
| Grade [%] | -0.06 | | | 0.05 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 77 | 556 | 215 | 21 | 429 | 207 | 138 | 180 | 318 | 125 | 30 | 34 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 3.00 | 5.00 | 0.00 | 1.00 | 1.00 | 0.00 | 2.00 | 3.00 | 2.00 | 0.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 129 | 0 | 0 | 85 | 0 | 0 | 225 | 0 | 0 | 24 |
| Total Hourly Volume [veh/h] | 79 | 573 | 93 | 22 | 442 | 128 | 142 | 185 | 103 | 129 | 31 | 11 |
| Peak Hour Factor | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 147 | 24 | 6 | 114 | 33 | 37 | 48 | 26 | 33 | 8 | 3 |
| Total Analysis Volume [veh/h] | 81 | 590 | 96 | 23 | 455 | 132 | 146 | 190 | 106 | 133 | 32 | 11 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 95.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 7 | 42 | 0 | 5 | 42 | 0 | 0 | 23 | 0 | 10 | 39 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 6 | 0 | 0 | 6 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 50.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 35.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 13 | 42 | 0 | 13 | 42 | 0 | 0 | 32 | 0 | 13 | 45 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 0 | 10 | 0 | 7 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | | No | | No | No | |
| Maximum Recall | No | Yes | | No | Yes | | | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 |
| g_i, Effective Green Time [s] | 7 | 41 | 41 | 4 | 38 | 38 | 27 | 27 | 40 | 40 |
| g / C, Green / Cycle | 0.07 | 0.41 | 0.41 | 0.04 | 0.38 | 0.38 | 0.27 | 0.27 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.34 | 0.07 | 0.01 | 0.28 | 0.10 | 0.24 | 0.07 | 0.11 | 0.02 |
| s, saturation flow rate [veh/h] | 1672 | 1756 | 1469 | 1540 | 1603 | 1363 | 1395 | 1554 | 1233 | 1779 |
| c, Capacity [veh/h] | 125 | 713 | 596 | 68 | 602 | 512 | 428 | 420 | 356 | 711 |
| d1, Uniform Delay [s] | 44.99 | 26.59 | 18.89 | 46.37 | 27.24 | 21.60 | 36.59 | 28.60 | 23.33 | 18.45 |
| k, delay calibration | 0.14 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.39 | 0.11 | 0.42 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 7.04 | 10.69 | 0.58 | 2.89 | 8.60 | 1.22 | 10.75 | 0.31 | 2.52 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.65 | 0.83 | 0.16 | 0.34 | 0.76 | 0.26 | 0.78 | 0.25 | 0.37 | 0.06 |
| d, Delay for Lane Group [s/veh] | 52.03 | 37.27 | 19.47 | 49.26 | 35.84 | 22.82 | 47.35 | 28.91 | 25.85 | 18.48 |
| Lane Group LOS | D | D | B | D | D | C | D | C | C | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.17 | 14.00 | 1.47 | 0.60 | 10.48 | 2.25 | 8.88 | 1.96 | 2.25 | 0.60 |
| 50th-Percentile Queue Length [ft/ln] | 54.19 | 350.08 | 36.75 | 15.06 | 262.08 | 56.36 | 221.93 | 49.09 | 56.20 | 15.11 |
| 95th-Percentile Queue Length [veh/ln] | 3.90 | 20.14 | 2.65 | 1.08 | 15.79 | 4.06 | 13.76 | 3.53 | 4.05 | 1.09 |
| 95th-Percentile Queue Length [ft/ln] | 97.54 | 503.51 | 66.15 | 27.10 | 394.82 | 101.44 | 344.09 | 88.36 | 101.15 | 27.19 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 52.03 | 37.27 | 19.47 | 49.26 | 35.84 | 22.82 | 47.35 | 47.35 | 28.91 | 25.85 | 18.48 | 18.48 |
| Movement LOS | D | D | B | D | D | C | D | D | C | C | B | B |
| d_A, Approach Delay [s/veh] | 36.60 | | | 33.53 | | | 42.92 | | | 24.05 | | |
| Approach LOS | D | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 35.96 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.649 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 7.76 | 56.51 | 9.19 | 3.17 | 62.76 | 18.21 | 24.94 | 7.87 | 18.85 | 6.10 |
| Stops [stops/h] | 78.03 | 504.12 | 52.92 | 21.68 | 377.39 | 81.16 | 319.58 | 70.69 | 80.92 | 21.75 |
| Fuel consumption [US gal/h] | 1.74 | 10.42 | 1.13 | 0.51 | 8.55 | 1.92 | 7.27 | 1.60 | 2.03 | 0.56 |
| CO [g/h] | 121.64 | 728.38 | 78.90 | 35.96 | 597.53 | 134.02 | 508.17 | 111.83 | 141.68 | 38.98 |
| NOx [g/h] | 23.67 | 141.72 | 15.35 | 7.00 | 116.26 | 26.08 | 98.87 | 21.76 | 27.57 | 7.58 |
| VOC [g/h] | 28.19 | 168.81 | 18.29 | 8.33 | 138.48 | 31.06 | 117.77 | 25.92 | 32.84 | 9.03 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 10.0 | 10.0 | 8.0 | 8.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 40.50 | 40.50 | 42.32 | 42.32 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.907 | 2.964 | 2.670 | 2.275 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 720 | 720 | 520 | 780 |
| d_b, Bicycle Delay [s] | 20.48 | 20.48 | 27.38 | 18.61 |
| l_b,int, Bicycle LOS Score for Intersection | 3.038 | 2.706 | 2.660 | 1.890 |
| Bicycle LOS | C | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 7: Northampton Street (SR 0248) & Wood Avenue (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 17.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.454 |

**Intersection Setup**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 17.00 | 12.00 | 22.00 | 10.00 | 10.00 | 10.00 | 11.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.01 | | | -0.03 | | | -0.05 | | | 0.06 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | No | | | Yes | | |

**Volumes**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 37 | 133 | 231 | 16 | 73 | 78 | 58 | 299 | 31 | 80 | 395 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 5.00 | 4.00 | 0.00 | 3.00 | 12.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 8.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 142 | 0 | 0 | 26 | 0 | 0 | 5 | 0 | 0 | 2 |
| Total Hourly Volume [veh/h] | 38 | 137 | 96 | 16 | 75 | 54 | 60 | 308 | 27 | 82 | 407 | 13 |
| Peak Hour Factor | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 10 | 36 | 25 | 4 | 20 | 14 | 16 | 80 | 7 | 21 | 106 | 3 |
| Total Analysis Volume [veh/h] | 40 | 143 | 100 | 17 | 78 | 56 | 62 | 320 | 28 | 85 | 424 | 14 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 66.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 38 | 0 | 0 | 38 | 0 | 0 | 50 | 0 | 0 | 50 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 12 | 0 | 0 | 12 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 44 | 0 | 0 | 44 | 0 | 0 | 56 | 0 | 0 | 56 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | Yes | | | Yes | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 21 | 21 | 69 | 69 | 69 | 69 |
| g / C, Green / Cycle | 0.21 | 0.21 | 0.69 | 0.69 | 0.69 | 0.69 |
| (v / s)_i Volume / Saturation Flow Rate | 0.17 | 0.09 | 0.06 | 0.20 | 0.09 | 0.28 |
| s, saturation flow rate [veh/h] | 1617 | 1595 | 965 | 1759 | 919 | 1568 |
| c, Capacity [veh/h] | 378 | 372 | 594 | 1217 | 610 | 1085 |
| d1, Uniform Delay [s] | 37.84 | 34.52 | 11.27 | 5.91 | 9.49 | 6.58 |
| k, delay calibration | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.00 | 0.71 | 0.35 | 0.59 | 0.48 | 1.12 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.75 | 0.41 | 0.10 | 0.29 | 0.14 | 0.40 |
| d, Delay for Lane Group [s/veh] | 40.84 | 35.23 | 11.62 | 6.51 | 9.96 | 7.70 |
| Lane Group LOS | D | D | B | A | A | A |
| Critical Lane Group | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 6.93 | 3.29 | 0.73 | 2.76 | 0.91 | 3.92 |
| 50th-Percentile Queue Length [ft/ln] | 173.30 | 82.24 | 18.17 | 68.88 | 22.77 | 97.92 |
| 95th-Percentile Queue Length [veh/ln] | 11.25 | 5.92 | 1.31 | 4.96 | 1.64 | 7.05 |
| 95th-Percentile Queue Length [ft/ln] | 281.24 | 148.04 | 32.71 | 123.98 | 40.98 | 176.26 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 40.84 | 40.84 | 40.84 | 35.23 | 35.23 | 35.23 | 11.62 | 6.51 | 6.51 | 9.96 | 7.70 | 7.70 |
| Movement LOS | D | D | D | D | D | D | B | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 40.84 | | | 35.23 | | | 7.28 | | | 8.07 | | |
| Approach LOS | D | | | D | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 17.62 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.454 | | | | | | | | | | | |

**Emissions**

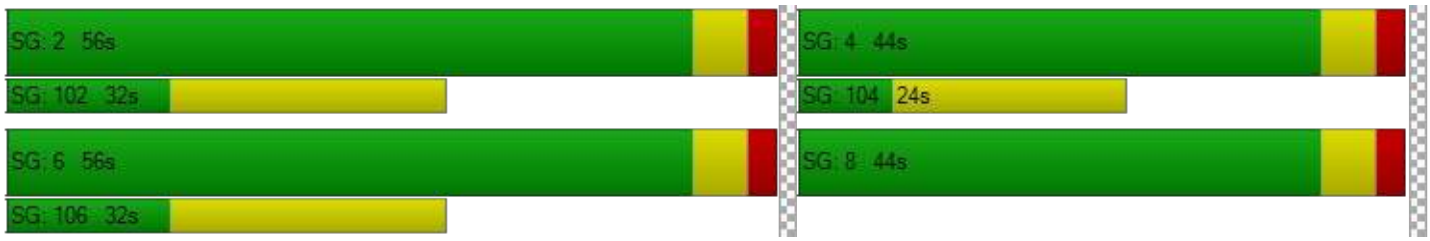
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 40.12 | 161.02 | 7.32 | 41.09 | 22.98 | 118.44 |
| Stops [stops/h] | 249.55 | 118.43 | 26.17 | 99.19 | 32.78 | 141.01 |
| Fuel consumption [US gal/h] | 5.11 | 8.78 | 0.58 | 2.69 | 1.33 | 6.55 |
| CO [g/h] | 357.41 | 613.57 | 40.28 | 187.96 | 93.09 | 458.10 |
| NOx [g/h] | 69.54 | 119.38 | 7.84 | 36.57 | 18.11 | 89.13 |
| VOC [g/h] | 82.83 | 142.20 | 9.34 | 43.56 | 21.57 | 106.17 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 16.0 | 16.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.28 | 35.28 | 0.00 | 39.61 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.290 | 2.002 | 0.000 | 2.271 |
| Crosswalk LOS | B | B | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 760 | 760 | 1000 | 1000 |
| d_b, Bicycle Delay [s] | 19.22 | 19.22 | 12.50 | 12.50 |
| l_b,int, Bicycle LOS Score for Intersection | 2.261 | 1.852 | 2.244 | 2.426 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 8: Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.490 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 13.00 | 12.00 | 20.00 | 12.00 | 12.00 | 11.00 | 13.00 | 12.00 | 12.00 | 13.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 40.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.02 | | | -0.02 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 69 | 644 | 8 | 282 | 549 | 36 | 0 | 113 | 94 | 0 | 153 | 356 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 3.00 | 0.00 | 0.00 | 1.00 | 5.00 | 2.00 | 2.00 | 3.00 | 2.00 | 4.00 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 23 | 0 | 0 | 88 |
| Total Hourly Volume [veh/h] | 71 | 664 | 8 | 291 | 566 | 23 | 0 | 116 | 74 | 0 | 158 | 279 |
| Peak Hour Factor | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 1.0000 | 0.9800 | 0.9800 | 1.0000 | 0.9800 | 0.9800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 169 | 2 | 74 | 144 | 6 | 0 | 30 | 19 | 0 | 40 | 71 |
| Total Analysis Volume [veh/h] | 72 | 678 | 8 | 297 | 578 | 23 | 0 | 118 | 76 | 0 | 161 | 285 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 2.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Overlap | Permiss | Permiss | Overlap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 5 | 0 | 8 | 1 |
| Auxiliary Signal Groups | | | | | | | | | 4,5 | | | 1,8 |
| Maximum Green [s] | 16 | 31 | 0 | 16 | 31 | 0 | 0 | 35 | 16 | 0 | 35 | 16 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Walk [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 40.0 | 40.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 13 | 37 | 0 | 22 | 46 | 0 | 0 | 41 | 13 | 0 | 41 | 22 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 0 | 10 | 7 | 0 | 10 | 7 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 |
| Minimum Recall | No | No | | No | No | | | No | No | | No | No |
| Maximum Recall | No | Yes | | No | Yes | | | No | No | | No | No |
| Pedestrian Recall | No | No | | No | No | | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | R | C | R |
|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| g_i, Effective Green Time [s] | 71 | 50 | 50 | 71 | 59 | 19 | 31 | 19 | 40 |
| g / C, Green / Cycle | 0.71 | 0.50 | 0.50 | 0.71 | 0.59 | 0.19 | 0.31 | 0.19 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.20 | 0.20 | 0.29 | 0.33 | 0.07 | 0.05 | 0.09 | 0.18 |
| s, saturation flow rate [veh/h] | 927 | 1758 | 1750 | 1023 | 1845 | 1772 | 1554 | 1744 | 1579 |
| c, Capacity [veh/h] | 606 | 872 | 868 | 746 | 1094 | 330 | 461 | 325 | 622 |
| d1, Uniform Delay [s] | 6.99 | 15.79 | 15.79 | 6.67 | 12.27 | 35.48 | 25.99 | 36.49 | 22.41 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.40 | 1.34 | 1.34 | 1.59 | 1.99 | 0.66 | 0.17 | 1.17 | 2.42 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.12 | 0.39 | 0.39 | 0.40 | 0.55 | 0.36 | 0.16 | 0.50 | 0.46 |
| d, Delay for Lane Group [s/veh] | 7.39 | 17.13 | 17.13 | 8.26 | 14.26 | 36.14 | 26.16 | 37.66 | 24.83 |
| Lane Group LOS | A | B | B | A | B | D | C | D | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.45 | 4.97 | 4.96 | 2.08 | 7.68 | 2.53 | 1.34 | 3.57 | 5.19 |
| 50th-Percentile Queue Length [ft/ln] | 11.27 | 124.36 | 123.91 | 51.97 | 192.11 | 63.17 | 33.38 | 89.18 | 129.80 |
| 95th-Percentile Queue Length [veh/ln] | 0.81 | 8.63 | 8.61 | 3.74 | 12.23 | 4.55 | 2.40 | 6.42 | 8.93 |
| 95th-Percentile Queue Length [ft/ln] | 20.29 | 215.80 | 215.19 | 93.54 | 305.76 | 113.71 | 60.08 | 160.52 | 223.23 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 7.39 | 17.13 | 17.13 | 8.26 | 14.26 | 14.26 | 0.00 | 36.14 | 26.16 | 0.00 | 37.66 | 24.83 |
| Movement LOS | A | B | B | A | B | B | | D | C | | D | C |
| d_A, Approach Delay [s/veh] | 16.20 | | | 12.28 | | | 32.23 | | | 29.46 | | |
| Approach LOS | B | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 18.60 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.490 | | | | | | | | | | | |

**Emissions**

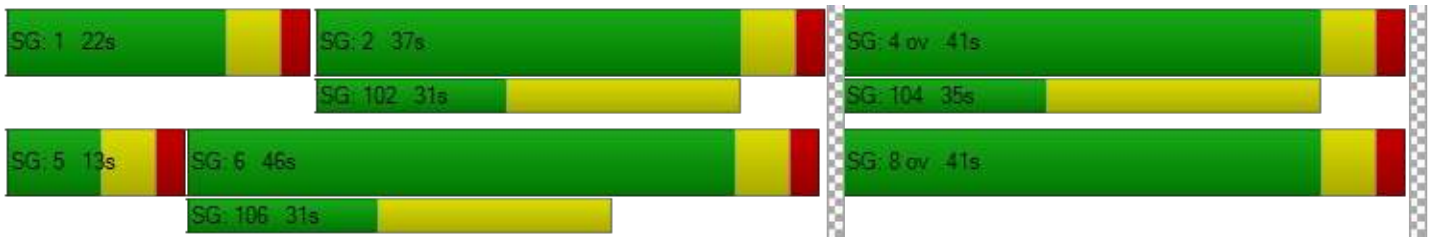
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.93 | 47.40 | 47.22 | 24.11 | 48.79 | 8.28 | 5.33 | 19.01 | 33.65 |
| Stops [stops/h] | 16.23 | 179.08 | 178.44 | 74.84 | 276.64 | 90.97 | 48.06 | 128.41 | 186.92 |
| Fuel consumption [US gal/h] | 0.61 | 4.35 | 4.34 | 2.10 | 6.21 | 1.87 | 0.97 | 2.92 | 4.13 |
| CO [g/h] | 42.57 | 304.16 | 303.03 | 146.65 | 434.03 | 130.53 | 67.75 | 204.40 | 288.57 |
| NOx [g/h] | 8.28 | 59.18 | 58.96 | 28.53 | 84.45 | 25.40 | 13.18 | 39.77 | 56.15 |
| VOC [g/h] | 9.87 | 70.49 | 70.23 | 33.99 | 100.59 | 30.25 | 15.70 | 47.37 | 66.88 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 19.0 | 0.0 | 18.0 | 18.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.81 | 0.00 | 33.62 | 33.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.489 | 0.000 | 2.219 | 2.747 |
| Crosswalk LOS | B | F | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 620 | 800 | 700 | 700 |
| d_b, Bicycle Delay [s] | 23.81 | 18.00 | 21.13 | 21.13 |
| l_b,int, Bicycle LOS Score for Intersection | 2.185 | 3.064 | 1.918 | 2.441 |
| Bicycle LOS | B | C | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 9: Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 35.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.831 |

**Intersection Setup**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 13.00 | 13.00 | 12.00 | 12.00 | 12.00 | 18.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 25.00 | | | 35.00 | | |
| Grade [%] | 0.04 | | | -0.04 | | | -0.01 | | | 0.01 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | No | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 594 | 405 | 55 | 645 | 39 | 79 | 69 | 6 | 218 | 176 | 250 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 4.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 138 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 111 |
| Total Hourly Volume [veh/h] | 0 | 612 | 279 | 57 | 665 | 38 | 81 | 71 | 5 | 225 | 181 | 147 |
| Peak Hour Factor | 1.0000 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 160 | 73 | 15 | 174 | 10 | 21 | 19 | 1 | 59 | 47 | 38 |
| Total Analysis Volume [veh/h] | 0 | 639 | 291 | 59 | 694 | 40 | 85 | 74 | 5 | 235 | 189 | 153 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 99.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 39 | 0 | 7 | 52 | 0 | 0 | 36 | 0 | 0 | 36 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 165.0 | 165.0 | 0.0 | 0.0 | -5.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 6.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 13 | 55 | 0 | 0 | 45 | 0 | 0 | 45 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | Yes | No | | | No | | | No | |
| Maximum Recall | | Yes | | No | Yes | | | No | | | No | |
| Pedestrian Recall | | No | | No | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | C | C | C | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 2.50 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 37 | 37 | 50 | 50 | 40 | 40 |
| g / C, Green / Cycle | 0.37 | 0.37 | 0.50 | 0.50 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.28 | 0.31 | 0.35 | 0.26 | 0.15 | 0.39 |
| s, saturation flow rate [veh/h] | 1641 | 1478 | 1087 | 1597 | 1094 | 1495 |
| c, Capacity [veh/h] | 607 | 547 | 480 | 799 | 492 | 649 |
| d1, Uniform Delay [s] | 27.69 | 28.96 | 18.39 | 16.92 | 20.58 | 29.67 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.45 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 8.94 | 15.27 | 12.03 | 2.44 | 0.39 | 15.45 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.77 | 0.85 | 0.78 | 0.52 | 0.33 | 0.89 |
| d, Delay for Lane Group [s/veh] | 36.64 | 44.23 | 30.42 | 19.36 | 20.97 | 45.12 |
| Lane Group LOS | D | D | C | B | C | D |
| Critical Lane Group | No | Yes | Yes | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 10.70 | 11.93 | 6.76 | 6.51 | 2.71 | 15.58 |
| 50th-Percentile Queue Length [ft/ln] | 267.45 | 298.21 | 169.09 | 162.64 | 67.79 | 389.44 |
| 95th-Percentile Queue Length [veh/ln] | 16.06 | 17.59 | 11.03 | 10.69 | 4.88 | 22.05 |
| 95th-Percentile Queue Length [ft/ln] | 401.56 | 439.82 | 275.72 | 267.22 | 122.02 | 551.26 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 38.70 | 44.23 | 30.42 | 24.41 | 19.36 | 20.97 | 20.97 | 20.97 | 45.12 | 45.12 | 45.12 |
| Movement LOS | | D | D | C | C | B | C | C | C | D | D | D |
| d_A, Approach Delay [s/veh] | 40.43 | | | 24.60 | | | 20.97 | | | 45.12 | | |
| Approach LOS | D | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 35.14 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.831 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 37.75 | 37.75 | 27.50 | 30.57 | 6.95 | 39.77 |
| Stops [stops/h] | 385.13 | 429.43 | 243.49 | 234.20 | 97.62 | 560.79 |
| Fuel consumption [US gal/h] | 8.60 | 9.76 | 5.70 | 5.04 | 1.39 | 11.03 |
| CO [g/h] | 601.30 | 681.91 | 398.53 | 352.38 | 96.96 | 771.08 |
| NOx [g/h] | 116.99 | 132.68 | 77.54 | 68.56 | 18.86 | 150.02 |
| VOC [g/h] | 139.36 | 158.04 | 92.36 | 81.67 | 22.47 | 178.70 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 9.0 | 9.0 | 9.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 0.00 | 41.41 | 41.41 | 41.41 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 0.000 | 2.841 | 1.884 | 2.802 | |
| Crosswalk LOS | F | C | A | C | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 720 | 980 | 780 | 780 | |
| d_b, Bicycle Delay [s] | 20.48 | 13.01 | 18.61 | 18.61 | |
| l_b,int, Bicycle LOS Score for Intersection | 2.441 | 2.215 | 1.832 | 2.695 | |
| Bicycle LOS | B | B | A | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 10: Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.532 |

**Intersection Setup**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 11.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 11.00 | 11.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 120.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 25.00 | | | 40.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 256 | 32 | 163 | 270 | 26 | 32 | 10 | 3 | 76 | 24 | 236 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 6.00 | 0.00 | 1.00 | 3.00 | 0.00 | 3.00 | 0.00 | 0.00 | 1.00 | 13.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| Total Hourly Volume [veh/h] | 0 | 264 | 29 | 168 | 278 | 27 | 33 | 10 | 3 | 78 | 25 | 234 |
| Peak Hour Factor | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 72 | 8 | 46 | 76 | 7 | 9 | 3 | 1 | 21 | 7 | 64 |
| Total Analysis Volume [veh/h] | 0 | 287 | 32 | 183 | 303 | 29 | 36 | 11 | 3 | 85 | 27 | 255 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 38 | 0 | 0 | 38 | 0 | 0 | 13 | 0 | 0 | 13 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 9 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 |
| Detector Location [ft] | 0.0 | 210.0 | 0.0 | 0.0 | 210.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 6.0 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 30 | 30 | 30 | 30 | 30 | 30 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |
| g_i, Effective Green Time [s] | 13 | 13 | 10 | 10 | 10 | 10 |
| g / C, Green / Cycle | 0.42 | 0.42 | 0.32 | 0.32 | 0.32 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.18 | 0.33 | 0.03 | 0.01 | 0.06 | 0.20 |
| s, saturation flow rate [veh/h] | 1739 | 1565 | 1088 | 1734 | 1411 | 1393 |
| c, Capacity [veh/h] | 849 | 818 | 300 | 548 | 561 | 440 |
| d1, Uniform Delay [s] | 6.23 | 7.28 | 13.92 | 7.14 | 9.57 | 8.89 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.28 | 0.80 | 0.18 | 0.02 | 0.12 | 1.56 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.38 | 0.63 | 0.12 | 0.03 | 0.15 | 0.64 |
| d, Delay for Lane Group [s/veh] | 6.51 | 8.08 | 14.10 | 7.16 | 9.70 | 10.45 |
| Lane Group LOS | A | A | B | A | A | B |
| Critical Lane Group | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.75 | 1.48 | 0.21 | 0.05 | 0.30 | 1.04 |
| 50th-Percentile Queue Length [ft/ln] | 18.85 | 36.92 | 5.25 | 1.15 | 7.54 | 25.92 |
| 95th-Percentile Queue Length [veh/ln] | 1.36 | 2.66 | 0.38 | 0.08 | 0.54 | 1.87 |
| 95th-Percentile Queue Length [ft/ln] | 33.93 | 66.45 | 9.46 | 2.08 | 13.57 | 46.65 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 6.51 | 6.51 | 6.51 | 8.08 | 8.08 | 8.08 | 14.10 | 7.16 | 7.16 | 9.70 | 10.45 | 10.45 |
| Movement LOS | A | A | A | A | A | A | B | A | A | A | B | B |
| d_A, Approach Delay [s/veh] | 6.51 | | | 8.08 | | | 12.16 | | | 10.27 | | |
| Approach LOS | A | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 8.49 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.532 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 48.44 | 74.57 | 3.89 | 1.51 | 73.70 | 244.50 |
| Stops [stops/h] | 89.91 | 176.11 | 25.06 | 5.51 | 35.97 | 123.63 |
| Fuel consumption [US gal/h] | 2.94 | 5.01 | 0.37 | 0.11 | 3.16 | 10.57 |
| CO [g/h] | 205.85 | 350.46 | 26.16 | 7.66 | 220.96 | 739.01 |
| NOx [g/h] | 40.05 | 68.19 | 5.09 | 1.49 | 42.99 | 143.78 |
| VOC [g/h] | 47.71 | 81.22 | 6.06 | 1.77 | 51.21 | 171.27 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 6.10 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.177 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2518 | 2518 | 861 | 861 |
| d_b, Bicycle Delay [s] | 1.01 | 1.01 | 4.89 | 4.89 |
| l_b,int, Bicycle LOS Score for Intersection | 2.093 | 2.409 | 1.642 | 2.180 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 11: Wood Avenue (SR 2017) & US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.139 |

**Intersection Setup**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 50.00 | 0.00 |
| Speed [mph] | 30.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | -0.03 | | 0.03 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 77 | 803 | 782 | 96 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 3.00 | 2.00 | 2.00 | 0.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 79 | 827 | 806 | 99 |
| Peak Hour Factor | 1.0000 | 1.0000 | 0.9430 | 0.9430 | 0.9430 | 0.9430 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 21 | 219 | 214 | 26 |
| Total Analysis Volume [veh/h] | 0 | 0 | 84 | 877 | 855 | 105 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.14 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 11.06 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.15 | 0.05 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 3.67 | 1.22 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.97 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.48 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**

**Intersection 12: Wood Avenue (SR 2017) & US 22 East Off-Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 18.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.676 |

**Intersection Setup**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Thru | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | -0.04 | | -0.03 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 462 | 418 | 0 | 0 | 782 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 476 | 431 | 0 | 0 | 806 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 132 | 120 | 0 | 0 | 224 |
| Total Analysis Volume [veh/h] | 0 | 529 | 479 | 0 | 0 | 896 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.68 | 0.00 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 0.00 | 18.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | A | | | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 5.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 134.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 18.66 | | 0.00 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.18 | | | | | |
| Intersection LOS | C | | | | | |

Proposed Warehouse at 1525 Wood Ave
Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 10 2030 WO PM
Report File: C:\...\2030 No Dev PM.pdf
6/17/2024

## Turning Movement Volume: Summary

| ID | Intersection Name | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|
| | | Thru | Thru | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | 211 | 341 | 552 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | 156 | 64 | 101 | 210 | 254 | 240 | 1025 |

| ID | Intersection Name | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|
| | | Thru | Thru | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | 366 | 498 | 864 |

| ID | Intersection Name | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | 63 | 242 | 368 | 256 | 550 | 1479 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | 158 | 159 | 18 | 76 | 176 | 494 | 473 | 201 | 153 | 6 | 238 | 59 | 2211 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | 79 | 573 | 222 | 22 | 442 | 213 | 142 | 185 | 328 | 129 | 31 | 35 | 2401 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | 38 | 137 | 238 | 16 | 75 | 80 | 60 | 308 | 32 | 82 | 407 | 15 | 1488 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012) /Nazareth Road (SR 0248) | 71 | 664 | 8 | 291 | 566 | 37 | 116 | 97 | 158 | 367 | 2375 |

| ID | Intersection Name | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | 612 | 417 | 57 | 665 | 40 | 81 | 71 | 6 | 225 | 181 | 258 | 2613 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | 0 | 264 | 33 | 168 | 278 | 27 | 33 | 10 | 3 | 78 | 25 | 243 | 1162 |

| ID | Intersection Name | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|
| | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | 79 | 827 | 806 | 99 | 1811 |

| ID | Intersection Name | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|
| | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | 476 | 431 | 806 | 1713 |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 10 2030 WO PM

Report File: C:\...\2030 No Dev PM.pdf
6/17/2024

## Turning Movement Volume: Detail

| ID | Intersection Name | Volume Type | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|
| | | | Thru | Thru | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 205 | 331 | 536 |
| | | Growth Factor | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 |
| | | **Future Total** | **211** | **341** | **552** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Final Base | 151 | 62 | 98 | 204 | 246 | 233 | 994 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **156** | **64** | **101** | **210** | **254** | **240** | **1025** |

| ID | Intersection Name | Volume Type | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|
| | | | Thru | Thru | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 355 | 483 | 838 |
| | | Growth Factor | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 |
| | | **Future Total** | **366** | **498** | **864** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Final Base | 61 | 235 | 357 | 248 | 534 | 1435 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **63** | **242** | **368** | **256** | **550** | **1479** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Final Base | 153 | 154 | 17 | 74 | 171 | 479 | 459 | 195 | 148 | 6 | 231 | 57 | 2144 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **158** | **159** | **18** | **76** | **176** | **494** | **473** | **201** | **153** | **6** | **238** | **59** | **2211** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Final Base | 77 | 556 | 215 | 21 | 429 | 207 | 138 | 180 | 318 | 125 | 30 | 34 | 2330 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **79** | **573** | **222** | **22** | **442** | **213** | **142** | **185** | **328** | **129** | **31** | **35** | **2401** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Final Base | 37 | 133 | 231 | 16 | 73 | 78 | 58 | 299 | 31 | 80 | 395 | 15 | 1446 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **38** | **137** | **238** | **16** | **75** | **80** | **60** | **308** | **32** | **82** | **407** | **15** | **1488** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Final Base | 69 | 644 | 8 | 282 | 549 | 36 | 113 | 94 | 153 | 356 | 2304 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **71** | **664** | **8** | **291** | **566** | **37** | **116** | **97** | **158** | **367** | **2375** |

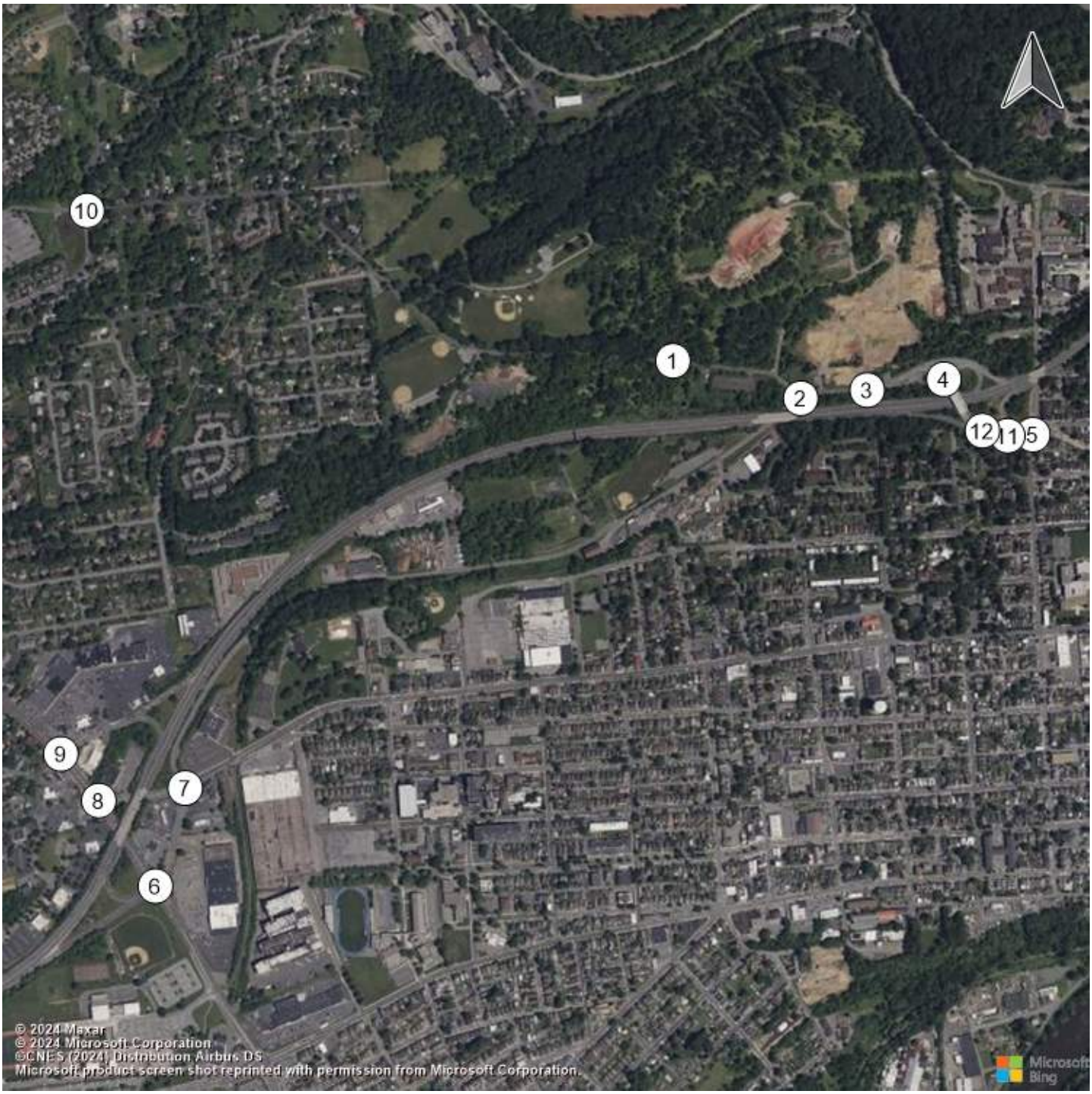
| ID | Intersection Name | Volume Type | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Final Base | 594 | 405 | 55 | 645 | 39 | 79 | 69 | 6 | 218 | 176 | 250 | 2536 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **612** | **417** | **57** | **665** | **40** | **81** | **71** | **6** | **225** | **181** | **258** | **2613** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Final Base | 0 | 256 | 32 | 163 | 270 | 26 | 32 | 10 | 3 | 76 | 24 | 236 | 1128 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **0** | **264** | **33** | **168** | **278** | **27** | **33** | **10** | **3** | **78** | **25** | **243** | **1162** |

| ID | Intersection Name | Volume Type | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Final Base | 77 | 803 | 782 | 96 | 1758 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **79** | **827** | **806** | **99** | **1811** |

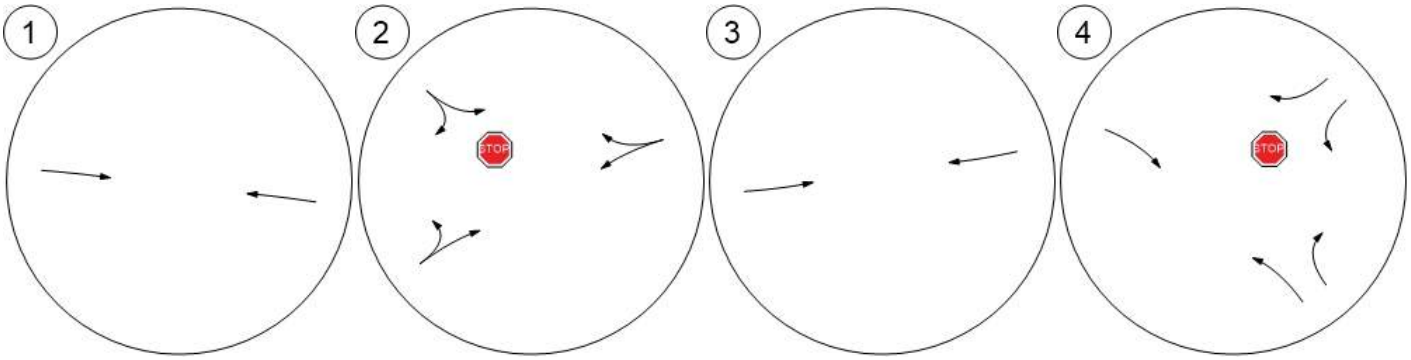
| ID | Intersection Name | Volume Type | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|---|
| | | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Final Base | 462 | 418 | 782 | 1662 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 0 |
| | | Other | 0 | 0 | 0 | 0 |
| | | **Future Total** | **476** | **431** | **806** | **1713** |

Report Figure 1: Study Intersections

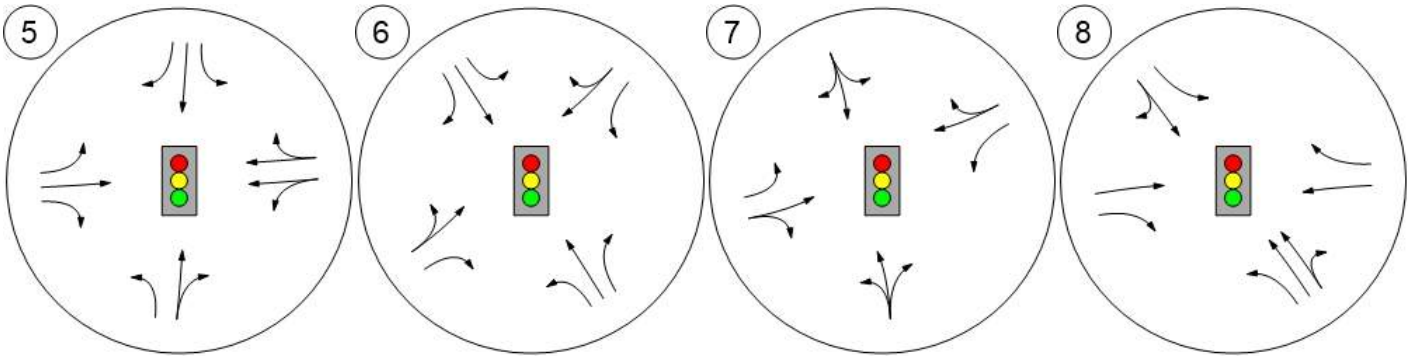


Report Figure 2: Lane Configuration and Traffic Control

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

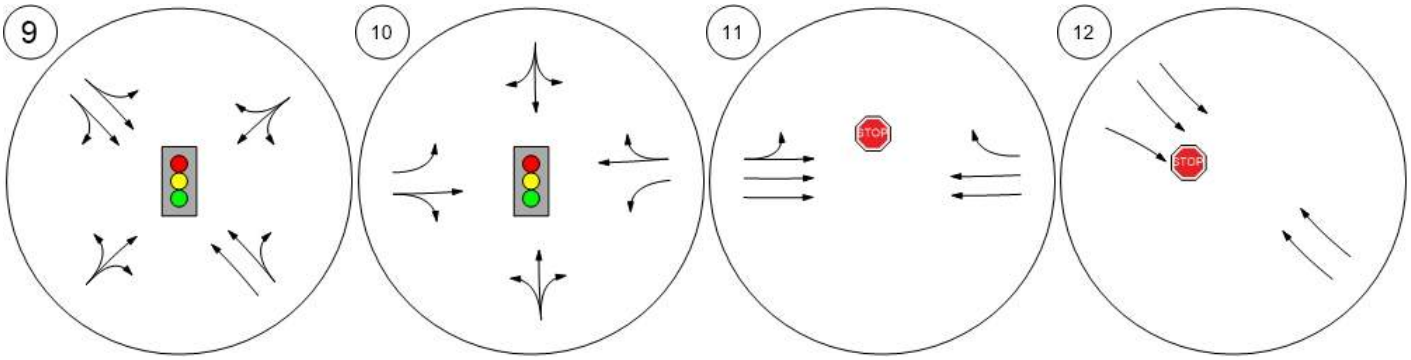



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024



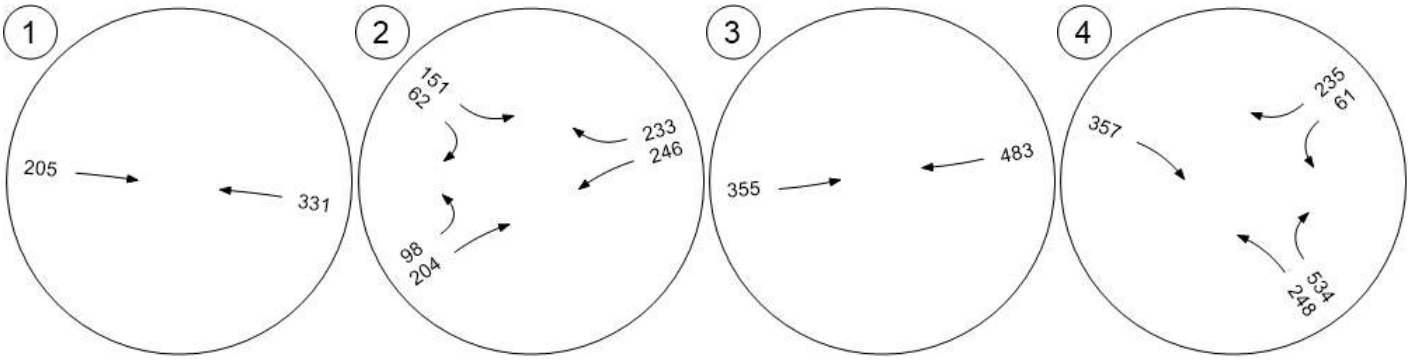
Report Figure 2: Lane Configuration and Traffic Control

Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) / Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

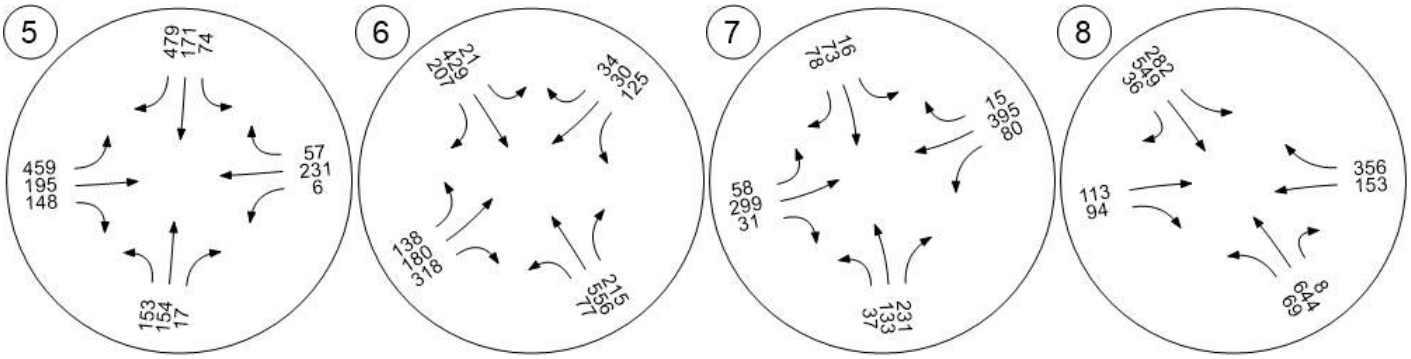


Report Figure 3a: Traffic Volume - Base Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

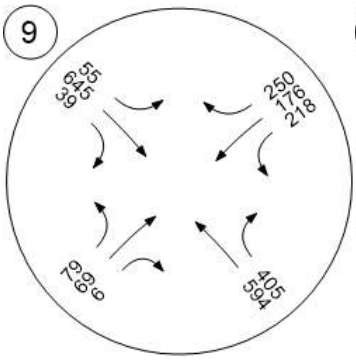



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024

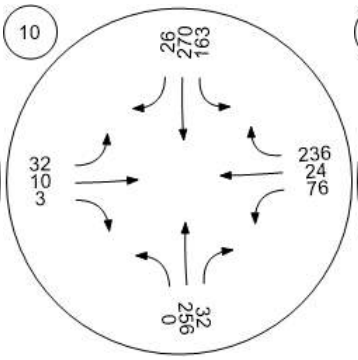


Report Figure 3a: Traffic Volume - Base Volume

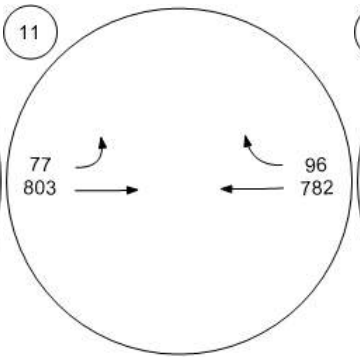
Nazareth Road (SR 0248) &



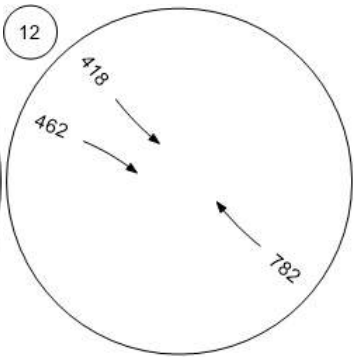

Hackett Avenue (SR 2017) /




Wood Avenue (SR 2017) & U

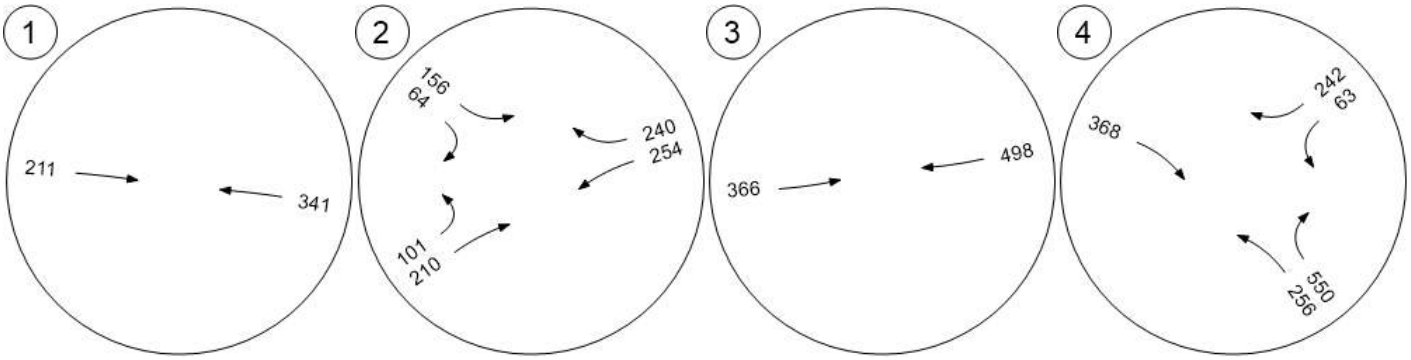



Wood Avenue (SR 2017) & U

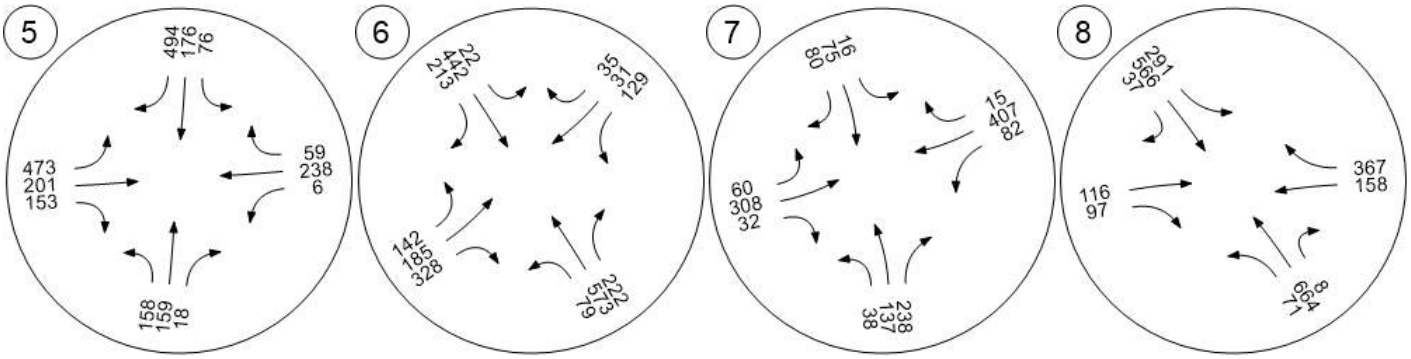


Report Figure 3c: Traffic Volume - Future Background Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

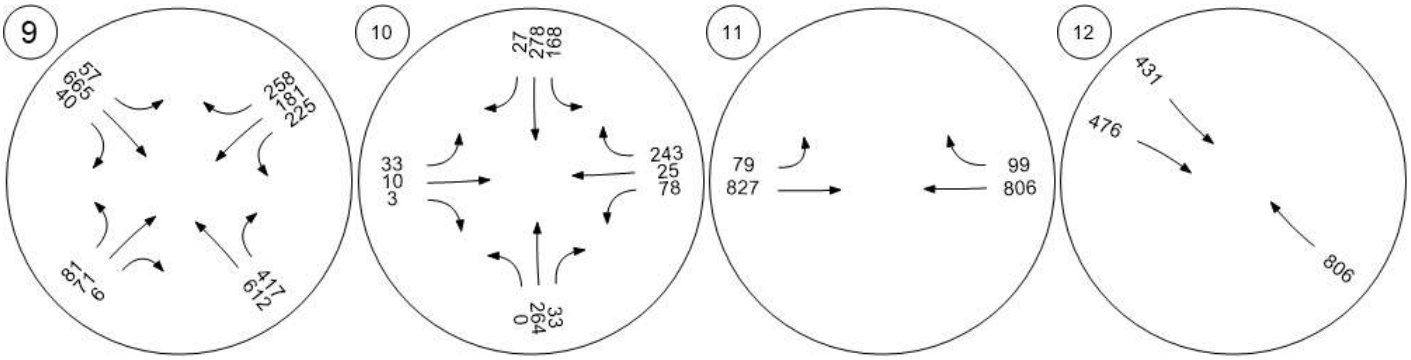



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024



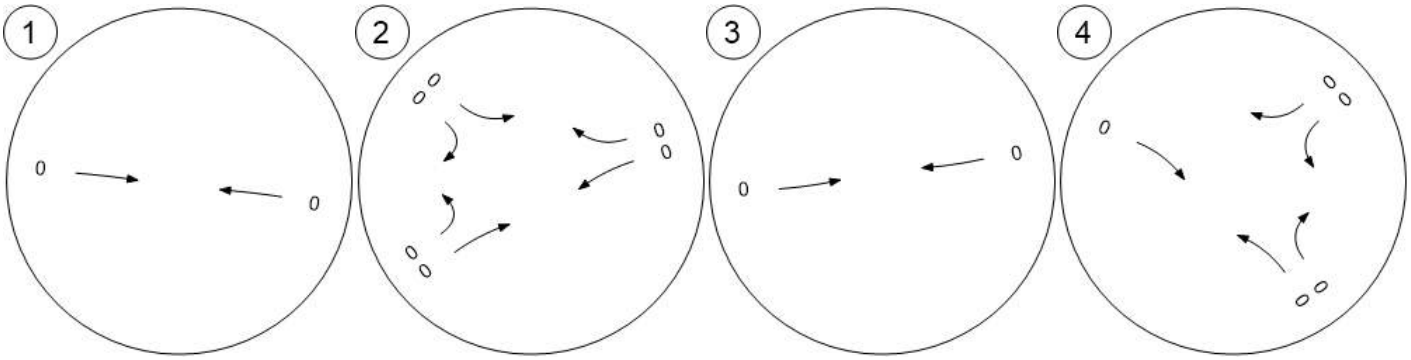
Report Figure 3c: Traffic Volume - Future Background Volume

Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) / Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

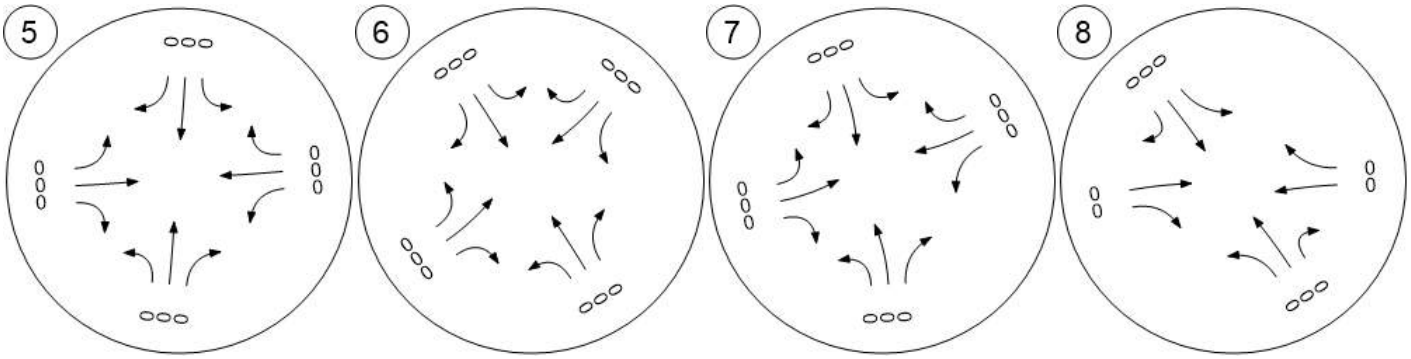


Report Figure 3d: Traffic Volume - Net New Site Trips

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

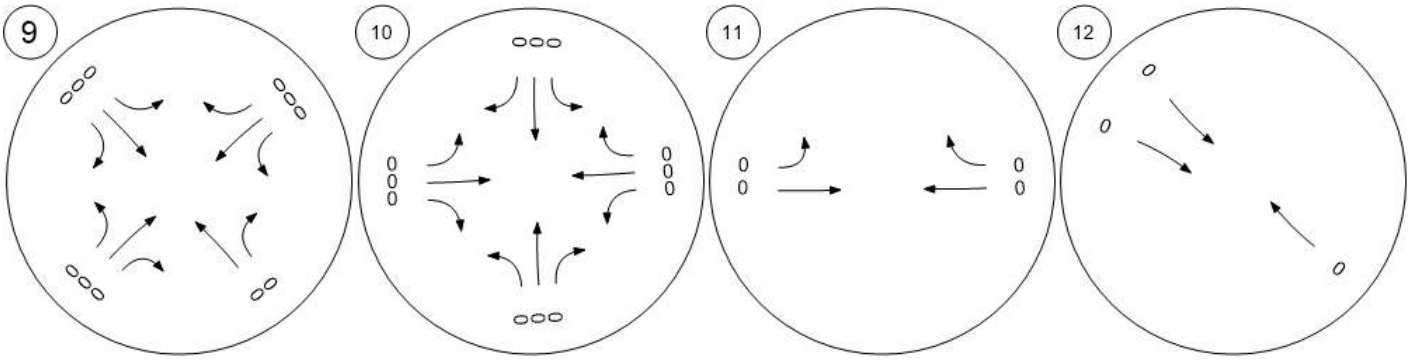



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024



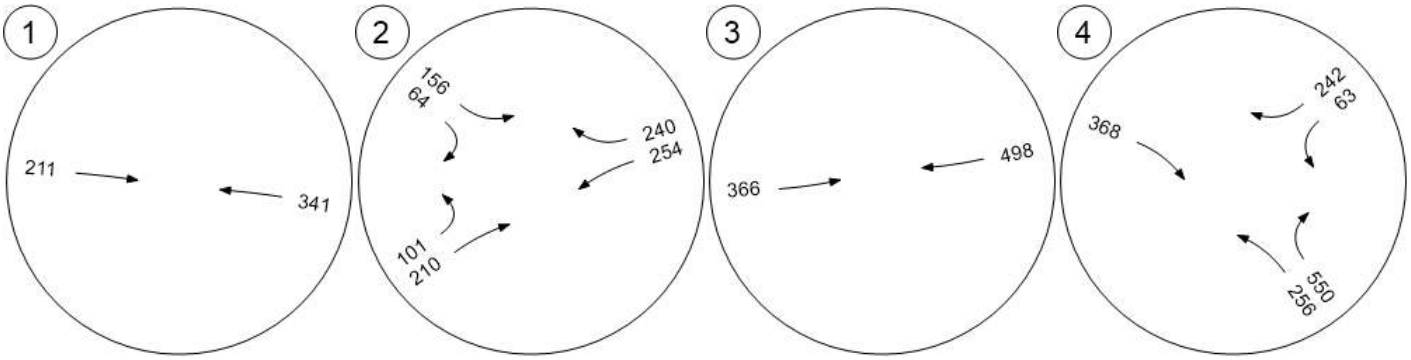
Report Figure 3d: Traffic Volume - Net New Site Trips

Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) / Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

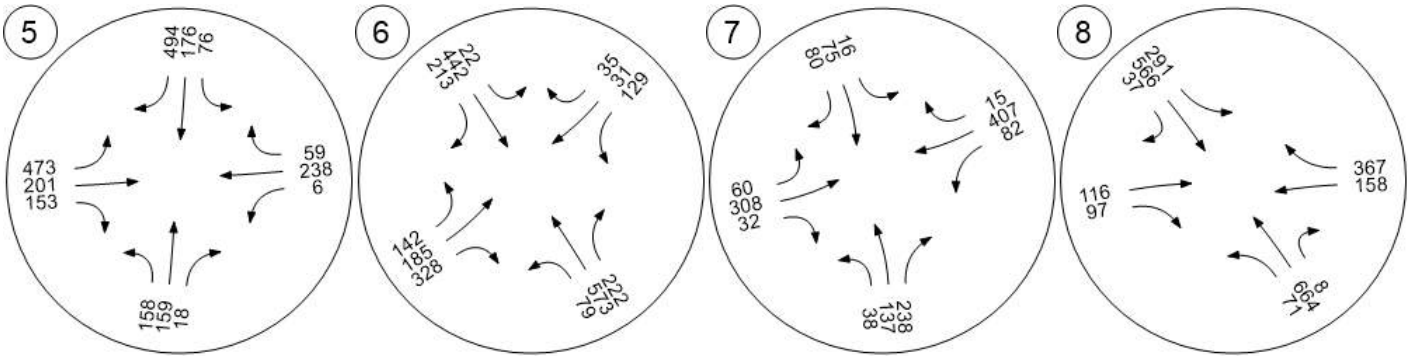


Report Figure 3f: Traffic Volume - Future Total Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

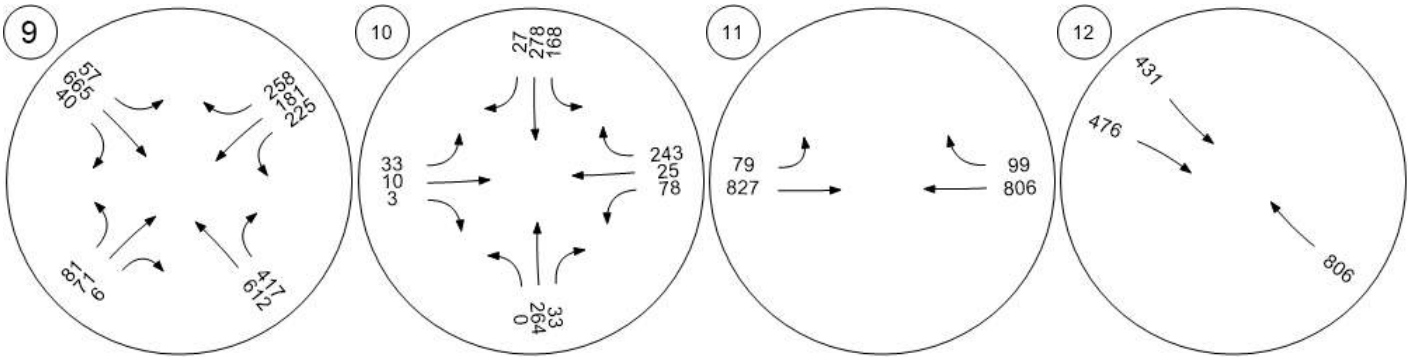



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024



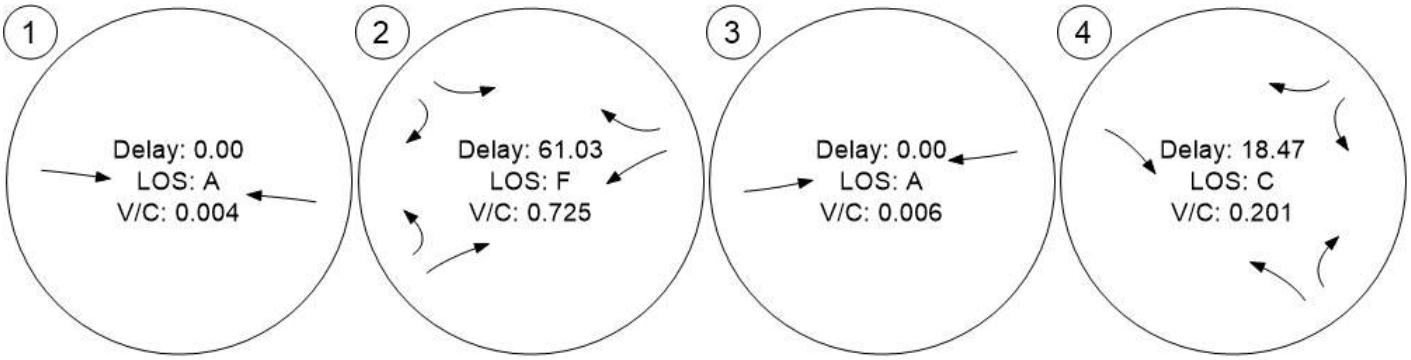
Report Figure 3f: Traffic Volume - Future Total Volume

Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) / Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

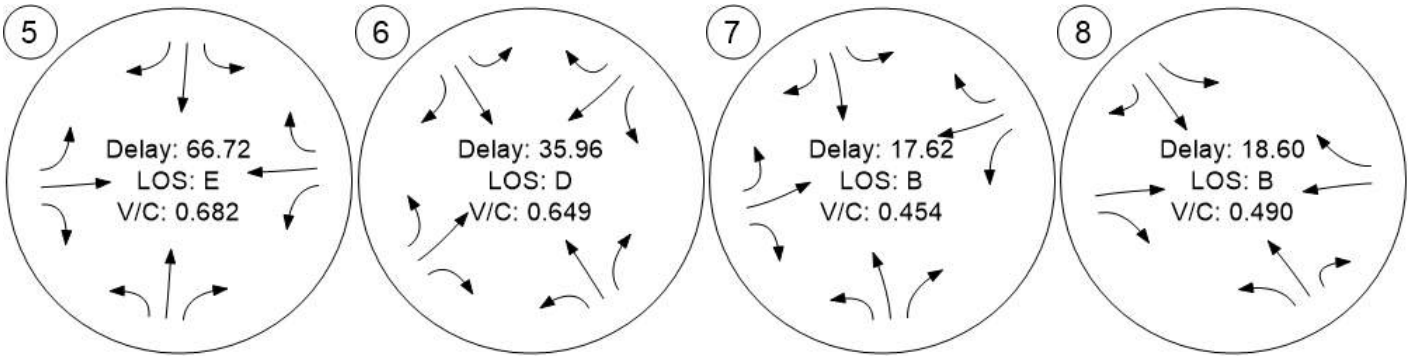


Report Figure 4: Traffic Conditions

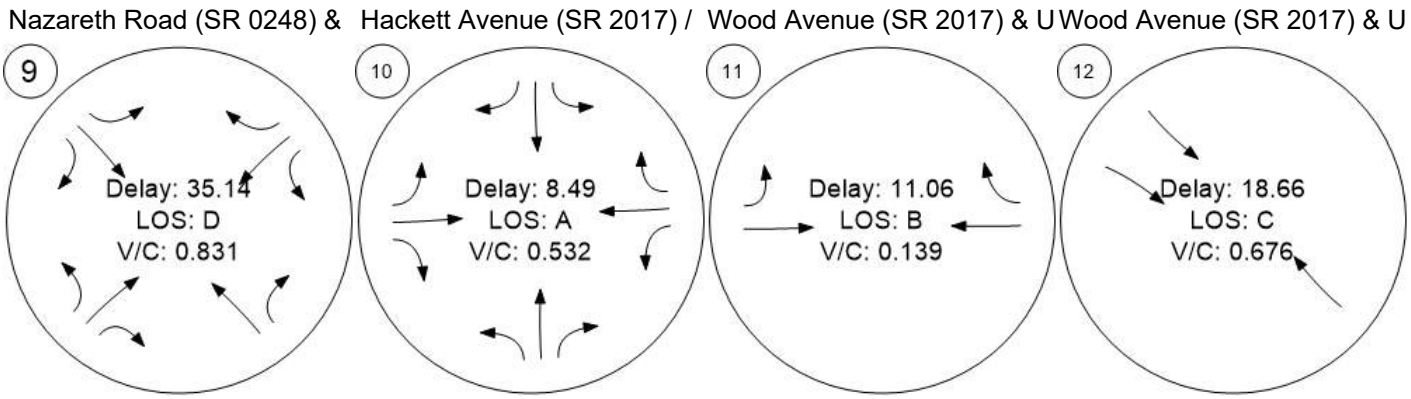
Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U




Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024



Report Figure 4: Traffic Conditions



# PTV Vistro 2024 Reports

*With Development Conditions (2030) – Weekday AM*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

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Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 11 2030 WD AM

Report File: C:\...\2030 WD AM.pdf
6/17/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | SB Left | 0.016 | 11.6 | B |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Two-way stop | HCM 7th Edition | SB Left | 0.503 | 30.4 | D |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | SB Left | 0.028 | 16.4 | C |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Two-way stop | HCM 7th Edition | SB Left | 0.054 | 13.2 | B |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Signalized | HCM 7th Edition | SB Right | 0.677 | 37.7 | D |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Signalized | HCM 7th Edition | SB Left | 0.632 | 31.1 | C |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Signalized | HCM 7th Edition | NB Thru | 0.385 | 19.7 | B |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Signalized | HCM 7th Edition | WB Thru | 0.407 | 16.2 | B |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Signalized | HCM 7th Edition | WB Left | 0.592 | 20.3 | C |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Signalized | HCM 7th Edition | EB Left | 0.422 | 6.9 | A |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Two-way stop | HCM 7th Edition | EB Left | 0.251 | 11.9 | B |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Two-way stop | HCM 7th Edition | NB Thru | 0.611 | 15.8 | C |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**

**Intersection 1: Hackett Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.016 |

**Intersection Setup**

| Name | Proposed Site Access | | Hackett Avenue (SR 2017) | | Hackett Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | 40.00 | | 40.00 | |
| Grade [%] | 0.03 | | 0.05 | | -0.05 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Proposed Site Access | | Hackett Avenue (SR 2017) | | Hackett Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 176 | 176 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 43.00 | 0.00 | 0.00 | 3.00 | 1.00 | 7.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 8 | 2 | 14 | 0 | 0 | 27 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 8 | 2 | 14 | 181 | 181 | 27 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 1 | 4 | 50 | 50 | 8 |
| Total Analysis Volume [veh/h] | 9 | 2 | 16 | 201 | 201 | 30 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 11.55 | 9.29 | 8.61 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.06 | 0.06 | 0.03 | 0.03 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.41 | 1.41 | 0.67 | 0.67 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.14 | | 0.64 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.57 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**

**Intersection 2: Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 30.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.503 |

**Intersection Setup**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.01 | | 0.01 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 128 | 42 | 61 | 153 | 235 | 115 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 6.00 | 6.00 | 5.00 | 7.00 | 2.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 3 | 5 | 18 | 51 | 11 | 9 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 135 | 48 | 81 | 209 | 253 | 128 |
| Peak Hour Factor | 0.9040 | 0.9040 | 0.9040 | 0.9040 | 0.9040 | 0.9040 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 13 | 22 | 58 | 70 | 35 |
| Total Analysis Volume [veh/h] | 149 | 53 | 90 | 231 | 280 | 142 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.50 | 0.08 | 0.11 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 30.43 | 23.48 | 9.38 | 0.00 | 0.00 | 0.00 |
| Movement LOS | D | C | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 3.47 | 3.47 | 0.16 | 0.16 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 86.81 | 86.81 | 3.94 | 3.94 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 28.60 | | 2.63 | | 0.00 | |
| Approach LOS | D | | A | | A | |
| d_I, Intersection Delay [s/veh] | 7.01 | | | | | |
| Intersection LOS | D | | | | | |

**Intersection Level Of Service Report**
**Intersection 3: Wood Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 16.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.028 |

**Intersection Setup**

| Name | Proposed Site Access | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Proposed Site Access | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 281 | 298 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 43.00 | 27.00 | 6.00 | 3.00 | 2.00 | 17.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 8 | 11 | 51 | 3 | 9 | 29 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 8 | 11 | 51 | 293 | 316 | 29 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 3 | 14 | 81 | 88 | 8 |
| Total Analysis Volume [veh/h] | 9 | 12 | 57 | 326 | 351 | 32 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.03 | 0.02 | 0.06 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 16.37 | 10.53 | 9.13 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.14 | 0.14 | 0.10 | 0.10 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 3.50 | 3.50 | 2.45 | 2.45 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 13.03 | | 1.36 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.01 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 4: Wood Avenue (SR 2017) & US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 13.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.054 |

**Intersection Setup**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | |  | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.05 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 23 | 89 | 0 | 300 | 209 | 659 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 7.00 | 2.00 | 5.00 | 2.00 | 1.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 16 | 0 | 11 | 22 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 24 | 108 | 0 | 320 | 237 | 679 |
| Peak Hour Factor | 0.9760 | 0.9760 | 1.0000 | 0.9760 | 0.9760 | 0.9760 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 28 | 0 | 82 | 61 | 174 |
| Total Analysis Volume [veh/h] | 25 | 111 | 0 | 328 | 243 | 696 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.05 | 0.14 | 0.00 | 0.00 | 0.00 | 0.01 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 13.16 | 10.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.17 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 4.24 | 11.76 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.67 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.03 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Wood Avenue (SR 2017) & N. 13th Street (SR 2019)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 37.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.677 |

**Intersection Setup**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 12.00 | 11.00 | 12.00 | 15.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 20.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 105.00 | 100.00 | 285.00 | 115.00 | 100.00 | 100.00 | 100.00 | 100.00 | 75.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.09 | | | 0.10 | | | -0.05 | | | -0.02 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 152 | 125 | 5 | 57 | 137 | 615 | 363 | 163 | 123 | 6 | 226 | 65 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 3.00 | 0.00 | 3.00 | 7.00 | 3.00 | 4.00 | 2.00 | 1.00 | 0.00 | 1.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 6 | 0 | 0 | 0 | 0 | 12 | 2 | 1 | 1 | 0 | 4 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 340 | 0 | 0 | 72 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 163 | 129 | 4 | 59 | 141 | 306 | 376 | 169 | 56 | 6 | 237 | 67 |
| Peak Hour Factor | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 44 | 34 | 1 | 16 | 38 | 82 | 100 | 45 | 15 | 2 | 63 | 18 |
| Total Analysis Volume [veh/h] | 174 | 138 | 4 | 63 | 151 | 327 | 402 | 181 | 60 | 6 | 253 | 72 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 7 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 11 | 27 | 0 | 11 | 27 | 0 | 18 | 52 | 0 | 10 | 28 | 0 |
| Amber [s] | 4.5 | 4.5 | 0.0 | 4.5 | 4.5 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 19 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 3.5 | 3.5 | 0.0 | 3.5 | 3.5 | 0.0 | 2.5 | 2.5 | 0.0 | 4.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | | No | |
| Maximum Recall | No | Yes | | No | Yes | | No | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | C | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 | 0.00 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 12 | 33 | 7 | 28 | 28 | 38 | 38 | 38 | 14 | 14 |
| g / C, Green / Cycle | 0.13 | 0.35 | 0.07 | 0.30 | 0.30 | 0.40 | 0.40 | 0.40 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.08 | 0.05 | 0.11 | 0.27 | 0.29 | 0.10 | 0.04 | 0.10 | 0.10 |
| s, saturation flow rate [veh/h] | 1686 | 1747 | 1319 | 1328 | 1224 | 1392 | 1771 | 1517 | 1676 | 1567 |
| c, Capacity [veh/h] | 214 | 614 | 94 | 393 | 362 | 580 | 705 | 604 | 282 | 227 |
| d1, Uniform Delay [s] | 40.26 | 21.69 | 42.89 | 26.50 | 32.04 | 24.08 | 19.11 | 17.86 | 38.32 | 38.64 |
| k, delay calibration | 0.26 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 16.31 | 0.88 | 8.02 | 2.84 | 28.20 | 1.57 | 0.19 | 0.07 | 2.05 | 4.16 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.81 | 0.23 | 0.67 | 0.38 | 0.90 | 0.69 | 0.26 | 0.10 | 0.60 | 0.71 |
| d, Delay for Lane Group [s/veh] | 56.57 | 22.57 | 50.91 | 29.33 | 60.25 | 25.65 | 19.30 | 17.93 | 40.37 | 42.80 |
| Lane Group LOS | E | C | D | C | E | C | B | B | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 4.82 | 2.30 | 1.62 | 2.93 | 9.70 | 7.15 | 2.60 | 0.81 | 3.78 | 3.76 |
| 50th-Percentile Queue Length [ft/ln] | 120.39 | 57.52 | 40.46 | 73.27 | 242.53 | 178.74 | 65.06 | 20.17 | 94.57 | 94.05 |
| 95th-Percentile Queue Length [veh/ln] | 8.41 | 4.14 | 2.91 | 5.28 | 14.81 | 11.53 | 4.68 | 1.45 | 6.81 | 6.77 |
| 95th-Percentile Queue Length [ft/ln] | 210.36 | 103.54 | 72.83 | 131.88 | 370.23 | 288.37 | 117.10 | 36.30 | 170.23 | 169.29 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 56.57 | 22.57 | 22.57 | 50.91 | 29.33 | 60.25 | 25.65 | 19.30 | 17.93 | 40.37 | 41.23 | 42.80 |
| Movement LOS | E | C | C | D | C | E | C | B | B | D | D | D |
| d_A, Approach Delay [s/veh] | 41.29 | | | 50.53 | | | 23.14 | | | 41.56 | | |
| Approach LOS | D | | | D | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 37.70 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.677 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.83 | 8.02 | 6.63 | 15.90 | 34.42 | 13.68 | 6.16 | 2.04 | 16.76 | 16.04 |
| Stops [stops/h] | 183.27 | 87.57 | 61.60 | 111.54 | 369.21 | 272.11 | 99.04 | 30.70 | 143.97 | 143.18 |
| Fuel consumption [US gal/h] | 3.76 | 1.62 | 1.37 | 2.35 | 8.10 | 4.67 | 1.69 | 0.53 | 3.11 | 3.10 |
| CO [g/h] | 262.53 | 112.99 | 95.67 | 163.99 | 566.02 | 326.18 | 118.17 | 36.89 | 217.45 | 216.55 |
| NOx [g/h] | 51.08 | 21.98 | 18.61 | 31.91 | 110.13 | 63.46 | 22.99 | 7.18 | 42.31 | 42.13 |
| VOC [g/h] | 60.84 | 26.19 | 22.17 | 38.01 | 131.18 | 75.59 | 27.39 | 8.55 | 50.40 | 50.19 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.93 | 36.93 | 36.93 | 36.93 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.182 | 3.081 | 2.766 | 2.226 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 571 | 571 | 1099 | 592 |
| d_b, Bicycle Delay [s] | 24.15 | 24.15 | 9.59 | 23.44 |
| l_b,int, Bicycle LOS Score for Intersection | 2.083 | 3.013 | 2.739 | 1.833 |
| Bicycle LOS | B | C | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 6: S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 31.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.632 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 | 12.00 | 13.00 | 12.00 | 14.00 | 11.00 | 13.00 | 23.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 300.00 | 100.00 | 420.00 | 265.00 | 100.00 | 280.00 | 100.00 | 100.00 | 100.00 | 400.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 350.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 40.00 | | | 35.00 | | |
| Grade [%] | -0.06 | | | 0.05 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 96 | 503 | 144 | 7 | 409 | 183 | 78 | 117 | 301 | 179 | 15 | 22 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 7.00 | 14.00 | 0.00 | 6.00 | 1.00 | 3.00 | 7.00 | 15.00 | 7.00 | 0.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 25 | 0 | 3 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 68 | 0 | 0 | 95 | 0 | 0 | 225 | 0 | 0 | 12 |
| Total Hourly Volume [veh/h] | 99 | 518 | 96 | 7 | 421 | 94 | 80 | 146 | 85 | 187 | 15 | 11 |
| Peak Hour Factor | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 27 | 141 | 26 | 2 | 115 | 26 | 22 | 40 | 23 | 51 | 4 | 3 |
| Total Analysis Volume [veh/h] | 108 | 564 | 104 | 8 | 458 | 102 | 87 | 159 | 92 | 203 | 16 | 12 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 88.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 13 | 36 | 0 | 7 | 33 | 0 | 0 | 20 | 0 | 17 | 36 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 6 | 0 | 0 | 6 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 50.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 35.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 19 | 47 | 0 | 13 | 41 | 0 | 0 | 26 | 0 | 14 | 40 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 0 | 10 | 0 | 7 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | | No | | No | No | |
| Maximum Recall | No | Yes | | No | Yes | | | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 |
| g_i, Effective Green Time [s] | 9 | 48 | 48 | 2 | 41 | 41 | 20 | 20 | 34 | 34 |
| g / C, Green / Cycle | 0.09 | 0.48 | 0.48 | 0.02 | 0.41 | 0.41 | 0.20 | 0.20 | 0.34 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.33 | 0.08 | 0.01 | 0.30 | 0.07 | 0.17 | 0.07 | 0.16 | 0.02 |
| s, saturation flow rate [veh/h] | 1686 | 1700 | 1361 | 1540 | 1532 | 1363 | 1441 | 1405 | 1254 | 1728 |
| c, Capacity [veh/h] | 160 | 820 | 657 | 40 | 633 | 563 | 340 | 284 | 365 | 591 |
| d1, Uniform Delay [s] | 43.78 | 20.05 | 14.51 | 47.71 | 24.55 | 18.61 | 38.98 | 34.07 | 27.20 | 22.01 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.32 | 0.11 | 0.38 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.92 | 4.68 | 0.52 | 2.47 | 7.04 | 0.71 | 8.43 | 0.66 | 4.65 | 0.03 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.68 | 0.69 | 0.16 | 0.20 | 0.72 | 0.18 | 0.72 | 0.32 | 0.56 | 0.05 |
| d, Delay for Lane Group [s/veh] | 48.69 | 24.74 | 15.02 | 50.18 | 31.59 | 19.31 | 47.41 | 34.73 | 31.85 | 22.04 |
| Lane Group LOS | D | C | B | D | C | B | D | C | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.76 | 10.57 | 1.36 | 0.22 | 9.85 | 1.56 | 6.41 | 1.90 | 4.06 | 0.44 |
| 50th-Percentile Queue Length [ft/ln] | 69.07 | 264.36 | 34.06 | 5.50 | 246.37 | 39.12 | 160.26 | 47.59 | 101.39 | 10.91 |
| 95th-Percentile Queue Length [veh/ln] | 4.97 | 15.91 | 2.45 | 0.40 | 15.00 | 2.82 | 10.56 | 3.43 | 7.30 | 0.79 |
| 95th-Percentile Queue Length [ft/ln] | 124.32 | 397.68 | 61.30 | 9.90 | 375.08 | 70.41 | 264.06 | 85.66 | 182.49 | 19.64 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 48.69 | 24.74 | 15.02 | 50.18 | 31.59 | 19.31 | 47.41 | 47.41 | 34.73 | 31.85 | 22.04 | 22.04 |
| Movement LOS | D | C | B | D | C | B | D | D | C | C | C | C |
| d_A, Approach Delay [s/veh] | 26.77 | | | 29.64 | | | 43.96 | | | 30.66 | | |
| Approach LOS | C | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 31.13 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.632 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 10.34 | 54.02 | 9.96 | 1.10 | 63.17 | 14.07 | 18.26 | 6.83 | 28.78 | 3.97 |
| Stops [stops/h] | 99.45 | 380.67 | 49.04 | 7.92 | 354.78 | 56.33 | 230.77 | 68.53 | 146.00 | 15.71 |
| Fuel consumption [US gal/h] | 2.21 | 7.76 | 1.07 | 0.18 | 8.02 | 1.36 | 5.29 | 1.57 | 3.51 | 0.40 |
| CO [g/h] | 154.64 | 542.50 | 74.55 | 12.81 | 560.59 | 95.11 | 370.07 | 109.60 | 245.38 | 27.61 |
| NOx [g/h] | 30.09 | 105.55 | 14.50 | 2.49 | 109.07 | 18.51 | 72.00 | 21.32 | 47.74 | 5.37 |
| VOC [g/h] | 35.84 | 125.73 | 17.28 | 2.97 | 129.92 | 22.04 | 85.77 | 25.40 | 56.87 | 6.40 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 10.0 | 10.0 | 8.0 | 8.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 40.50 | 40.50 | 42.32 | 42.32 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.831 | 2.883 | 2.647 | 2.249 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 820 | 700 | 400 | 680 |
| d_b, Bicycle Delay [s] | 17.41 | 21.13 | 32.00 | 21.78 |
| l_b,int, Bicycle LOS Score for Intersection | 2.952 | 2.654 | 2.489 | 1.961 |
| Bicycle LOS | C | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 7: Northampton Street (SR 0248) & Wood Avenue (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.385 |

**Intersection Setup**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 17.00 | 12.00 | 22.00 | 10.00 | 10.00 | 10.00 | 11.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.01 | | | -0.03 | | | -0.05 | | | 0.06 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | No | | | Yes | | |

**Volumes**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 22 | 90 | 186 | 13 | 124 | 50 | 51 | 204 | 17 | 49 | 288 | 11 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 9.00 | 6.00 | 7.00 | 2.00 | 17.00 | 4.00 | 4.00 | 0.00 | 6.00 | 3.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 41 | 0 | 1 | 3 | 12 | 20 | 0 | 0 | 0 | 0 | 8 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 132 | 0 | 0 | 10 | 0 | 0 | 1 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 23 | 134 | 60 | 14 | 131 | 54 | 73 | 210 | 17 | 50 | 297 | 19 |
| Peak Hour Factor | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 | 0.8940 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 37 | 17 | 4 | 37 | 15 | 20 | 59 | 5 | 14 | 83 | 5 |
| Total Analysis Volume [veh/h] | 26 | 150 | 67 | 16 | 147 | 60 | 82 | 235 | 19 | 56 | 332 | 21 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 16.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 36 | 0 | 0 | 36 | 0 | 0 | 52 | 0 | 0 | 52 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 12 | 0 | 0 | 12 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 0 | 42 | 0 | 0 | 58 | 0 | 0 | 58 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | Yes | | | Yes | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 19 | 19 | 71 | 71 | 71 | 71 |
| g / C, Green / Cycle | 0.19 | 0.19 | 0.71 | 0.71 | 0.71 | 0.71 |
| (v / s)_i Volume / Saturation Flow Rate | 0.15 | 0.13 | 0.08 | 0.15 | 0.06 | 0.23 |
| s, saturation flow rate [veh/h] | 1575 | 1675 | 1011 | 1720 | 957 | 1533 |
| c, Capacity [veh/h] | 335 | 353 | 661 | 1225 | 666 | 1092 |
| d1, Uniform Delay [s] | 38.89 | 38.00 | 9.49 | 4.86 | 7.63 | 5.38 |
| k, delay calibration | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.97 | 1.87 | 0.39 | 0.38 | 0.25 | 0.79 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.72 | 0.63 | 0.12 | 0.21 | 0.08 | 0.32 |
| d, Delay for Lane Group [s/veh] | 41.87 | 39.87 | 9.88 | 5.24 | 7.87 | 6.16 |
| Lane Group LOS | D | D | A | A | A | A |
| Critical Lane Group | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 5.99 | 5.30 | 0.87 | 1.72 | 0.51 | 2.68 |
| 50th-Percentile Queue Length [ft/ln] | 149.71 | 132.51 | 21.70 | 42.94 | 12.83 | 67.00 |
| 95th-Percentile Queue Length [veh/ln] | 10.00 | 9.08 | 1.56 | 3.09 | 0.92 | 4.82 |
| 95th-Percentile Queue Length [ft/ln] | 250.04 | 226.90 | 39.06 | 77.28 | 23.10 | 120.61 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 41.87 | 41.87 | 41.87 | 39.87 | 39.87 | 39.87 | 9.88 | 5.24 | 5.24 | 7.87 | 6.16 | 6.16 |
| Movement LOS | D | D | D | D | D | D | A | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 41.87 | | | 39.87 | | | 6.37 | | | 6.40 | | |
| Approach LOS | D | | | D | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 19.67 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.385 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 34.45 | 237.80 | 9.68 | 29.99 | 15.14 | 95.45 |
| Stops [stops/h] | 215.58 | 190.82 | 31.25 | 61.83 | 18.48 | 96.49 |
| Fuel consumption [US gal/h] | 4.45 | 13.23 | 0.72 | 1.86 | 0.84 | 5.11 |
| CO [g/h] | 310.80 | 925.12 | 50.34 | 129.79 | 58.83 | 356.88 |
| NOx [g/h] | 60.47 | 179.99 | 9.79 | 25.25 | 11.45 | 69.43 |
| VOC [g/h] | 72.03 | 214.41 | 11.67 | 30.08 | 13.63 | 82.71 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 16.0 | 16.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.28 | 35.28 | 0.00 | 39.61 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.225 | 2.043 | 0.000 | 2.200 |
| Crosswalk LOS | B | B | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 720 | 720 | 1040 | 1040 |
| d_b, Bicycle Delay [s] | 20.48 | 20.48 | 11.52 | 11.52 |
| l_b,int, Bicycle LOS Score for Intersection | 2.178 | 1.944 | 2.116 | 2.234 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 8: Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 16.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.407 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 13.00 | 12.00 | 20.00 | 12.00 | 12.00 | 11.00 | 13.00 | 12.00 | 12.00 | 13.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 40.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.02 | | | -0.02 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 86 | 530 | 1 | 178 | 437 | 72 | 0 | 85 | 140 | 0 | 121 | 244 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 7.00 | 0.00 | 3.00 | 3.00 | 5.00 | 2.00 | 8.00 | 1.00 | 2.00 | 6.00 | 6.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 4 | 0 | 0 | 2 | 10 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 55 | 0 | 0 | 89 |
| Total Hourly Volume [veh/h] | 89 | 546 | 1 | 199 | 450 | 45 | 0 | 92 | 89 | 0 | 127 | 172 |
| Peak Hour Factor | 0.9640 | 0.9640 | 0.9640 | 0.9640 | 0.9640 | 0.9640 | 1.0000 | 0.9640 | 0.9640 | 1.0000 | 0.9640 | 0.9640 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 23 | 142 | 0 | 52 | 117 | 12 | 0 | 24 | 23 | 0 | 33 | 45 |
| Total Analysis Volume [veh/h] | 92 | 566 | 1 | 206 | 467 | 47 | 0 | 95 | 92 | 0 | 132 | 178 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 2.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Overlap | Permiss | Permiss | Overlap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 5 | 0 | 8 | 1 |
| Auxiliary Signal Groups | | | | | | | | | 4,5 | | | 1,8 |
| Maximum Green [s] | 13 | 45 | 0 | 13 | 45 | 0 | 0 | 24 | 13 | 0 | 24 | 13 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Walk [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 40.0 | 40.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 14 | 43 | 0 | 16 | 45 | 0 | 0 | 41 | 14 | 0 | 41 | 16 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 0 | 10 | 7 | 0 | 10 | 7 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 |
| Minimum Recall | No | No | | No | No | | | No | No | | No | No |
| Maximum Recall | No | Yes | | No | Yes | | | No | No | | No | No |
| Pedestrian Recall | No | No | | No | No | | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | R | C | R |
|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| g_i, Effective Green Time [s] | 76 | 60 | 60 | 76 | 63 | 14 | 27 | 14 | 30 |
| g / C, Green / Cycle | 0.76 | 0.60 | 0.60 | 0.76 | 0.63 | 0.14 | 0.27 | 0.14 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.17 | 0.17 | 0.21 | 0.29 | 0.06 | 0.06 | 0.08 | 0.12 |
| s, saturation flow rate [veh/h] | 1001 | 1702 | 1700 | 986 | 1799 | 1688 | 1579 | 1716 | 1517 |
| c, Capacity [veh/h] | 728 | 1018 | 1017 | 784 | 1137 | 240 | 407 | 244 | 443 |
| d1, Uniform Delay [s] | 4.84 | 9.69 | 9.69 | 4.18 | 9.47 | 39.00 | 29.25 | 39.87 | 28.40 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.33 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.36 | 0.68 | 0.68 | 0.82 | 1.30 | 1.06 | 0.28 | 1.87 | 1.79 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.13 | 0.28 | 0.28 | 0.26 | 0.45 | 0.40 | 0.23 | 0.54 | 0.40 |
| d, Delay for Lane Group [s/veh] | 5.19 | 10.37 | 10.37 | 5.00 | 10.77 | 40.06 | 29.53 | 41.74 | 30.19 |
| Lane Group LOS | A | B | B | A | B | D | C | D | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.45 | 2.93 | 2.92 | 1.03 | 5.34 | 2.16 | 1.74 | 3.09 | 3.56 |
| 50th-Percentile Queue Length [ft/ln] | 11.21 | 73.14 | 73.10 | 25.81 | 133.61 | 53.98 | 43.60 | 77.33 | 89.10 |
| 95th-Percentile Queue Length [veh/ln] | 0.81 | 5.27 | 5.26 | 1.86 | 9.14 | 3.89 | 3.14 | 5.57 | 6.41 |
| 95th-Percentile Queue Length [ft/ln] | 20.18 | 131.65 | 131.59 | 46.46 | 228.40 | 97.16 | 78.48 | 139.20 | 160.37 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 5.19 | 10.37 | 10.37 | 5.00 | 10.77 | 10.77 | 0.00 | 40.06 | 29.53 | 0.00 | 41.74 | 30.19 |
| Movement LOS | A | B | B | A | B | B | | D | C | | D | C |
| d_A, Approach Delay [s/veh] | 9.65 | | | 9.12 | | | 34.88 | | | 35.11 | | |
| Approach LOS | A | | | A | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 16.17 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.407 | | | | | | | | | | | |

**Emissions**

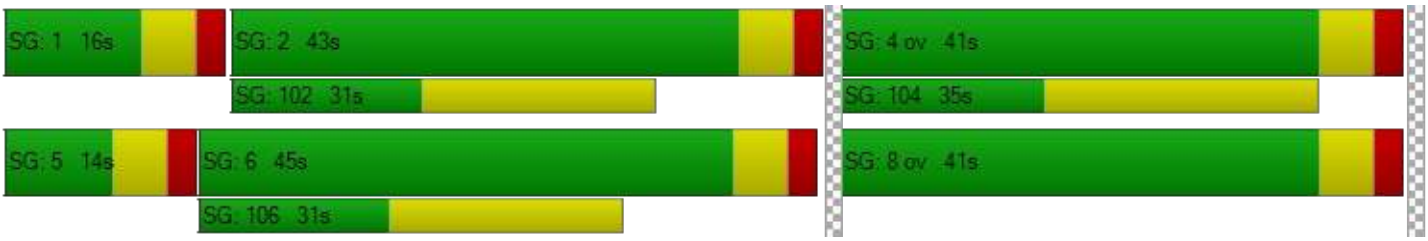
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 12.69 | 39.11 | 39.09 | 16.72 | 41.73 | 6.66 | 6.45 | 15.59 | 21.02 |
| Stops [stops/h] | 16.14 | 105.32 | 105.27 | 37.17 | 192.40 | 77.73 | 62.78 | 111.36 | 128.30 |
| Fuel consumption [US gal/h] | 0.70 | 2.88 | 2.88 | 1.17 | 4.51 | 1.61 | 1.27 | 2.55 | 2.86 |
| CO [g/h] | 49.09 | 201.43 | 201.32 | 82.04 | 315.32 | 112.75 | 88.84 | 178.44 | 199.89 |
| NOx [g/h] | 9.55 | 39.19 | 39.17 | 15.96 | 61.35 | 21.94 | 17.28 | 34.72 | 38.89 |
| VOC [g/h] | 11.38 | 46.68 | 46.66 | 19.01 | 73.08 | 26.13 | 20.59 | 41.35 | 46.33 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 19.0 | 0.0 | 18.0 | 18.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.81 | 0.00 | 33.62 | 33.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.470 | 0.000 | 2.308 | 2.638 |
| Crosswalk LOS | B | F | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 740 | 780 | 700 | 700 |
| d_b, Bicycle Delay [s] | 19.85 | 18.61 | 21.13 | 21.13 |
| l_b,int, Bicycle LOS Score for Intersection | 2.103 | 2.795 | 1.959 | 2.218 |
| Bicycle LOS | B | C | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 9: Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 20.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.592 |

**Intersection Setup**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 13.00 | 13.00 | 12.00 | 12.00 | 12.00 | 18.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 25.00 | | | 35.00 | | |
| Grade [%] | 0.04 | | | -0.04 | | | -0.01 | | | 0.01 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | No | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 392 | 404 | 71 | 521 | 34 | 48 | 122 | 1 | 118 | 80 | 112 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 7.00 | 10.00 | 3.00 | 4.00 | 0.00 | 2.00 | 1.00 | 0.00 | 2.00 | 1.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 2 | 8 | 0 | 13 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 140 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 49 |
| Total Hourly Volume [veh/h] | 0 | 406 | 284 | 73 | 550 | 33 | 49 | 126 | 4 | 122 | 82 | 66 |
| Peak Hour Factor | 1.0000 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 | 0.9180 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 111 | 77 | 20 | 150 | 9 | 13 | 34 | 1 | 33 | 22 | 18 |
| Total Analysis Volume [veh/h] | 0 | 442 | 309 | 80 | 599 | 36 | 53 | 137 | 4 | 133 | 89 | 72 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 40 | 0 | 7 | 53 | 0 | 0 | 35 | 0 | 0 | 35 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 165.0 | 165.0 | 0.0 | 0.0 | -5.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 6.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 49 | 0 | 13 | 62 | 0 | 0 | 38 | 0 | 0 | 38 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | Yes | No | | | No | | | No | |
| Maximum Recall | | Yes | | No | Yes | | | No | | | No | |
| Pedestrian Recall | | No | | No | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | C | C | C | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 2.50 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 51 | 51 | 64 | 64 | 26 | 26 |
| g / C, Green / Cycle | 0.51 | 0.51 | 0.64 | 0.64 | 0.26 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.24 | 0.27 | 0.29 | 0.24 | 0.13 | 0.22 |
| s, saturation flow rate [veh/h] | 1570 | 1371 | 1184 | 1559 | 1464 | 1318 |
| c, Capacity [veh/h] | 803 | 701 | 725 | 1000 | 424 | 393 |
| d1, Uniform Delay [s] | 15.68 | 16.43 | 9.37 | 8.41 | 31.07 | 36.06 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.19 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.95 | 2.92 | 2.25 | 1.05 | 0.77 | 4.92 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.47 | 0.54 | 0.48 | 0.37 | 0.46 | 0.75 |
| d, Delay for Lane Group [s/veh] | 17.64 | 19.35 | 11.63 | 9.46 | 31.84 | 40.98 |
| Lane Group LOS | B | B | B | A | C | D |
| Critical Lane Group | No | Yes | Yes | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 5.50 | 5.87 | 3.46 | 3.50 | 4.04 | 7.23 |
| 50th-Percentile Queue Length [ft/ln] | 137.47 | 146.85 | 86.47 | 87.41 | 101.03 | 180.70 |
| 95th-Percentile Queue Length [veh/ln] | 9.34 | 9.85 | 6.23 | 6.29 | 7.27 | 11.64 |
| 95th-Percentile Queue Length [ft/ln] | 233.61 | 246.22 | 155.64 | 157.34 | 181.85 | 290.93 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 17.89 | 19.35 | 11.63 | 10.42 | 9.46 | 31.84 | 31.84 | 31.84 | 40.98 | 40.98 | 40.98 |
| Movement LOS | | B | B | B | B | A | C | C | C | D | D | D |
| d_A, Approach Delay [s/veh] | 18.49 | | | 10.51 | | | 31.84 | | | 40.98 | | |
| Approach LOS | B | | | B | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 20.28 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.592 | | | | | | | | | | | |

**Emissions**

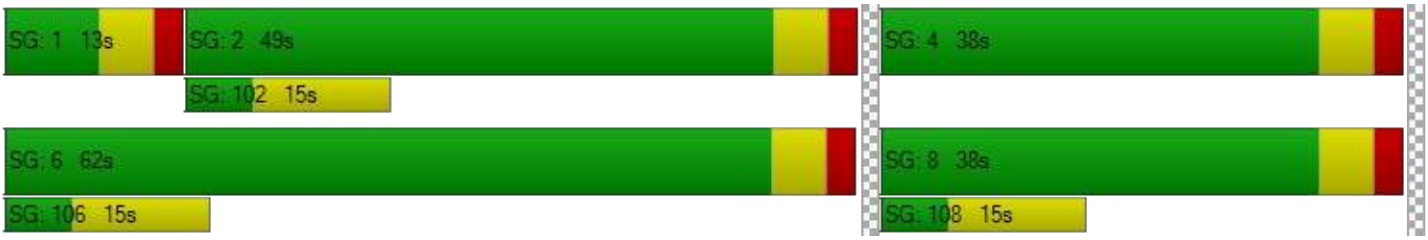
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 30.48 | 30.48 | 25.38 | 26.98 | 8.23 | 20.26 |
| Stops [stops/h] | 197.96 | 211.47 | 124.51 | 125.87 | 145.48 | 260.21 |
| Fuel consumption [US gal/h] | 4.38 | 4.65 | 2.95 | 2.91 | 2.18 | 5.18 |
| CO [g/h] | 306.46 | 324.90 | 206.40 | 203.54 | 152.72 | 362.13 |
| NOx [g/h] | 59.63 | 63.21 | 40.16 | 39.60 | 29.71 | 70.46 |
| VOC [g/h] | 71.02 | 75.30 | 47.83 | 47.17 | 35.39 | 83.93 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 9.0 | 9.0 | 9.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 0.00 | 41.41 | 41.41 | 41.41 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 0.000 | 2.649 | 1.852 | 2.629 | |
| Crosswalk LOS | F | B | A | B | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 860 | 1120 | 640 | 640 | |
| d_b, Bicycle Delay [s] | 16.25 | 9.68 | 23.12 | 23.12 | |
| l_b,int, Bicycle LOS Score for Intersection | 2.295 | 2.151 | 1.880 | 2.126 | |
| Bicycle LOS | B | B | A | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 10: Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 6.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.422 |

**Intersection Setup**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 11.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 11.00 | 11.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 120.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 25.00 | | | 40.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 244 | 38 | 138 | 280 | 6 | 1 | 0 | 0 | 31 | 4 | 146 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 10.00 | 4.00 | 1.00 | 5.00 | 17.00 | 100.00 | 0.00 | 0.00 | 12.00 | 25.00 | 3.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 6 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Total Hourly Volume [veh/h] | 0 | 251 | 41 | 150 | 289 | 6 | 1 | 0 | 0 | 33 | 4 | 143 |
| Peak Hour Factor | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 | 0.9530 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 66 | 11 | 39 | 76 | 2 | 0 | 0 | 0 | 9 | 1 | 38 |
| Total Analysis Volume [veh/h] | 0 | 263 | 43 | 157 | 303 | 6 | 1 | 0 | 0 | 35 | 4 | 150 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 38 | 0 | 0 | 38 | 0 | 0 | 13 | 0 | 0 | 13 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 9 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 |
| Detector Location [ft] | 0.0 | 210.0 | 0.0 | 0.0 | 210.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 6.0 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 26 | 26 | 26 | 26 | 26 | 26 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |
| g_i, Effective Green Time [s] | 11 | 11 | 8 | 8 | 8 | 8 |
| g / C, Green / Cycle | 0.41 | 0.41 | 0.29 | 0.29 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.18 | 0.30 | 0.00 | 0.00 | 0.03 | 0.12 |
| s, saturation flow rate [veh/h] | 1671 | 1571 | 263 | 1800 | 1303 | 1233 |
| c, Capacity [veh/h] | 820 | 825 | 297 | 518 | 531 | 355 |
| d1, Uniform Delay [s] | 5.63 | 6.33 | 10.89 | 0.00 | 8.72 | 7.64 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.28 | 0.61 | 0.00 | 0.00 | 0.05 | 0.84 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.37 | 0.57 | 0.00 | 0.00 | 0.07 | 0.43 |
| d, Delay for Lane Group [s/veh] | 5.92 | 6.94 | 10.89 | 0.00 | 8.77 | 8.48 |
| Lane Group LOS | A | A | B | A | A | A |
| Critical Lane Group | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.52 | 0.91 | 0.00 | 0.00 | 0.10 | 0.41 |
| 50th-Percentile Queue Length [ft/ln] | 12.89 | 22.77 | 0.11 | 0.00 | 2.46 | 10.26 |
| 95th-Percentile Queue Length [veh/ln] | 0.93 | 1.64 | 0.01 | 0.00 | 0.18 | 0.74 |
| 95th-Percentile Queue Length [ft/ln] | 23.21 | 40.98 | 0.20 | 0.00 | 4.43 | 18.48 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 5.92 | 5.92 | 5.92 | 6.94 | 6.94 | 6.94 | 10.89 | 0.00 | 0.00 | 8.77 | 8.48 | 8.48 |
| Movement LOS | A | A | A | A | A | A | B | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 5.92 | | | 6.94 | | | 10.89 | | | 8.53 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 6.93 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.422 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 46.46 | 67.47 | 0.11 | 0.00 | 30.35 | 133.52 |
| Stops [stops/h] | 70.68 | 124.79 | 0.60 | 0.00 | 13.49 | 56.26 |
| Fuel consumption [US gal/h] | 2.67 | 4.17 | 0.01 | 0.00 | 1.28 | 5.60 |
| CO [g/h] | 186.71 | 291.41 | 0.65 | 0.00 | 89.61 | 391.54 |
| NOx [g/h] | 36.33 | 56.70 | 0.13 | 0.00 | 17.44 | 76.18 |
| VOC [g/h] | 43.27 | 67.54 | 0.15 | 0.00 | 20.77 | 90.74 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 4.44 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.056 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2893 | 2893 | 990 | 990 |
| d_b, Bicycle Delay [s] | 2.62 | 2.62 | 3.35 | 3.35 |
| l_b,int, Bicycle LOS Score for Intersection | 2.071 | 2.329 | 1.561 | 1.885 |
| Bicycle LOS | B | B | A | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 11: Wood Avenue (SR 2017) & US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.251 |

**Intersection Setup**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 50.00 | 0.00 |
| Speed [mph] | 30.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | -0.03 | | 0.03 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 113 | 656 | 872 | 191 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 4.00 | 3.00 | 1.00 | 2.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 7 | 4 | 22 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 123 | 680 | 921 | 197 |
| Peak Hour Factor | 1.0000 | 1.0000 | 0.9180 | 0.9180 | 0.9180 | 0.9180 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 33 | 185 | 251 | 54 |
| Total Analysis Volume [veh/h] | 0 | 0 | 134 | 741 | 1003 | 215 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.25 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 11.90 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.24 | 0.08 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 6.03 | 2.01 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 1.82 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.76 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 12: Wood Avenue (SR 2017) & US 22 East Off-Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 15.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.611 |

**Intersection Setup**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Thru | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | -0.04 | | -0.03 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 446 | 323 | 0 | 0 | 872 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 1.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 11 | 0 | 0 | 22 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 460 | 344 | 0 | 0 | 921 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 128 | 96 | 0 | 0 | 256 |
| Total Analysis Volume [veh/h] | 0 | 511 | 382 | 0 | 0 | 1023 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.00 | 0.61 | 0.00 | 0.00 | 0.00 | 0.01 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 15.84 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | A | | | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 4.27 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 106.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 15.84 | | 0.00 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.22 | | | | | |
| Intersection LOS | C | | | | | |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 11 2030 WD AM

Report File: C:\...\2030 WD AM.pdf
6/17/2024

## Turning Movement Volume: Summary

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | 8 | 2 | 14 | 181 | 181 | 27 | 413 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | 135 | 48 | 81 | 209 | 253 | 128 | 854 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | 8 | 11 | 51 | 293 | 316 | 29 | 708 |

| ID | Intersection Name | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | 24 | 108 | 320 | 237 | 679 | 1368 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | 163 | 129 | 5 | 59 | 141 | 646 | 376 | 169 | 128 | 6 | 237 | 67 | 2126 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | 99 | 518 | 164 | 7 | 421 | 189 | 80 | 146 | 310 | 187 | 15 | 23 | 2159 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | 23 | 134 | 192 | 14 | 131 | 64 | 73 | 210 | 18 | 50 | 297 | 19 | 1225 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012) /Nazareth Road (SR 0248) | 89 | 546 | 1 | 199 | 450 | 74 | 92 | 144 | 127 | 261 | 1983 |

| ID | Intersection Name | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | 406 | 424 | 73 | 550 | 35 | 49 | 126 | 4 | 122 | 82 | 115 | 1986 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | 0 | 251 | 45 | 150 | 289 | 6 | 1 | 0 | 0 | 33 | 4 | 151 | 930 |

| ID | Intersection Name | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|
| | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | 123 | 680 | 921 | 197 | 1921 |

| ID | Intersection Name | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|
| | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | 460 | 344 | 921 | 1725 |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 11 2030 WD AM

Report File: C:\...\2030 WD AM.pdf
6/17/2024

## Turning Movement Volume: Detail

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 0 | 0 | 0 | 176 | 176 | 0 | 352 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 8 | 2 | 14 | 0 | 0 | 27 | 51 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **8** | **2** | **14** | **181** | **181** | **27** | **413** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Final Base | 128 | 42 | 61 | 153 | 235 | 115 | 734 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 3 | 5 | 18 | 51 | 11 | 9 | 97 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **135** | **48** | **81** | **209** | **253** | **128** | **854** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 0 | 0 | 0 | 281 | 298 | 0 | 579 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 8 | 11 | 51 | 3 | 9 | 29 | 111 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **8** | **11** | **51** | **293** | **316** | **29** | **708** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Final Base | 23 | 89 | 300 | 209 | 659 | 1280 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 16 | 11 | 22 | 0 | 49 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **24** | **108** | **320** | **237** | **679** | **1368** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Final Base | 152 | 125 | 5 | 57 | 137 | 615 | 363 | 163 | 123 | 6 | 226 | 65 | 2037 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 6 | 0 | 0 | 0 | 0 | 12 | 2 | 1 | 1 | 0 | 4 | 0 | 26 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **163** | **129** | **5** | **59** | **141** | **646** | **376** | **169** | **128** | **6** | **237** | **67** | **2126** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Final Base | 96 | 503 | 144 | 7 | 409 | 183 | 78 | 117 | 301 | 179 | 15 | 22 | 2054 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 25 | 0 | 3 | 0 | 0 | 44 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **99** | **518** | **164** | **7** | **421** | **189** | **80** | **146** | **310** | **187** | **15** | **23** | **2159** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Final Base | 22 | 90 | 186 | 13 | 124 | 50 | 51 | 204 | 17 | 49 | 288 | 11 | 1105 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 41 | 0 | 1 | 3 | 12 | 20 | 0 | 0 | 0 | 0 | 8 | 85 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **23** | **134** | **192** | **14** | **131** | **64** | **73** | **210** | **18** | **50** | **297** | **19** | **1225** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Final Base | 86 | 530 | 1 | 178 | 437 | 72 | 85 | 140 | 121 | 244 | 1894 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 16 | 0 | 0 | 4 | 0 | 2 | 10 | 32 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **89** | **546** | **1** | **199** | **450** | **74** | **92** | **144** | **127** | **261** | **1983** |

| ID | Intersection Name | Volume Type | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Final Base | 392 | 404 | 71 | 521 | 34 | 48 | 122 | 1 | 118 | 80 | 112 | 1903 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 2 | 8 | 0 | 13 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 26 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **406** | **424** | **73** | **550** | **35** | **49** | **126** | **4** | **122** | **82** | **115** | **1986** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Final Base | 0 | 244 | 38 | 138 | 280 | 6 | 1 | 0 | 0 | 31 | 4 | 146 | 888 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 6 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 16 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **0** | **251** | **45** | **150** | **289** | **6** | **1** | **0** | **0** | **33** | **4** | **151** | **930** |

| ID | Intersection Name | Volume Type | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Final Base | 113 | 656 | 872 | 191 | 1832 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 7 | 4 | 22 | 0 | 33 |
| | | Other | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **123** | **680** | **921** | **197** | **1921** |

| ID | Intersection Name | Volume Type | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|---|
| | | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Final Base | 446 | 323 | 872 | 1641 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 11 | 22 | 33 |
| | | Other | 0 | 0 | 0 | 0 |
| | | **Future Total** | **460** | **344** | **921** | **1725** |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 11 2030 WD AM

Report File: C:\...\2030 WD AM.pdf
6/17/2024

## Trip Generation summary

### Added Trips

| Zone ID: Name | Land Use variables | Code | Ind. Var. | Rate | Quantity | % In | % Out | % Int. Capture | Trips In Adj. | Trips Out Adj. | Total Trips Adj. | % of Total Trips |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1: Passenger | | 155 | SF | | 0.000 | 50.00 | 50.00 | 0.00 | 112 | 19 | 131 | 86.75 |
| 16: Truck | | 155 | SF | | 0.000 | 50.00 | 50.00 | 0.00 | 10 | 10 | 20 | 13.25 |
| | | | | | **Added Trips Total** | | | | **122** | **29** | **151** | **100.00** |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 11 2030 WD AM

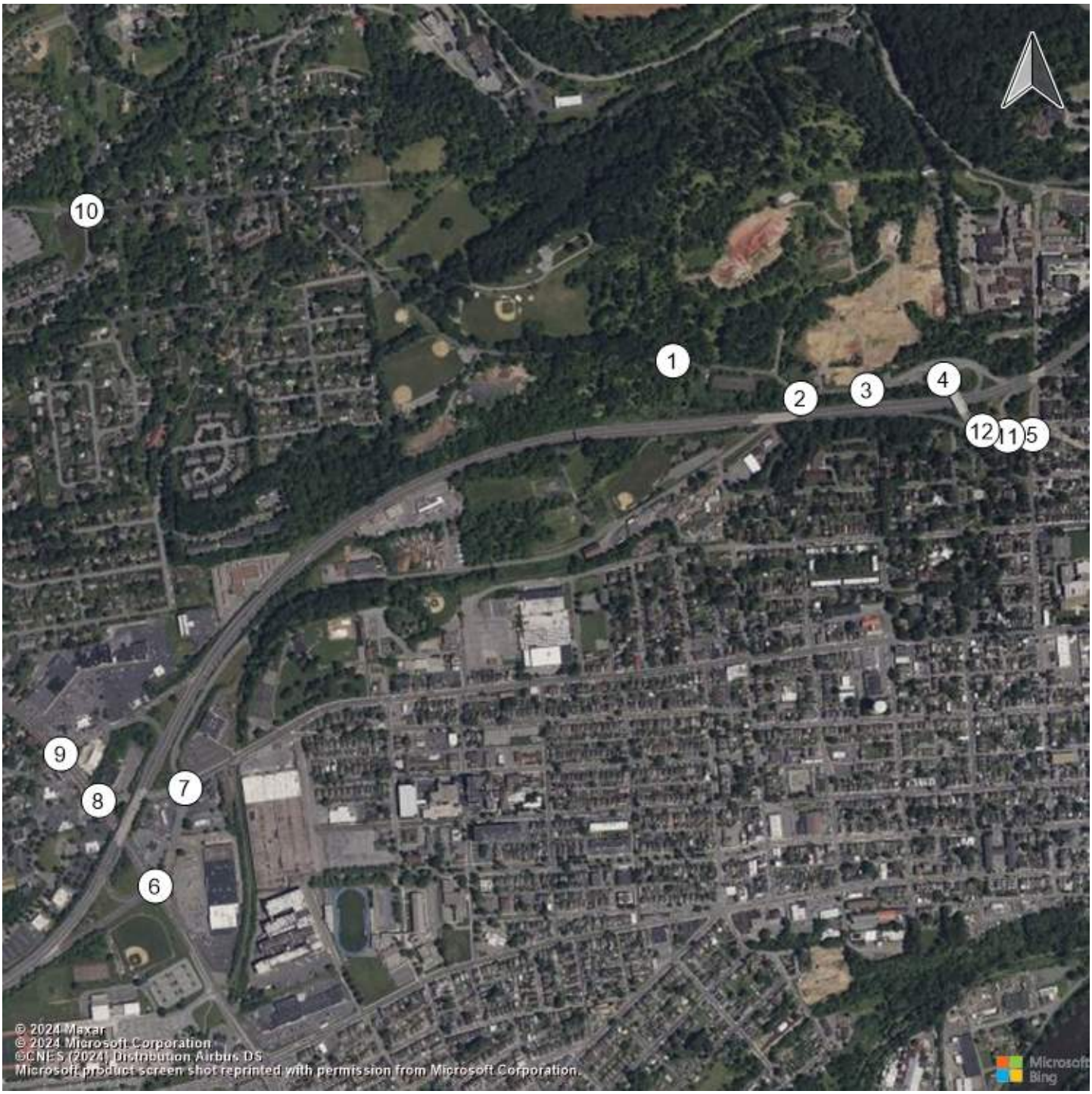
Report File: C:\...\2030 WD AM.pdf
6/17/2024

## Trip Distribution summary

| Zone / Gate | Zone 1: Passenger | | | |
|---|---|---|---|---|
| | To Passenger: | | From Passenger: | |
| | Share % | Trips | Share % | Trips |
| 16: Truck | 0.00 | 0 | 0.00 | 0 |
| 2: Tatamy Rd | 7.00 | 8 | 7.00 | 1 |
| 3: Park Ave | 5.00 | 6 | 5.00 | 1 |
| 4: Nazareth Rd | 12.00 | 13 | 12.00 | 2 |
| 5: Northampton St (East) | 7.00 | 8 | 7.00 | 1 |
| 6: To/From West via US 22 | 18.00 | 20 | 18.00 | 3 |
| 7: Northampton St (West) | 4.00 | 4 | 4.00 | 1 |
| 8: Sales St | 3.00 | 3 | 3.00 | 1 |
| 9: 25th S | 14.00 | 16 | 14.00 | 3 |
| 10: To/From East via US 22 | 10.00 | 11 | 10.00 | 2 |
| 11: Wood Ave (Easton) | 4.00 | 4 | 4.00 | 1 |
| 12: 13th St (South) | 5.00 | 6 | 5.00 | 1 |
| 13: 13th St (North) | 11.00 | 12 | 11.00 | 2 |
| **Total** | **100.00** | **111** | **100.00** | **19** |

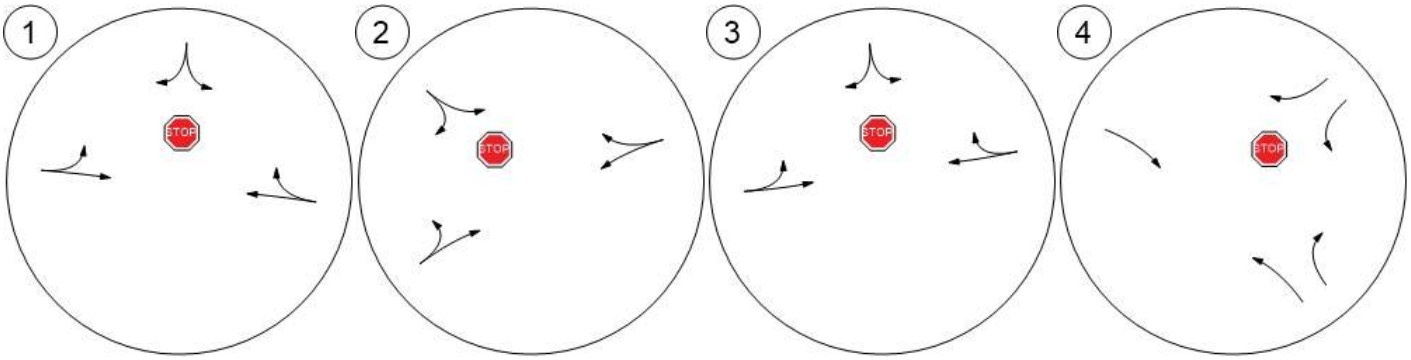
| Zone / Gate | Zone 16: Truck | | | |
|---|---|---|---|---|
| | To Truck: | | From Truck: | |
| | Share % | Trips | Share % | Trips |
| 1: Passenger | 0.00 | 0 | 0.00 | 0 |
| 2: Tatamy Rd | 0.00 | 0 | 0.00 | 0 |
| 3: Park Ave | 0.00 | 0 | 0.00 | 0 |
| 4: Nazareth Rd | 0.00 | 0 | 0.00 | 0 |
| 5: Northampton St (East) | 0.00 | 0 | 0.00 | 0 |
| 6: To/From West via US 22 | 50.00 | 5 | 50.00 | 5 |
| 7: Northampton St (West) | 0.00 | 0 | 0.00 | 0 |
| 8: Sales St | 0.00 | 0 | 0.00 | 0 |
| 9: 25th S | 0.00 | 0 | 0.00 | 0 |
| 10: To/From East via US 22 | 50.00 | 5 | 50.00 | 5 |
| 11: Wood Ave (Easton) | 0.00 | 0 | 0.00 | 0 |
| 12: 13th St (South) | 0.00 | 0 | 0.00 | 0 |
| 13: 13th St (North) | 0.00 | 0 | 0.00 | 0 |
| **Total** | **100.00** | **10** | **100.00** | **10** |

Report Figure 1: Study Intersections

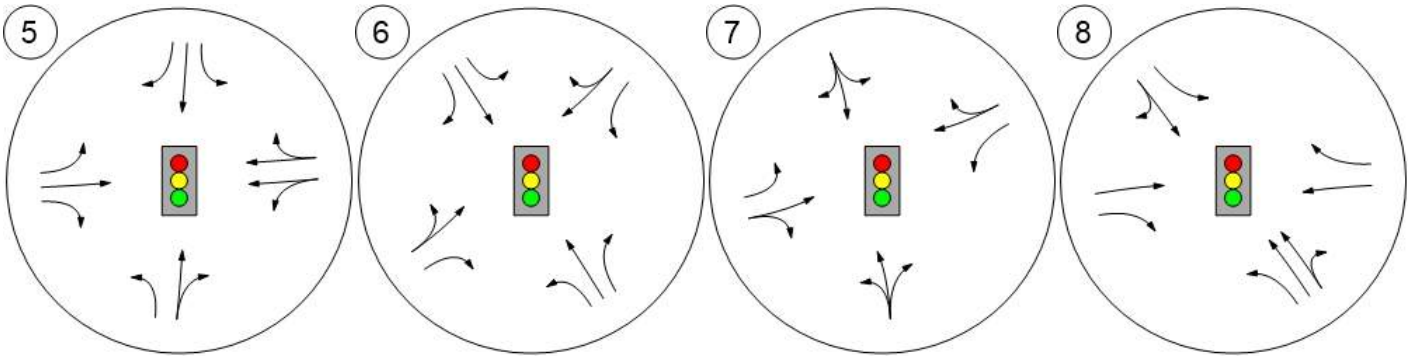


Report Figure 2: Lane Configuration and Traffic Control

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

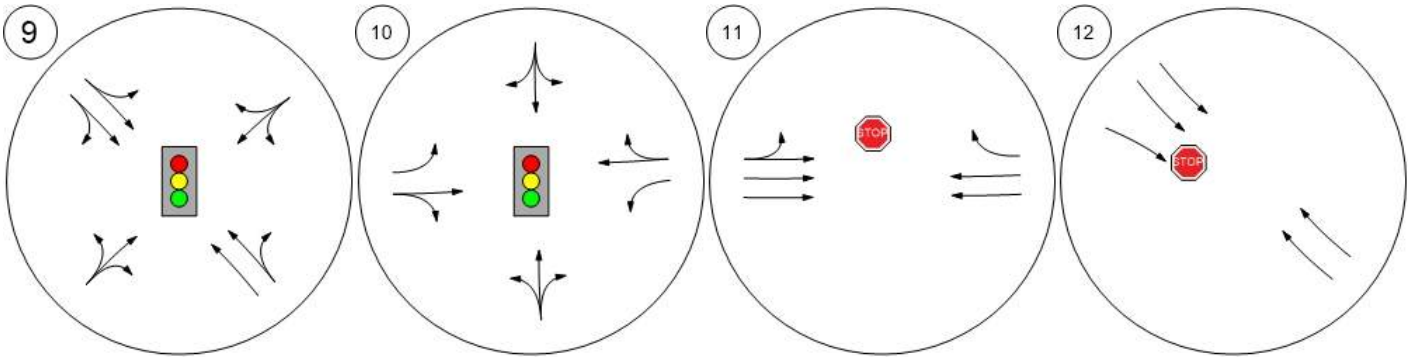



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024



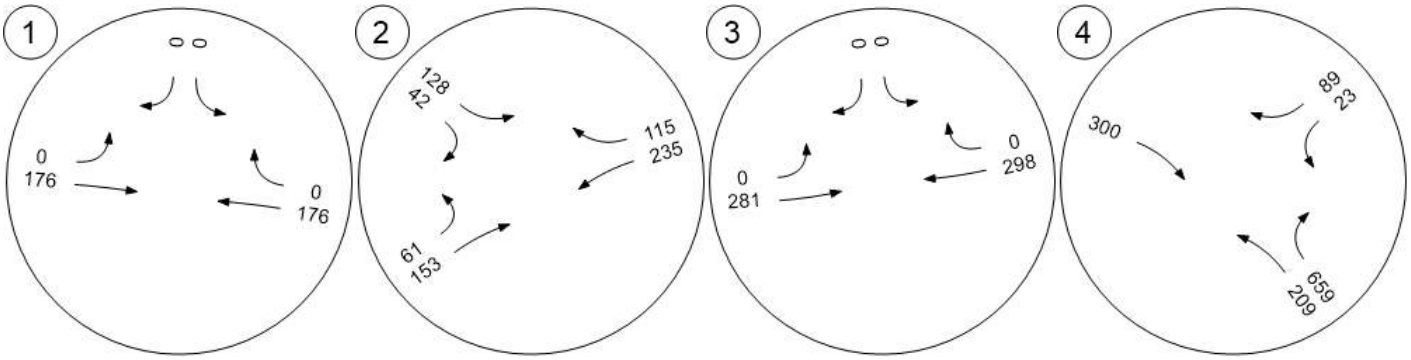
Report Figure 2: Lane Configuration and Traffic Control

Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) / Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

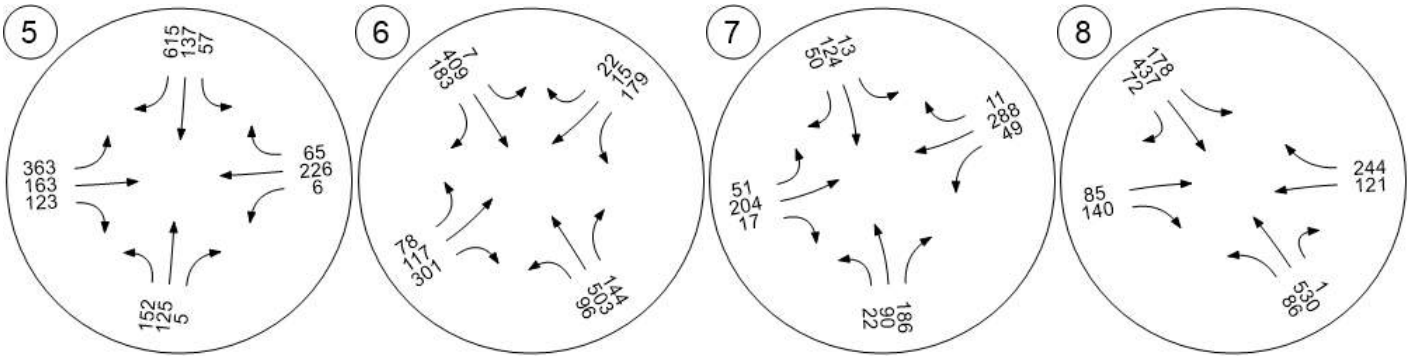


Report Figure 3a: Traffic Volume - Base Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

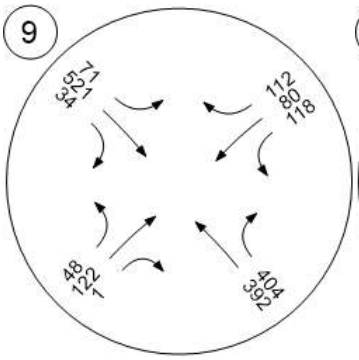



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024

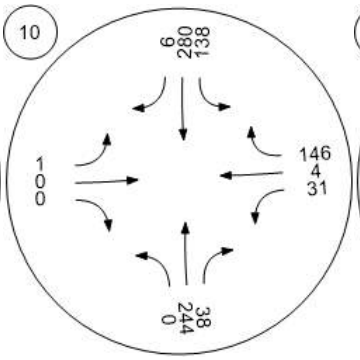


Report Figure 3a: Traffic Volume - Base Volume

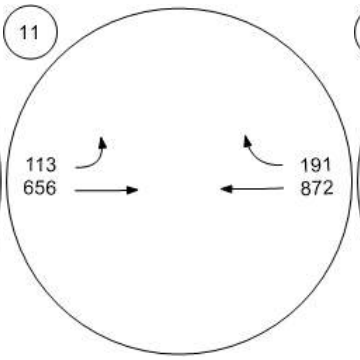
Nazareth Road (SR 0248) &



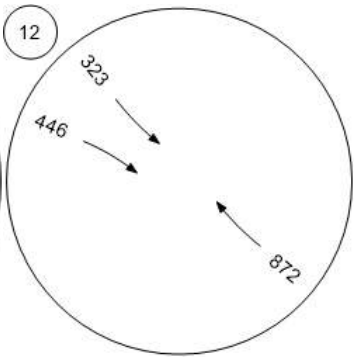

Hackett Avenue (SR 2017) /




Wood Avenue (SR 2017) & U

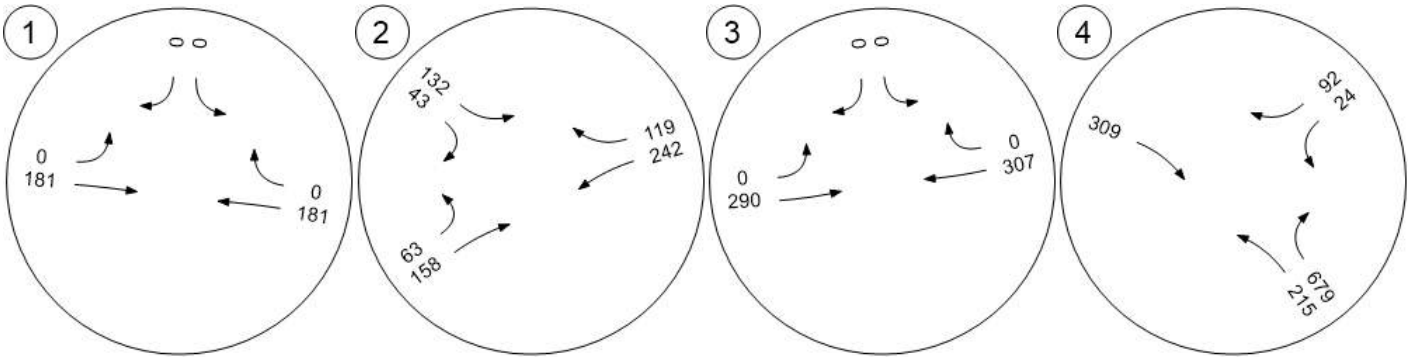



Wood Avenue (SR 2017) & U

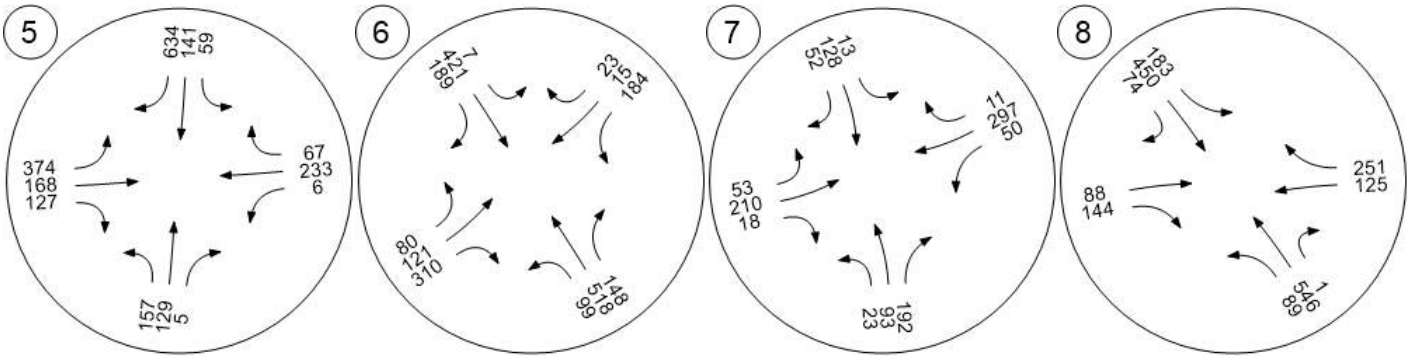


Report Figure 3c: Traffic Volume - Future Background Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

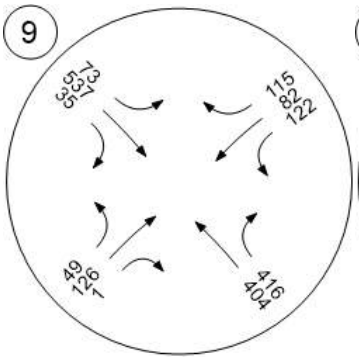



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024

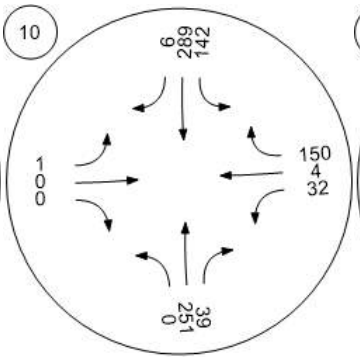


Report Figure 3c: Traffic Volume - Future Background Volume

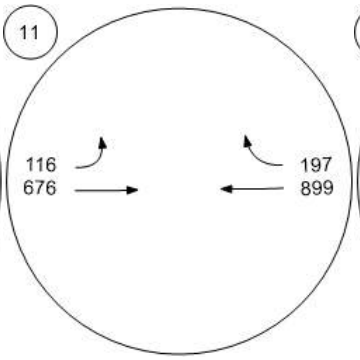
Nazareth Road (SR 0248) &



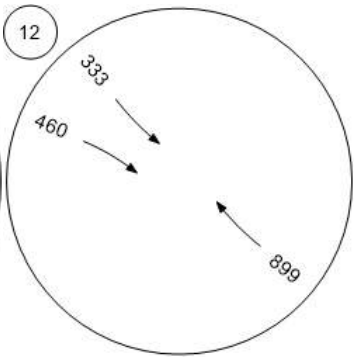

Hackett Avenue (SR 2017) /




Wood Avenue (SR 2017) & U

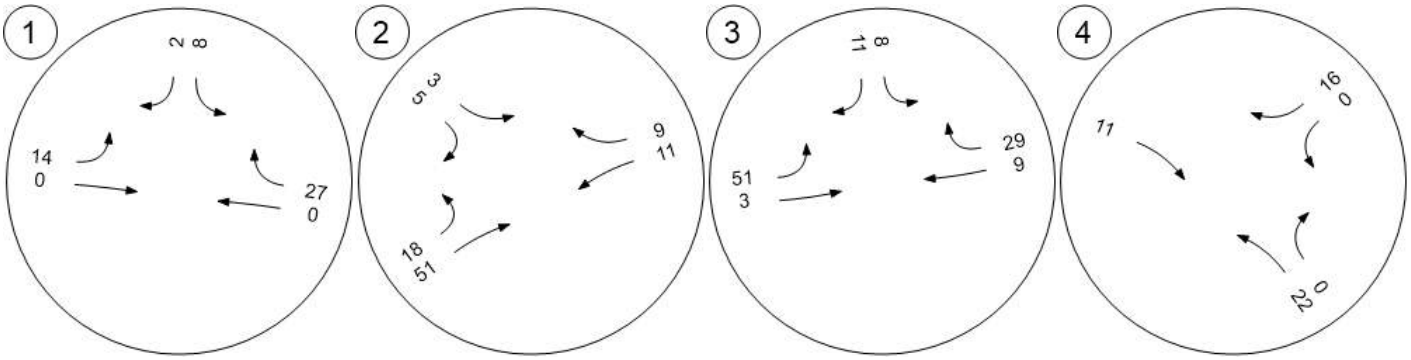



Wood Avenue (SR 2017) & U

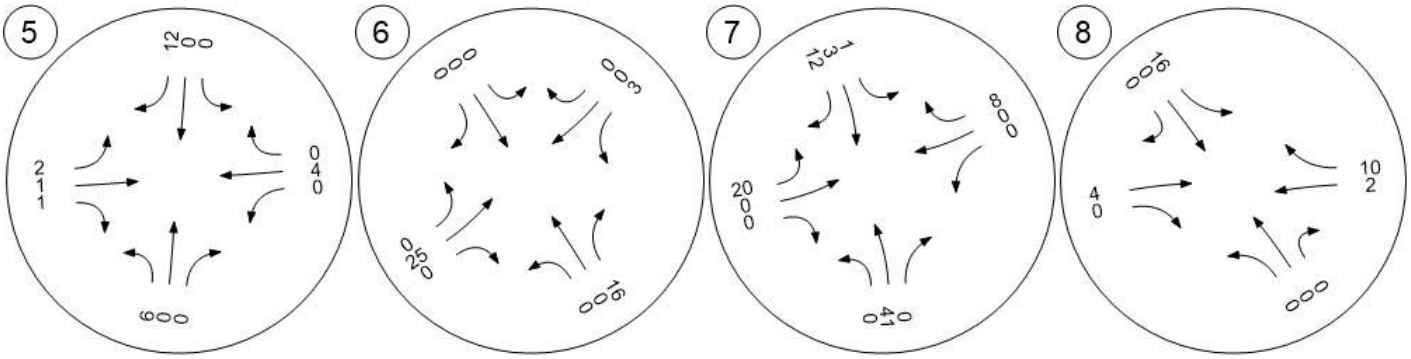


Report Figure 3d: Traffic Volume - Net New Site Trips

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

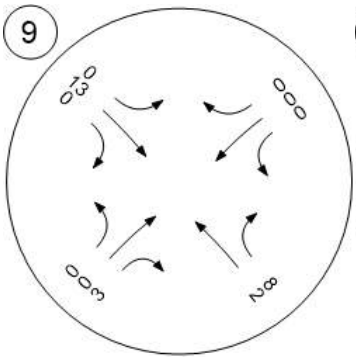



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024

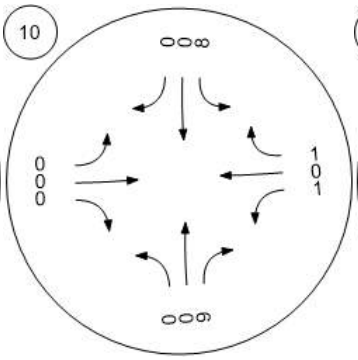


Report Figure 3d: Traffic Volume - Net New Site Trips

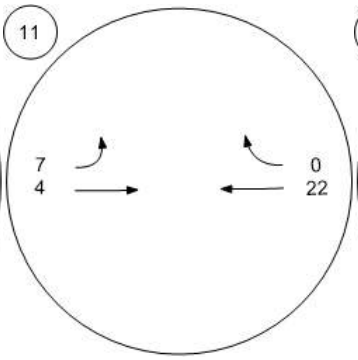
Nazareth Road (SR 0248) &



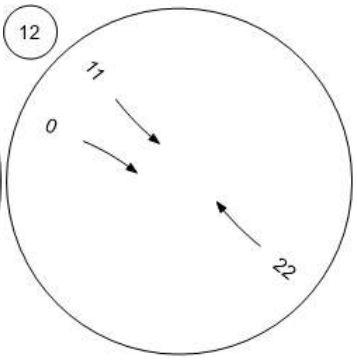

Hackett Avenue (SR 2017) /




Wood Avenue (SR 2017) & U

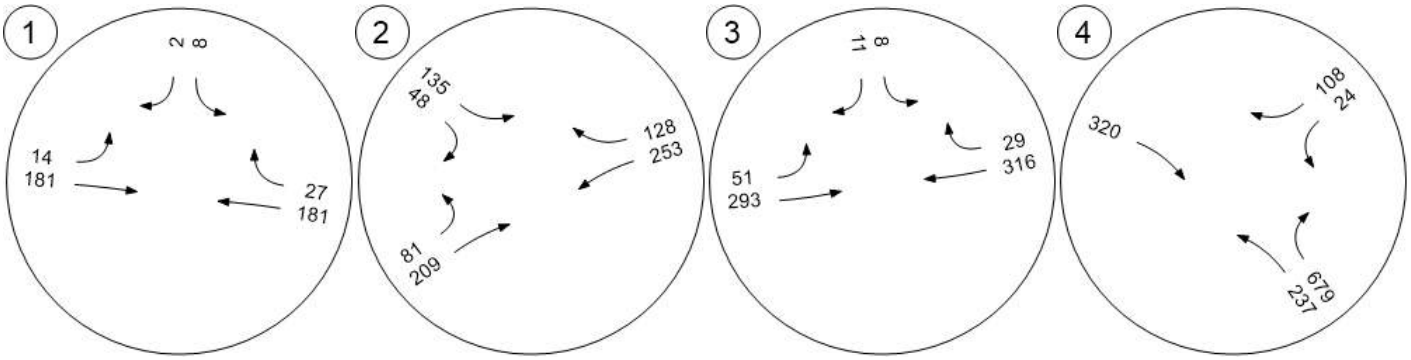



Wood Avenue (SR 2017) & U

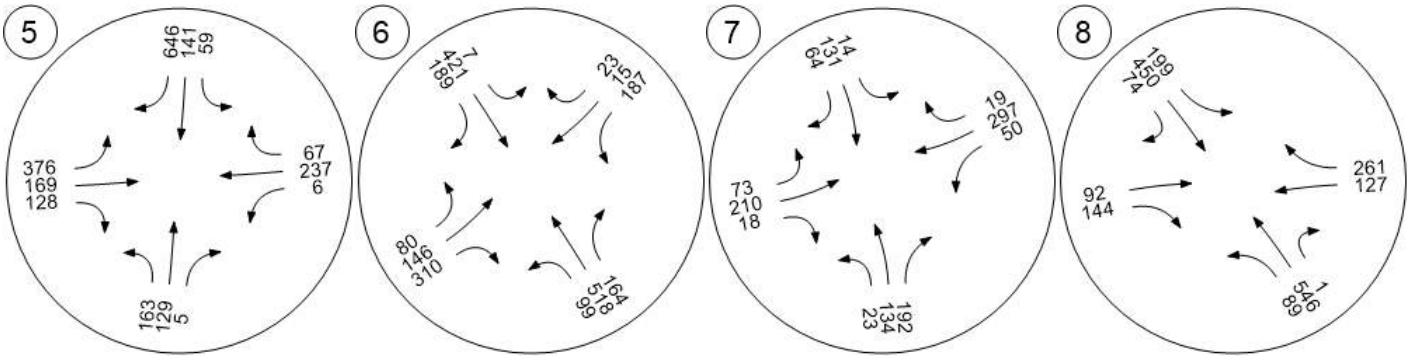


Report Figure 3f: Traffic Volume - Future Total Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

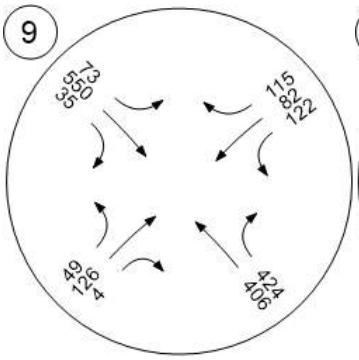



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024

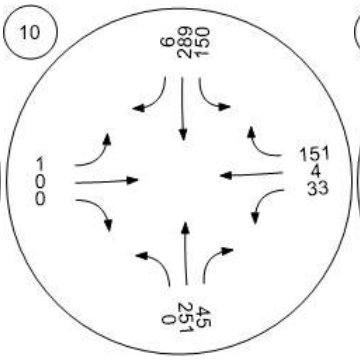


Report Figure 3f: Traffic Volume - Future Total Volume

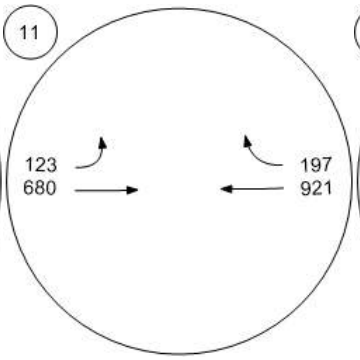
Nazareth Road (SR 0248) &



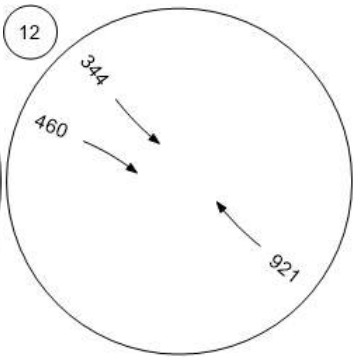

Hackett Avenue (SR 2017) /




Wood Avenue (SR 2017) & U

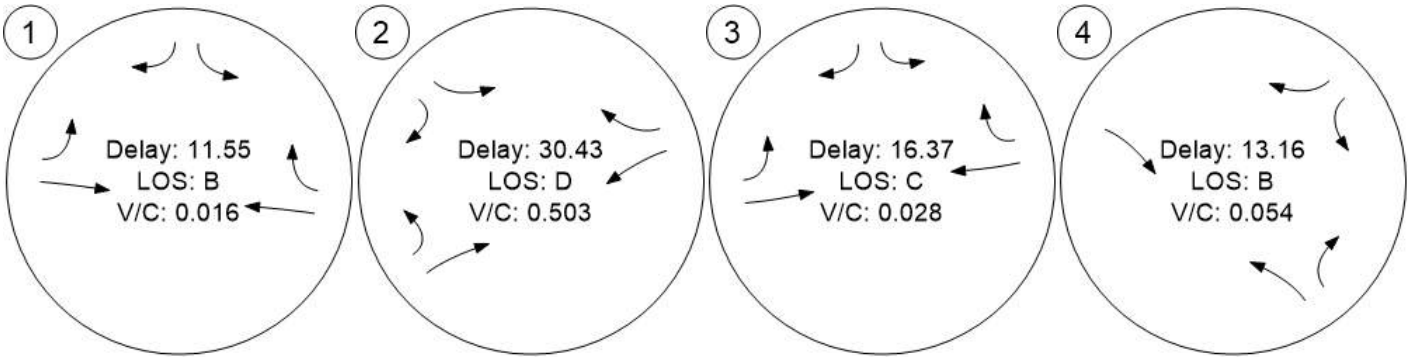



Wood Avenue (SR 2017) & U

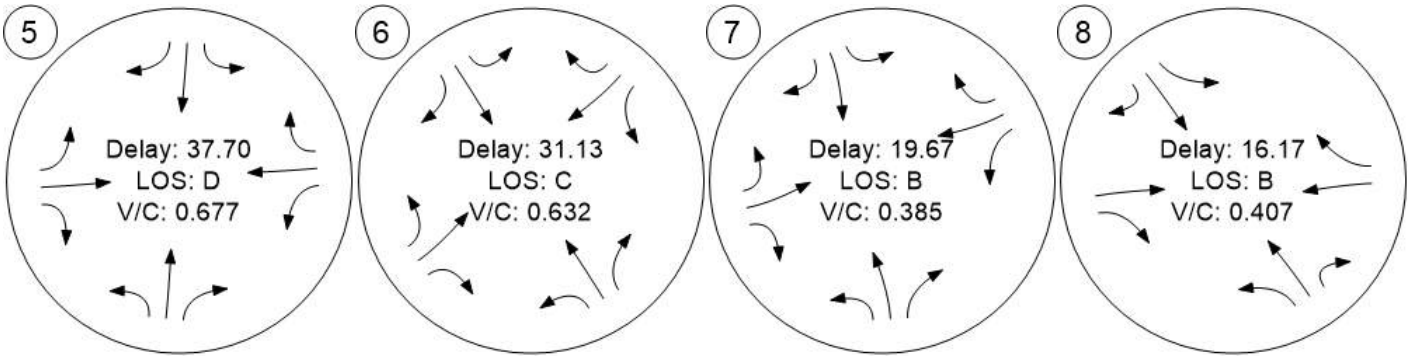


Report Figure 4: Traffic Conditions

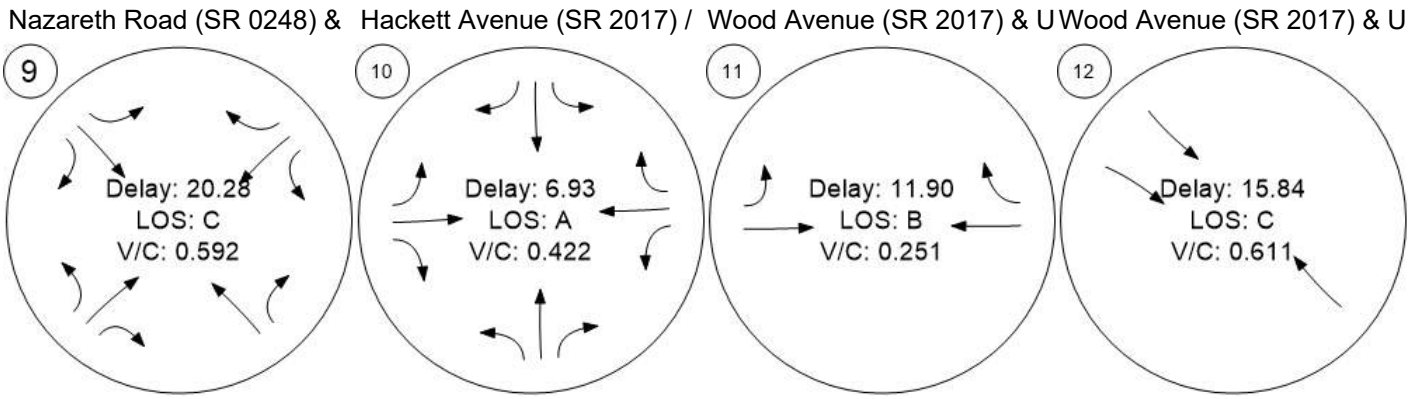
Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U




Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024



Report Figure 4: Traffic Conditions



# PTV Vistro 2024 Reports

*With Development Conditions (2030) – Weekday PM*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

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Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 12 2030 WD PM

Report File: C:\...\2030 WD PM.pdf
6/17/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | SB Left | 0.060 | 13.9 | B |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Two-way stop | HCM 7th Edition | SB Left | 0.933 | 127.6 | F |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | SB Left | 0.091 | 20.6 | C |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Two-way stop | HCM 7th Edition | SB Left | 0.219 | 20.0 | C |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Signalized | HCM 7th Edition | SB Right | 0.692 | 69.5 | E |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Signalized | HCM 7th Edition | NB Left | 0.667 | 36.8 | D |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Signalized | HCM 7th Edition | NB Thru | 0.472 | 18.9 | B |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Signalized | HCM 7th Edition | WB Thru | 0.503 | 19.1 | B |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Signalized | HCM 7th Edition | NB Right | 0.840 | 36.4 | D |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Signalized | HCM 7th Edition | EB Left | 0.538 | 8.6 | A |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Two-way stop | HCM 7th Edition | EB Left | 0.159 | 11.1 | B |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Two-way stop | HCM 7th Edition | NB Thru | 0.689 | 19.4 | C |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**

**Intersection 1: Hackett Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 13.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.060 |

**Intersection Setup**

| Name | Proposed Site Access | | Hackett Avenue (SR 2017) | | Hackett Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | 40.00 | | 40.00 | |
| Grade [%] | 0.03 | | 0.05 | | -0.05 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Proposed Site Access | | Hackett Avenue (SR 2017) | | Hackett Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 205 | 331 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 9.00 | 0.00 | 0.00 | 2.00 | 2.00 | 7.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 23 | 12 | 7 | 0 | 0 | 14 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 23 | 12 | 7 | 211 | 341 | 14 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 3 | 2 | 59 | 95 | 4 |
| Total Analysis Volume [veh/h] | 26 | 13 | 8 | 234 | 379 | 16 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.06 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 13.87 | 10.92 | 9.11 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.26 | 0.26 | 0.01 | 0.01 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 6.38 | 6.38 | 0.33 | 0.33 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 12.89 | | 0.30 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.85 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**

**Intersection 2: Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 127.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.933 |

**Intersection Setup**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.01 | | 0.01 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 151 | 62 | 98 | 204 | 246 | 233 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.00 | 3.00 | 3.00 | 3.00 | 3.00 | 2.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 8 | 15 | 10 | 26 | 41 | 4 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 164 | 79 | 111 | 236 | 295 | 244 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 45 | 22 | 30 | 65 | 81 | 67 |
| Total Analysis Volume [veh/h] | 180 | 87 | 122 | 259 | 324 | 268 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.93 | 0.15 | 0.17 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 127.63 | 115.02 | 10.05 | 0.00 | 0.00 | 0.00 |
| Movement LOS | F | F | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 11.32 | 11.32 | 0.22 | 0.22 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 282.88 | 282.88 | 5.45 | 5.45 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 123.52 | | 3.22 | | 0.00 | |
| Approach LOS | F | | A | | A | |
| d_I, Intersection Delay [s/veh] | 27.59 | | | | | |
| Intersection LOS | F | | | | | |

**Intersection Level Of Service Report**

**Intersection 3: Wood Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 20.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.091 |

**Intersection Setup**

| Name | Proposed Site Access | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Proposed Site Access | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 355 | 483 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 5.00 | 5.00 | 8.00 | 2.00 | 2.00 | 19.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 22 | 41 | 26 | 8 | 4 | 16 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 22 | 41 | 26 | 374 | 502 | 16 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 11 | 7 | 104 | 139 | 4 |
| Total Analysis Volume [veh/h] | 24 | 46 | 29 | 416 | 558 | 18 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.09 | 0.08 | 0.04 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 20.60 | 13.51 | 9.79 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.63 | 0.63 | 0.05 | 0.05 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 15.73 | 15.73 | 1.23 | 1.23 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 15.94 | | 0.64 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.28 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 4: Wood Avenue (SR 2017) & US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 20.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.219 |

**Intersection Setup**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.05 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 West Ramps | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 61 | 235 | 0 | 357 | 248 | 534 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 100.00 | 4.00 | 2.00 | 2.00 | 4.00 | 2.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 9 | 0 | 30 | 11 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 63 | 251 | 0 | 398 | 267 | 550 |
| Peak Hour Factor | 0.9440 | 0.9440 | 1.0000 | 0.9440 | 0.9440 | 0.9440 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 17 | 66 | 0 | 105 | 71 | 146 |
| Total Analysis Volume [veh/h] | 67 | 266 | 0 | 422 | 283 | 583 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.22 | 0.35 | 0.00 | 0.00 | 0.00 | 0.01 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 20.02 | 12.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.82 | 1.54 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 20.44 | 38.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 13.71 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.82 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Wood Avenue (SR 2017) & N. 13th Street (SR 2019)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 69.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.692 |

**Intersection Setup**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 12.00 | 11.00 | 12.00 | 15.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 20.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 105.00 | 100.00 | 285.00 | 115.00 | 100.00 | 100.00 | 100.00 | 100.00 | 75.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.09 | | | 0.10 | | | -0.05 | | | -0.02 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 153 | 154 | 17 | 74 | 171 | 479 | 459 | 195 | 148 | 6 | 231 | 57 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.00 | 5.00 | 12.00 | 7.00 | 2.00 | 5.00 | 2.00 | 2.00 | 3.00 | 0.00 | 1.00 | 14.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 3 | 0 | 0 | 0 | 0 | 6 | 10 | 4 | 5 | 0 | 2 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 215 | 0 | 0 | 76 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 161 | 159 | 17 | 76 | 176 | 285 | 483 | 205 | 82 | 6 | 240 | 59 |
| Peak Hour Factor | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 42 | 41 | 4 | 20 | 46 | 74 | 125 | 53 | 21 | 2 | 62 | 15 |
| Total Analysis Volume [veh/h] | 167 | 165 | 18 | 79 | 182 | 295 | 500 | 212 | 85 | 6 | 248 | 61 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 7 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 21 | 49 | 0 | 10 | 22 | 0 |
| Amber [s] | 4.5 | 4.5 | 0.0 | 4.5 | 4.5 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 19 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 3.5 | 3.5 | 0.0 | 3.5 | 3.5 | 0.0 | 2.5 | 2.5 | 0.0 | 4.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | | No | |
| Maximum Recall | No | Yes | | No | Yes | | No | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | C | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 | 0.00 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 11 | 17 | 7 | 13 | 13 | 39 | 39 | 39 | 12 | 12 |
| g / C, Green / Cycle | 0.14 | 0.21 | 0.09 | 0.16 | 0.16 | 0.48 | 0.48 | 0.48 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.11 | 0.06 | 0.13 | 0.25 | 0.34 | 0.12 | 0.06 | 0.10 | 0.10 |
| s, saturation flow rate [veh/h] | 1659 | 1698 | 1265 | 1399 | 1199 | 1453 | 1771 | 1493 | 1633 | 1581 |
| c, Capacity [veh/h] | 233 | 361 | 114 | 228 | 195 | 751 | 857 | 723 | 294 | 240 |
| d1, Uniform Delay [s] | 32.81 | 27.74 | 35.22 | 32.15 | 33.41 | 16.44 | 12.07 | 11.27 | 31.53 | 31.88 |
| k, delay calibration | 0.11 | 0.50 | 0.11 | 0.50 | 0.50 | 0.14 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.13 | 5.01 | 7.21 | 24.66 | 254.47 | 1.31 | 0.15 | 0.07 | 1.53 | 2.99 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 12.70 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.72 | 0.51 | 0.69 | 0.80 | 1.51 | 0.67 | 0.25 | 0.12 | 0.54 | 0.65 |
| d, Delay for Lane Group [s/veh] | 36.94 | 32.75 | 42.42 | 56.81 | 287.88 | 30.45 | 12.22 | 11.34 | 33.06 | 34.87 |
| Lane Group LOS | D | C | D | E | F | C | B | B | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 3.23 | 3.44 | 1.67 | 4.79 | 17.40 | 6.38 | 2.04 | 0.76 | 2.85 | 2.92 |
| 50th-Percentile Queue Length [ft/ln] | 80.67 | 86.01 | 41.63 | 119.69 | 435.01 | 159.56 | 50.97 | 19.10 | 71.33 | 73.03 |
| 95th-Percentile Queue Length [veh/ln] | 5.81 | 6.19 | 3.00 | 8.38 | 28.38 | 10.53 | 3.67 | 1.38 | 5.14 | 5.26 |
| 95th-Percentile Queue Length [ft/ln] | 145.20 | 154.82 | 74.93 | 209.40 | 709.42 | 263.14 | 91.75 | 34.39 | 128.39 | 131.46 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.94 | 32.75 | 32.75 | 42.42 | 56.81 | 287.88 | 30.45 | 12.22 | 11.34 | 33.06 | 33.76 | 34.87 |
| Movement LOS | D | C | C | D | E | F | C | B | B | C | C | C |
| d_A, Approach Delay [s/veh] | 34.75 | | | 177.37 | | | 23.56 | | | 33.96 | | |
| Approach LOS | C | | | F | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 69.50 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.692 | | | | | | | | | | | |

**Emissions**

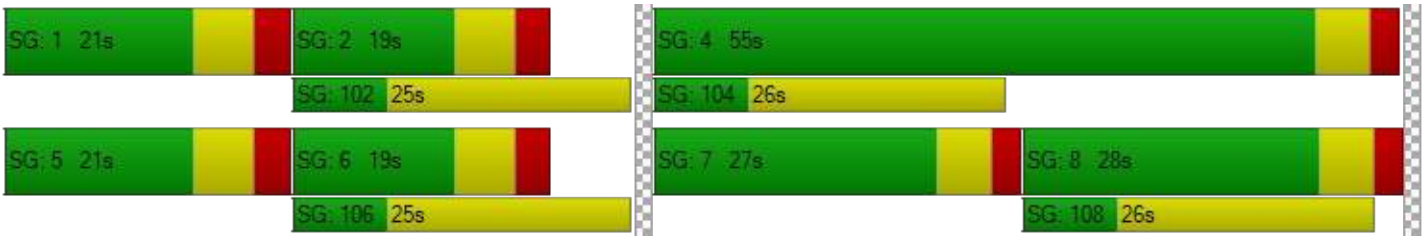
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.43 | 10.34 | 8.32 | 19.16 | 31.05 | 17.02 | 7.22 | 2.89 | 15.71 | 15.50 |
| Stops [stops/h] | 145.70 | 155.35 | 75.18 | 216.17 | 785.70 | 288.19 | 92.06 | 34.50 | 128.83 | 131.91 |
| Fuel consumption [US gal/h] | 2.71 | 2.78 | 1.56 | 4.46 | 24.37 | 5.91 | 1.49 | 0.57 | 2.63 | 2.69 |
| CO [g/h] | 189.46 | 194.46 | 109.35 | 311.75 | 1703.59 | 413.39 | 104.48 | 39.56 | 184.16 | 188.26 |
| NOx [g/h] | 36.86 | 37.83 | 21.28 | 60.66 | 331.46 | 80.43 | 20.33 | 7.70 | 35.83 | 36.63 |
| VOC [g/h] | 43.91 | 45.07 | 25.34 | 72.25 | 394.82 | 95.81 | 24.21 | 9.17 | 42.68 | 43.63 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 29.62 | 29.62 | 29.62 | 29.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.209 | 2.928 | 2.762 | 2.224 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 301 | 301 | 1229 | 552 |
| d_b, Bicycle Delay [s] | 28.77 | 28.77 | 5.92 | 20.90 |
| l_b,int, Bicycle LOS Score for Intersection | 2.139 | 2.832 | 3.000 | 1.819 |
| Bicycle LOS | B | C | C | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 6: S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 36.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.667 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 | 12.00 | 13.00 | 12.00 | 14.00 | 11.00 | 13.00 | 23.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 300.00 | 100.00 | 420.00 | 265.00 | 100.00 | 280.00 | 100.00 | 100.00 | 100.00 | 400.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 350.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 40.00 | | | 35.00 | | |
| Grade [%] | -0.06 | | | 0.05 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | S 25th Street (SR 2012) | | | US 22 East Ramps | | | Wood Avenue (SR 2024) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 77 | 556 | 215 | 21 | 429 | 207 | 138 | 180 | 318 | 125 | 30 | 34 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 3.00 | 5.00 | 0.00 | 1.00 | 1.00 | 0.00 | 4.00 | 3.00 | 2.00 | 0.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 13 | 0 | 13 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 133 | 0 | 0 | 85 | 0 | 0 | 225 | 0 | 0 | 24 |
| Total Hourly Volume [veh/h] | 79 | 573 | 97 | 22 | 442 | 128 | 142 | 198 | 103 | 142 | 31 | 11 |
| Peak Hour Factor | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 | 0.9720 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 147 | 25 | 6 | 114 | 33 | 37 | 51 | 26 | 37 | 8 | 3 |
| Total Analysis Volume [veh/h] | 81 | 590 | 100 | 23 | 455 | 132 | 146 | 204 | 106 | 146 | 32 | 11 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 95.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 7 | 42 | 0 | 5 | 42 | 0 | 0 | 23 | 0 | 10 | 39 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 6 | 0 | 0 | 6 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 50.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 35.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 13 | 42 | 0 | 13 | 42 | 0 | 0 | 32 | 0 | 13 | 45 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 0 | 10 | 0 | 7 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | | No | | No | No | |
| Maximum Recall | No | Yes | | No | Yes | | | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | | No | | No | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | R | L | C | R | C | R | L | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 |
| g_i, Effective Green Time [s] | 7 | 41 | 41 | 4 | 38 | 38 | 27 | 27 | 40 | 40 |
| g / C, Green / Cycle | 0.07 | 0.41 | 0.41 | 0.04 | 0.38 | 0.38 | 0.27 | 0.27 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.34 | 0.07 | 0.01 | 0.28 | 0.10 | 0.25 | 0.07 | 0.12 | 0.02 |
| s, saturation flow rate [veh/h] | 1672 | 1756 | 1469 | 1540 | 1603 | 1363 | 1379 | 1554 | 1223 | 1779 |
| c, Capacity [veh/h] | 125 | 713 | 596 | 68 | 602 | 512 | 423 | 420 | 340 | 711 |
| d1, Uniform Delay [s] | 44.99 | 26.59 | 18.94 | 46.37 | 27.24 | 21.60 | 37.15 | 28.60 | 23.95 | 18.45 |
| k, delay calibration | 0.14 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.43 | 0.11 | 0.50 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 7.04 | 10.69 | 0.61 | 2.89 | 8.60 | 1.22 | 14.58 | 0.31 | 3.91 | 0.04 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.65 | 0.83 | 0.17 | 0.34 | 0.76 | 0.26 | 0.83 | 0.25 | 0.43 | 0.06 |
| d, Delay for Lane Group [s/veh] | 52.03 | 37.28 | 19.55 | 49.26 | 35.84 | 22.82 | 51.72 | 28.91 | 27.85 | 18.48 |
| Lane Group LOS | D | D | B | D | D | C | D | C | C | B |
| Critical Lane Group | No | Yes | No | Yes | No | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.17 | 14.00 | 1.54 | 0.60 | 10.48 | 2.25 | 9.75 | 1.96 | 2.58 | 0.60 |
| 50th-Percentile Queue Length [ft/ln] | 54.19 | 350.09 | 38.41 | 15.06 | 262.08 | 56.36 | 243.66 | 49.09 | 64.53 | 15.11 |
| 95th-Percentile Queue Length [veh/ln] | 3.90 | 20.14 | 2.77 | 1.08 | 15.79 | 4.06 | 14.87 | 3.53 | 4.65 | 1.09 |
| 95th-Percentile Queue Length [ft/ln] | 97.54 | 503.52 | 69.13 | 27.10 | 394.83 | 101.45 | 371.66 | 88.36 | 116.15 | 27.19 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 52.03 | 37.28 | 19.55 | 49.26 | 35.84 | 22.82 | 51.72 | 51.72 | 28.91 | 27.85 | 18.48 | 18.48 |
| Movement LOS | D | D | B | D | D | C | D | D | C | C | B | B |
| d_A, Approach Delay [s/veh] | 36.53 | | | 33.53 | | | 46.42 | | | 25.72 | | |
| Approach LOS | D | | | C | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 36.84 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.667 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 7.76 | 56.51 | 9.58 | 3.17 | 62.76 | 18.21 | 25.98 | 7.87 | 20.70 | 6.10 |
| Stops [stops/h] | 78.03 | 504.13 | 55.31 | 21.68 | 377.40 | 81.16 | 350.88 | 70.69 | 92.92 | 21.75 |
| Fuel consumption [US gal/h] | 1.74 | 10.42 | 1.18 | 0.51 | 8.55 | 1.92 | 8.06 | 1.60 | 2.32 | 0.56 |
| CO [g/h] | 121.64 | 728.41 | 82.41 | 35.96 | 597.55 | 134.02 | 563.49 | 111.83 | 161.83 | 38.98 |
| NOx [g/h] | 23.67 | 141.72 | 16.03 | 7.00 | 116.26 | 26.08 | 109.63 | 21.76 | 31.49 | 7.58 |
| VOC [g/h] | 28.19 | 168.82 | 19.10 | 8.33 | 138.49 | 31.06 | 130.59 | 25.92 | 37.51 | 9.03 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 10.0 | 10.0 | 8.0 | 8.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 40.50 | 40.50 | 42.32 | 42.32 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.920 | 2.964 | 2.673 | 2.280 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 720 | 720 | 520 | 780 |
| d_b, Bicycle Delay [s] | 20.48 | 20.48 | 27.38 | 18.61 |
| l_b,int, Bicycle LOS Score for Intersection | 3.051 | 2.706 | 2.683 | 1.911 |
| Bicycle LOS | C | B | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | - | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 7: Northampton Street (SR 0248) & Wood Avenue (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 18.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.472 |

**Intersection Setup**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 17.00 | 12.00 | 22.00 | 10.00 | 10.00 | 10.00 | 11.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 135.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | | 25.00 | | | 25.00 | | | 25.00 | | |
| Grade [%] | 0.01 | | | -0.03 | | | -0.05 | | | 0.06 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | No | | | Yes | | |

**Volumes**

| Name | Wood Avenue (SR 2024) | | | Wood Avenue (SR 2024) | | | No St | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 37 | 133 | 231 | 16 | 73 | 78 | 58 | 299 | 31 | 80 | 395 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 6.00 | 4.00 | 0.00 | 2.00 | 10.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 5.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 21 | 0 | 7 | 13 | 36 | 11 | 0 | 0 | 0 | 0 | 4 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 142 | 0 | 0 | 38 | 0 | 0 | 5 | 0 | 0 | 2 |
| Total Hourly Volume [veh/h] | 38 | 158 | 96 | 23 | 88 | 78 | 71 | 308 | 27 | 82 | 407 | 17 |
| Peak Hour Factor | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 | 0.9610 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 10 | 41 | 25 | 6 | 23 | 20 | 18 | 80 | 7 | 21 | 106 | 4 |
| Total Analysis Volume [veh/h] | 40 | 164 | 100 | 24 | 92 | 81 | 74 | 320 | 28 | 85 | 424 | 18 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 66.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 38 | 0 | 0 | 38 | 0 | 0 | 50 | 0 | 0 | 50 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 12 | 0 | 0 | 12 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 44 | 0 | 0 | 44 | 0 | 0 | 56 | 0 | 0 | 56 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | Yes | | | Yes | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 22 | 22 | 68 | 68 | 68 | 68 |
| g / C, Green / Cycle | 0.22 | 0.22 | 0.68 | 0.68 | 0.68 | 0.68 |
| (v / s)_i Volume / Saturation Flow Rate | 0.19 | 0.13 | 0.08 | 0.20 | 0.09 | 0.28 |
| s, saturation flow rate [veh/h] | 1600 | 1572 | 962 | 1759 | 919 | 1566 |
| c, Capacity [veh/h] | 398 | 392 | 558 | 1190 | 583 | 1059 |
| d1, Uniform Delay [s] | 37.05 | 34.24 | 13.24 | 6.52 | 10.88 | 7.29 |
| k, delay calibration | 0.11 | 0.11 | 0.50 | 0.50 | 0.50 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.06 | 1.00 | 0.49 | 0.62 | 0.53 | 1.21 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.76 | 0.50 | 0.13 | 0.29 | 0.15 | 0.42 |
| d, Delay for Lane Group [s/veh] | 40.10 | 35.24 | 13.73 | 7.15 | 11.41 | 8.50 |
| Lane Group LOS | D | D | B | A | B | A |
| Critical Lane Group | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 7.42 | 4.34 | 0.96 | 2.94 | 0.99 | 4.24 |
| 50th-Percentile Queue Length [ft/ln] | 185.55 | 108.60 | 24.07 | 73.60 | 24.77 | 106.07 |
| 95th-Percentile Queue Length [veh/ln] | 11.89 | 7.76 | 1.73 | 5.30 | 1.78 | 7.62 |
| 95th-Percentile Queue Length [ft/ln] | 297.25 | 194.06 | 43.32 | 132.48 | 44.59 | 190.53 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 40.10 | 40.10 | 40.10 | 35.24 | 35.24 | 35.24 | 13.73 | 7.15 | 7.15 | 11.41 | 8.50 | 8.50 |
| Movement LOS | D | D | D | D | D | D | B | A | A | B | A | A |
| d_A, Approach Delay [s/veh] | 40.10 | | | 35.24 | | | 8.30 | | | 8.97 | | |
| Approach LOS | D | | | D | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 18.87 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.472 | | | | | | | | | | | |

**Emissions**

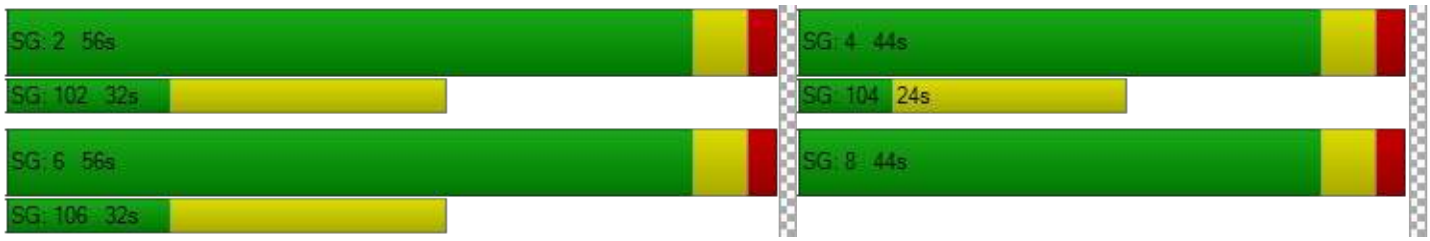
| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 43.09 | 210.07 | 8.74 | 41.09 | 22.98 | 119.52 |
| Stops [stops/h] | 267.20 | 156.39 | 34.66 | 105.98 | 35.67 | 152.74 |
| Fuel consumption [US gal/h] | 5.44 | 11.46 | 0.73 | 2.76 | 1.37 | 6.73 |
| CO [g/h] | 380.51 | 801.00 | 51.21 | 192.97 | 95.61 | 470.12 |
| NOx [g/h] | 74.03 | 155.85 | 9.96 | 37.54 | 18.60 | 91.47 |
| VOC [g/h] | 88.19 | 185.64 | 11.87 | 44.72 | 22.16 | 108.96 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 16.0 | 16.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 35.28 | 35.28 | 0.00 | 39.61 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.304 | 2.075 | 0.000 | 2.284 |
| Crosswalk LOS | B | B | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 760 | 760 | 1000 | 1000 |
| d_b, Bicycle Delay [s] | 19.22 | 19.22 | 12.50 | 12.50 |
| l_b,int, Bicycle LOS Score for Intersection | 2.296 | 1.947 | 2.264 | 2.432 |
| Bicycle LOS | B | A | B | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**

**Intersection 8: Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 19.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.503 |

**Intersection Setup**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 13.00 | 12.00 | 20.00 | 12.00 | 12.00 | 11.00 | 13.00 | 12.00 | 12.00 | 13.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 250.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 40.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.02 | | | -0.02 | | | -0.01 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | Yes | | | Yes | | |

**Volumes**

| Name | S 25th Street (SR 2012) | | | Nazareth Road (SR 0248) | | | Northampton Street | | | No St | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 69 | 644 | 8 | 282 | 549 | 36 | 0 | 113 | 94 | 0 | 153 | 356 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 3.00 | 3.00 | 0.00 | 0.00 | 1.00 | 5.00 | 2.00 | 2.00 | 3.00 | 2.00 | 4.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 2 | 0 | 0 | 7 | 29 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 23 | 0 | 0 | 95 |
| Total Hourly Volume [veh/h] | 71 | 664 | 8 | 300 | 566 | 23 | 0 | 118 | 74 | 0 | 165 | 301 |
| Peak Hour Factor | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 0.9800 | 1.0000 | 0.9800 | 0.9800 | 1.0000 | 0.9800 | 0.9800 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 169 | 2 | 77 | 144 | 6 | 0 | 30 | 19 | 0 | 42 | 77 |
| Total Analysis Volume [veh/h] | 72 | 678 | 8 | 306 | 578 | 23 | 0 | 120 | 76 | 0 | 168 | 307 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 2.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | ProtPer | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Overlap | Permiss | Permiss | Overlap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 5 | 0 | 8 | 1 |
| Auxiliary Signal Groups | | | | | | | | | 4,5 | | | 1,8 |
| Maximum Green [s] | 16 | 31 | 0 | 16 | 31 | 0 | 0 | 35 | 16 | 0 | 35 | 16 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 |
| All red [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| Walk [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 15 | 0 | 0 | 15 | 0 |
| Pedestrian Clearance [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| I2, Clearance Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 40.0 | 40.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 13 | 37 | 0 | 22 | 46 | 0 | 0 | 41 | 13 | 0 | 41 | 22 |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 0 | 10 | 7 | 0 | 10 | 7 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 |
| Minimum Recall | No | No | | No | No | | | No | No | | No | No |
| Maximum Recall | No | Yes | | No | Yes | | | No | No | | No | No |
| Pedestrian Recall | No | No | | No | No | | | No | No | | No | No |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | C | L | C | C | R | C | R |
|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| g_i, Effective Green Time [s] | 70 | 48 | 48 | 70 | 58 | 20 | 32 | 20 | 42 |
| g / C, Green / Cycle | 0.70 | 0.48 | 0.48 | 0.70 | 0.58 | 0.20 | 0.32 | 0.20 | 0.42 |
| (v / s)_i Volume / Saturation Flow Rate | 0.08 | 0.20 | 0.20 | 0.30 | 0.33 | 0.07 | 0.05 | 0.10 | 0.20 |
| s, saturation flow rate [veh/h] | 929 | 1758 | 1750 | 1030 | 1845 | 1772 | 1554 | 1744 | 1566 |
| c, Capacity [veh/h] | 593 | 848 | 845 | 736 | 1073 | 350 | 479 | 345 | 638 |
| d1, Uniform Delay [s] | 7.46 | 16.64 | 16.64 | 7.23 | 12.99 | 34.52 | 25.14 | 35.61 | 21.84 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.50 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.42 | 1.44 | 1.44 | 1.73 | 2.12 | 0.58 | 0.15 | 1.07 | 2.59 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.12 | 0.41 | 0.41 | 0.42 | 0.56 | 0.34 | 0.16 | 0.49 | 0.48 |
| d, Delay for Lane Group [s/veh] | 7.88 | 18.07 | 18.08 | 8.96 | 15.10 | 35.09 | 25.29 | 36.67 | 24.43 |
| Lane Group LOS | A | B | B | A | B | D | C | D | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.48 | 5.15 | 5.13 | 2.29 | 8.00 | 2.53 | 1.31 | 3.67 | 5.56 |
| 50th-Percentile Queue Length [ft/ln] | 11.93 | 128.66 | 128.20 | 57.25 | 200.10 | 63.14 | 32.70 | 91.72 | 138.98 |
| 95th-Percentile Queue Length [veh/ln] | 0.86 | 8.87 | 8.84 | 4.12 | 12.64 | 4.55 | 2.35 | 6.60 | 9.43 |
| 95th-Percentile Queue Length [ft/ln] | 21.48 | 221.67 | 221.04 | 103.06 | 316.09 | 113.65 | 58.86 | 165.10 | 235.65 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 7.88 | 18.08 | 18.08 | 8.96 | 15.10 | 15.10 | 0.00 | 35.09 | 25.29 | 0.00 | 36.67 | 24.43 |
| Movement LOS | A | B | B | A | B | B | | D | C | | D | C |
| d_A, Approach Delay [s/veh] | 17.11 | | | 13.03 | | | 31.29 | | | 28.76 | | |
| Approach LOS | B | | | B | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 19.08 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.503 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.93 | 47.40 | 47.22 | 24.84 | 48.79 | 8.42 | 5.33 | 19.84 | 36.25 |
| Stops [stops/h] | 17.18 | 185.27 | 184.61 | 82.44 | 288.14 | 90.92 | 47.09 | 132.08 | 200.13 |
| Fuel consumption [US gal/h] | 0.62 | 4.46 | 4.45 | 2.26 | 6.43 | 1.86 | 0.95 | 3.00 | 4.41 |
| CO [g/h] | 43.57 | 312.05 | 310.89 | 157.81 | 449.13 | 130.12 | 66.30 | 209.92 | 308.46 |
| NOx [g/h] | 8.48 | 60.71 | 60.49 | 30.70 | 87.38 | 25.32 | 12.90 | 40.84 | 60.02 |
| VOC [g/h] | 10.10 | 72.32 | 72.05 | 36.57 | 104.09 | 30.16 | 15.37 | 48.65 | 71.49 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 19.0 | 0.0 | 18.0 | 18.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 32.81 | 0.00 | 33.62 | 33.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.489 | 0.000 | 2.221 | 2.771 |
| Crosswalk LOS | B | F | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 620 | 800 | 700 | 700 |
| d_b, Bicycle Delay [s] | 23.81 | 18.00 | 21.13 | 21.13 |
| l_b,int, Bicycle LOS Score for Intersection | 2.185 | 3.079 | 1.921 | 2.500 |
| Bicycle LOS | B | C | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 9: Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 36.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.840 |

**Intersection Setup**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 13.00 | 13.00 | 12.00 | 12.00 | 12.00 | 18.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 25.00 | | | 35.00 | | |
| Grade [%] | 0.04 | | | -0.04 | | | -0.01 | | | 0.01 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | No | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | Nazareth Road (SR 0248) | | | Nazareth Road (SR 0248) | | | Sales Street (SR 2040) | | | US 22 West Ramps | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 594 | 405 | 55 | 645 | 39 | 79 | 69 | 6 | 218 | 176 | 250 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 4.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 11 | 18 | 0 | 7 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 144 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 111 |
| Total Hourly Volume [veh/h] | 0 | 623 | 291 | 57 | 672 | 38 | 81 | 71 | 7 | 225 | 181 | 147 |
| Peak Hour Factor | 1.0000 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 | 0.9580 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 163 | 76 | 15 | 175 | 10 | 21 | 19 | 2 | 59 | 47 | 38 |
| Total Analysis Volume [veh/h] | 0 | 650 | 304 | 59 | 701 | 40 | 85 | 74 | 7 | 235 | 189 | 153 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Semi-actuated |
| Offset [s] | 99.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 39 | 0 | 7 | 52 | 0 | 0 | 36 | 0 | 0 | 36 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 165.0 | 165.0 | 0.0 | 0.0 | -5.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 6.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Pattern 1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 42 | 0 | 13 | 55 | 0 | 0 | 45 | 0 | 0 | 45 | 0 |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | Yes | No | | | No | | | No | |
| Maximum Recall | | Yes | | No | Yes | | | No | | | No | |
| Pedestrian Recall | | No | | No | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | C | C | C | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 2.50 |
| l2, Clearance Lost Time [s] | 2.50 | 2.50 | 0.00 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 37 | 37 | 50 | 50 | 40 | 40 |
| g / C, Green / Cycle | 0.37 | 0.37 | 0.50 | 0.50 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.29 | 0.32 | 0.36 | 0.26 | 0.15 | 0.39 |
| s, saturation flow rate [veh/h] | 1641 | 1475 | 1057 | 1598 | 1099 | 1492 |
| c, Capacity [veh/h] | 607 | 546 | 462 | 799 | 494 | 648 |
| d1, Uniform Delay [s] | 27.98 | 29.33 | 18.65 | 17.01 | 20.60 | 29.73 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.11 | 0.46 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 9.86 | 17.50 | 14.61 | 2.51 | 0.40 | 15.69 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.79 | 0.87 | 0.82 | 0.53 | 0.34 | 0.89 |
| d, Delay for Lane Group [s/veh] | 37.84 | 46.83 | 33.27 | 19.52 | 21.00 | 45.42 |
| Lane Group LOS | D | D | C | B | C | D |
| Critical Lane Group | No | Yes | Yes | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 11.19 | 12.64 | 7.06 | 6.63 | 2.75 | 15.63 |
| 50th-Percentile Queue Length [ft/ln] | 279.69 | 315.92 | 176.39 | 165.86 | 68.69 | 390.85 |
| 95th-Percentile Queue Length [veh/ln] | 16.67 | 18.47 | 11.41 | 10.86 | 4.95 | 22.12 |
| 95th-Percentile Queue Length [ft/ln] | 416.82 | 461.66 | 285.29 | 271.47 | 123.65 | 552.97 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 0.00 | 40.23 | 46.83 | 33.27 | 25.75 | 19.52 | 21.00 | 21.00 | 21.00 | 45.42 | 45.42 | 45.42 |
| Movement LOS | | D | D | C | C | B | C | C | C | D | D | D |
| d_A, Approach Delay [s/veh] | 42.33 | | | 25.99 | | | 21.00 | | | 45.42 | | |
| Approach LOS | D | | | C | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 36.39 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.840 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 38.72 | 38.72 | 27.58 | 31.00 | 7.04 | 39.77 |
| Stops [stops/h] | 402.75 | 454.92 | 254.00 | 238.84 | 98.92 | 562.83 |
| Fuel consumption [US gal/h] | 9.02 | 10.40 | 6.03 | 5.14 | 1.41 | 11.08 |
| CO [g/h] | 630.26 | 727.04 | 421.68 | 359.17 | 98.23 | 774.57 |
| NOx [g/h] | 122.63 | 141.45 | 82.04 | 69.88 | 19.11 | 150.70 |
| VOC [g/h] | 146.07 | 168.50 | 97.73 | 83.24 | 22.77 | 179.51 |

**Other Modes**

| | | | | | |
|---|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 9.0 | 9.0 | 9.0 | |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 | |
| d_p, Pedestrian Delay [s] | 0.00 | 41.41 | 41.41 | 41.41 | |
| l_p,int, Pedestrian LOS Score for Intersectio | 0.000 | 2.847 | 1.885 | 2.815 | |
| Crosswalk LOS | F | C | A | C | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 720 | 980 | 780 | 780 | |
| d_b, Bicycle Delay [s] | 20.48 | 13.01 | 18.61 | 18.61 | |
| l_b,int, Bicycle LOS Score for Intersection | 2.465 | 2.221 | 1.835 | 2.695 | |
| Bicycle LOS | B | B | A | B | |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**

**Intersection 10: Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 8.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.538 |

**Intersection Setup**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 14.00 | 14.00 | 12.00 | 12.00 | 11.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 11.00 | 11.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 120.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 25.00 | | | 40.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | No | | | No | | | No | | |

**Volumes**

| Name | Park Avenue | | | Tatamy Road | | | Mall Entrance | | | Hackett Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 256 | 32 | 163 | 270 | 26 | 32 | 10 | 3 | 76 | 24 | 236 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 6.00 | 0.00 | 1.00 | 3.00 | 0.00 | 3.00 | 0.00 | 0.00 | 1.00 | 12.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 7 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| Total Hourly Volume [veh/h] | 0 | 264 | 31 | 172 | 278 | 27 | 33 | 10 | 3 | 83 | 25 | 241 |
| Peak Hour Factor | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 | 0.9190 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 72 | 8 | 47 | 76 | 7 | 9 | 3 | 1 | 23 | 7 | 66 |
| Total Analysis Volume [veh/h] | 0 | 287 | 34 | 187 | 303 | 29 | 36 | 11 | 3 | 90 | 27 | 262 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 38 | 0 | 0 | 38 | 0 | 0 | 13 | 0 | 0 | 13 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 9 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 1.5 | 0.0 |
| Detector Location [ft] | 0.0 | 210.0 | 0.0 | 0.0 | 210.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 6.0 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | C | C | L | C | L | C |
|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 30 | 30 | 30 | 30 | 30 | 30 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.50 | 2.50 | 2.50 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |
| g_i, Effective Green Time [s] | 13 | 13 | 10 | 10 | 10 | 10 |
| g / C, Green / Cycle | 0.42 | 0.42 | 0.32 | 0.32 | 0.32 | 0.32 |
| (v / s)_i Volume / Saturation Flow Rate | 0.18 | 0.33 | 0.03 | 0.01 | 0.06 | 0.21 |
| s, saturation flow rate [veh/h] | 1741 | 1561 | 1081 | 1734 | 1411 | 1405 |
| c, Capacity [veh/h] | 853 | 820 | 294 | 547 | 559 | 443 |
| d1, Uniform Delay [s] | 6.23 | 7.29 | 14.14 | 7.21 | 9.68 | 9.00 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.27 | 0.81 | 0.18 | 0.02 | 0.13 | 1.63 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| X, volume / capacity | 0.38 | 0.63 | 0.12 | 0.03 | 0.16 | 0.65 |
| d, Delay for Lane Group [s/veh] | 6.51 | 8.11 | 14.32 | 7.23 | 9.81 | 10.63 |
| Lane Group LOS | A | A | B | A | A | B |
| Critical Lane Group | No | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.77 | 1.50 | 0.21 | 0.05 | 0.33 | 1.09 |
| 50th-Percentile Queue Length [ft/ln] | 19.13 | 37.62 | 5.35 | 1.17 | 8.13 | 27.19 |
| 95th-Percentile Queue Length [veh/ln] | 1.38 | 2.71 | 0.38 | 0.08 | 0.59 | 1.96 |
| 95th-Percentile Queue Length [ft/ln] | 34.44 | 67.71 | 9.62 | 2.11 | 14.64 | 48.94 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 6.51 | 6.51 | 6.51 | 8.11 | 8.11 | 8.11 | 14.32 | 7.23 | 7.23 | 9.81 | 10.63 | 10.63 |
| Movement LOS | A | A | A | A | A | A | B | A | A | A | B | B |
| d_A, Approach Delay [s/veh] | 6.51 | | | 8.11 | | | 12.34 | | | 10.44 | | |
| Approach LOS | A | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 8.57 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.538 | | | | | | | | | | | |

**Emissions**

| | | | | | | |
|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 48.74 | 75.15 | 3.89 | 1.51 | 78.03 | 250.57 |
| Stops [stops/h] | 90.61 | 178.18 | 25.32 | 5.55 | 38.51 | 128.78 |
| Fuel consumption [US gal/h] | 2.96 | 5.06 | 0.38 | 0.11 | 3.35 | 10.87 |
| CO [g/h] | 207.22 | 353.75 | 26.35 | 7.68 | 234.39 | 759.54 |
| NOx [g/h] | 40.32 | 68.83 | 5.13 | 1.49 | 45.60 | 147.78 |
| VOC [g/h] | 48.03 | 81.99 | 6.11 | 1.78 | 54.32 | 176.03 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 0.0 | 0.0 | 0.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 6.19 | 0.00 | 0.00 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.191 | 0.000 | 0.000 | 0.000 |
| Crosswalk LOS | B | F | F | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 2500 | 2500 | 855 | 855 |
| d_b, Bicycle Delay [s] | 0.95 | 0.95 | 4.98 | 4.98 |
| l_b,int, Bicycle LOS Score for Intersection | 2.098 | 2.416 | 1.642 | 2.200 |
| Bicycle LOS | B | B | A | B |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 11: Wood Avenue (SR 2017) & US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.159 |

**Intersection Setup**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 50.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 50.00 | 0.00 |
| Speed [mph] | 30.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | -0.03 | | 0.03 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 77 | 803 | 782 | 96 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 4.00 | 2.00 | 2.00 | 0.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 11 | 19 | 11 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 90 | 846 | 817 | 99 |
| Peak Hour Factor | 1.0000 | 1.0000 | 0.9430 | 0.9430 | 0.9430 | 0.9430 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 24 | 224 | 217 | 26 |
| Total Analysis Volume [veh/h] | 0 | 0 | 95 | 897 | 866 | 105 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.16 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 11.12 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.17 | 0.06 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 4.18 | 1.39 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 1.07 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.54 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**
**Intersection 12: Wood Avenue (SR 2017) & US 22 East Off-Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 19.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.689 |

**Intersection Setup**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Thru | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | 35.00 | | 35.00 | |
| Grade [%] | -0.04 | | -0.03 | | -0.04 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East Off-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 462 | 418 | 0 | 0 | 782 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 30 | 0 | 0 | 11 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 476 | 461 | 0 | 0 | 817 |
| Peak Hour Factor | 1.0000 | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 132 | 128 | 0 | 0 | 227 |
| Total Analysis Volume [veh/h] | 0 | 529 | 512 | 0 | 0 | 908 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.69 | 0.01 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 0.00 | 19.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | C | A | | | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 5.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 139.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 19.40 | | 0.00 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.27 | | | | | |
| Intersection LOS | C | | | | | |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 12 2030 WD PM

Report File: C:\...\2030 WD PM.pdf
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## Turning Movement Volume: Summary

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | 23 | 12 | 7 | 211 | 341 | 14 | 608 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | 164 | 79 | 111 | 236 | 295 | 244 | 1129 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | 22 | 41 | 26 | 374 | 502 | 16 | 981 |

| ID | Intersection Name | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | 63 | 251 | 398 | 267 | 550 | 1529 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | 161 | 159 | 18 | 76 | 176 | 500 | 483 | 205 | 158 | 6 | 240 | 59 | 2241 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | 79 | 573 | 230 | 22 | 442 | 213 | 142 | 198 | 328 | 142 | 31 | 35 | 2435 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | 38 | 158 | 238 | 23 | 88 | 116 | 71 | 308 | 32 | 82 | 407 | 19 | 1580 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012) /Nazareth Road (SR 0248) | 71 | 664 | 8 | 300 | 566 | 37 | 118 | 97 | 165 | 396 | 2422 |

| ID | Intersection Name | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | 623 | 435 | 57 | 672 | 40 | 81 | 71 | 8 | 225 | 181 | 258 | 2651 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | 0 | 264 | 36 | 172 | 278 | 27 | 33 | 10 | 3 | 83 | 25 | 250 | 1181 |

| ID | Intersection Name | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|
| | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | 90 | 846 | 817 | 99 | 1852 |

| ID | Intersection Name | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|
| | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | 476 | 461 | 817 | 1754 |

Proposed Warehouse at 1525 Wood Ave

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Scenario 12 2030 WD PM

Report File: C:\...\2030 WD PM.pdf
6/17/2024

## Turning Movement Volume: Detail

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 0 | 0 | 0 | 205 | 331 | 0 | 536 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 23 | 12 | 7 | 0 | 0 | 14 | 56 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **23** | **12** | **7** | **211** | **341** | **14** | **608** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Final Base | 151 | 62 | 98 | 204 | 246 | 233 | 994 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 8 | 15 | 10 | 26 | 41 | 4 | 104 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **164** | **79** | **111** | **236** | **295** | **244** | **1129** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 0 | 0 | 0 | 355 | 483 | 0 | 838 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 22 | 41 | 26 | 8 | 4 | 16 | 117 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **22** | **41** | **26** | **374** | **502** | **16** | **981** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Thru | Thru | Right | |
| 4 | Wood Avenue (SR 2017) & US 22 West Ramps | Final Base | 61 | 235 | 357 | 248 | 534 | 1435 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 9 | 30 | 11 | 0 | 50 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **63** | **251** | **398** | **267** | **550** | **1529** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Final Base | 153 | 154 | 17 | 74 | 171 | 479 | 459 | 195 | 148 | 6 | 231 | 57 | 2144 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 3 | 0 | 0 | 0 | 0 | 6 | 10 | 4 | 5 | 0 | 2 | 0 | 30 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **161** | **159** | **18** | **76** | **176** | **500** | **483** | **205** | **158** | **6** | **240** | **59** | **2241** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 6 | S 25th Street (SR 2012) & Wood Avenue (SR 2024)/US 22 East Ramp | Final Base | 77 | 556 | 215 | 21 | 429 | 207 | 138 | 180 | 318 | 125 | 30 | 34 | 2330 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 13 | 0 | 13 | 0 | 0 | 34 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **79** | **573** | **230** | **22** | **442** | **213** | **142** | **198** | **328** | **142** | **31** | **35** | **2435** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 7 | Northampton Street (SR 0248) & Wood Avenue (SR 2024) | Final Base | 37 | 133 | 231 | 16 | 73 | 78 | 58 | 299 | 31 | 80 | 395 | 15 | 1446 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 21 | 0 | 7 | 13 | 36 | 11 | 0 | 0 | 0 | 0 | 4 | 92 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **38** | **158** | **238** | **23** | **88** | **116** | **71** | **308** | **32** | **82** | **407** | **19** | **1580** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Thru | Right | Thru | Right | |
| 8 | Northampton Street (SR 0248) & S 25th Street (SR 2012)/Nazareth Road (SR 0248) | Final Base | 69 | 644 | 8 | 282 | 549 | 36 | 113 | 94 | 153 | 356 | 2304 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 0 | 9 | 0 | 0 | 2 | 0 | 7 | 29 | 47 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **71** | **664** | **8** | **300** | **566** | **37** | **118** | **97** | **165** | **396** | **2422** |

| ID | Intersection Name | Volume Type | Northbound | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 9 | Nazareth Road (SR 0248) & Sales Street (SR 2040) / US 22 West Ramps | Final Base | 594 | 405 | 55 | 645 | 39 | 79 | 69 | 6 | 218 | 176 | 250 | 2536 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 11 | 18 | 0 | 7 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 38 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **623** | **435** | **57** | **672** | **40** | **81** | **71** | **8** | **225** | **181** | **258** | **2651** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 10 | Hackett Avenue (SR 2017) / Mall Entrance & Tatamy Road / Park Avenue | Final Base | 0 | 256 | 32 | 163 | 270 | 26 | 32 | 10 | 3 | 76 | 24 | 236 | 1128 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 7 | 19 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **0** | **264** | **36** | **172** | **278** | **27** | **33** | **10** | **3** | **83** | **25** | **250** | **1181** |

| ID | Intersection Name | Volume Type | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Final Base | 77 | 803 | 782 | 96 | 1758 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 11 | 19 | 11 | 0 | 41 |
| | | Other | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **90** | **846** | **817** | **99** | **1852** |

| ID | Intersection Name | Volume Type | Northbound | Eastbound | Westbound | Total Volume |
|---|---|---|---|---|---|---|
| | | | Thru | Thru | Thru | |
| 12 | Wood Avenue (SR 2017) & US 22 East Off-Ramp | Final Base | 462 | 418 | 782 | 1662 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 |
| | | Net New Trips | 0 | 30 | 11 | 41 |
| | | Other | 0 | 0 | 0 | 0 |
| | | **Future Total** | **476** | **461** | **817** | **1754** |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 12 2030 WD PM

Report File: C:\...\2030 WD PM.pdf
6/17/2024

## Trip Generation summary

### Added Trips

| Zone ID: Name | Land Use variables | Code | Ind. Var. | Rate | Quantity | % In | % Out | % Int. Capture | Trips In Adj. | Trips Out Adj. | Total Trips Adj. | % of Total Trips |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1: Passenger | | 155 | SF | | 0.000 | 50.00 | 50.00 | 0.00 | 58 | 93 | 151 | 93.79 |
| 16: Truck | | 155 | SF | | 0.000 | 50.00 | 50.00 | 0.00 | 5 | 5 | 10 | 6.21 |
| | | | | | **Added Trips Total** | | | | **63** | **98** | **161** | **100.00** |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 12 2030 WD PM

Report File: C:\...\2030 WD PM.pdf
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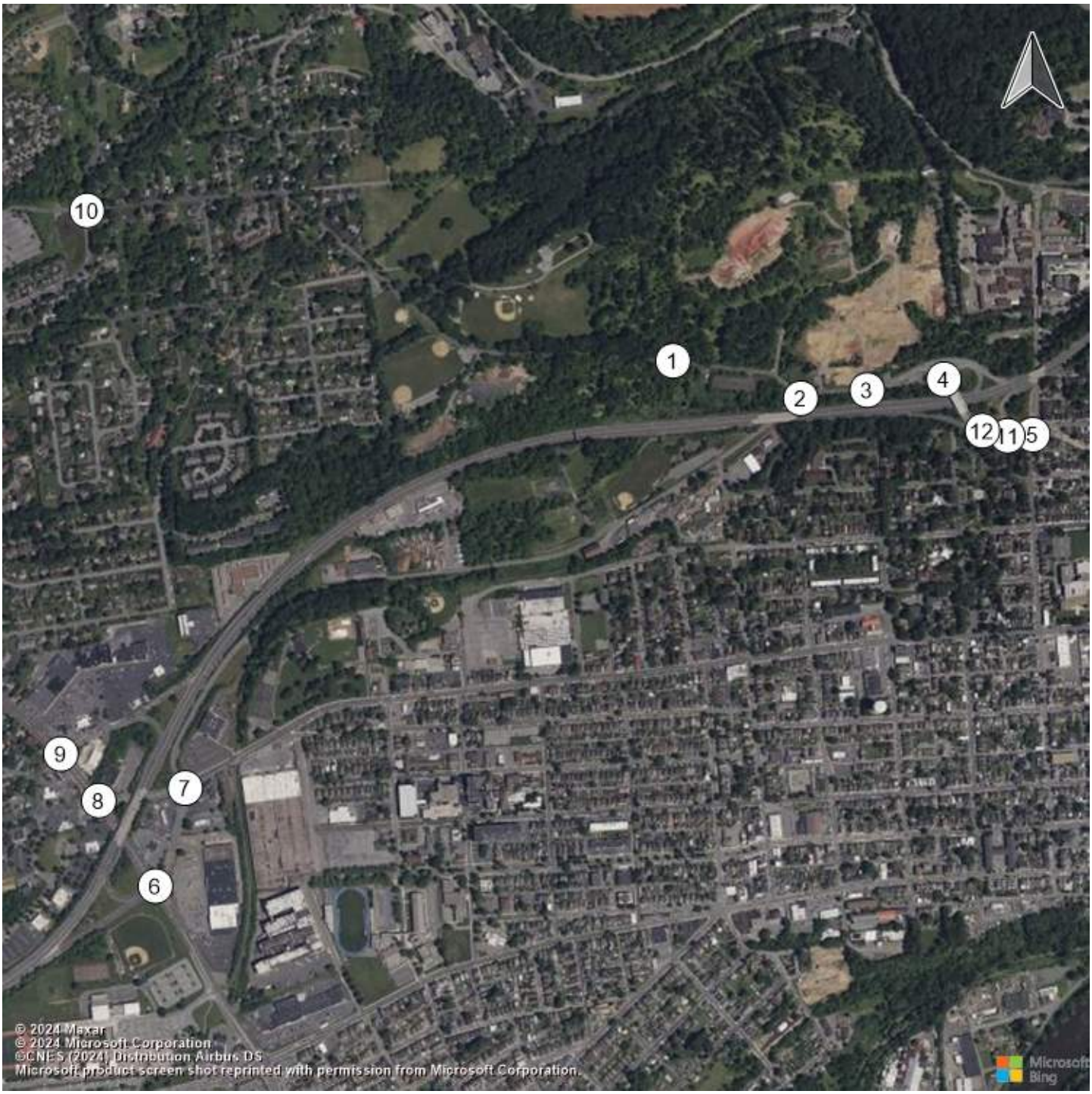
## Trip Distribution summary

| Zone / Gate | Zone 1: Passenger | | | |
|---|---|---|---|---|
| | To Passenger: | | From Passenger: | |
| | Share % | Trips | Share % | Trips |
| 16: Truck | 0.00 | 0 | 0.00 | 0 |
| 2: Tatamy Rd | 7.00 | 4 | 7.00 | 7 |
| 3: Park Ave | 5.00 | 3 | 5.00 | 5 |
| 4: Nazareth Rd | 12.00 | 7 | 12.00 | 11 |
| 5: Northampton St (East) | 7.00 | 4 | 7.00 | 7 |
| 6: To/From West via US 22 | 18.00 | 10 | 18.00 | 15 |
| 7: Northampton St (West) | 4.00 | 2 | 4.00 | 4 |
| 8: Sales St | 3.00 | 2 | 3.00 | 3 |
| 9: 25th S | 14.00 | 8 | 14.00 | 13 |
| 10: To/From East via US 22 | 10.00 | 6 | 10.00 | 9 |
| 11: Wood Ave (Easton) | 4.00 | 2 | 4.00 | 4 |
| 12: 13th St (South) | 5.00 | 3 | 5.00 | 5 |
| 13: 13th St (North) | 11.00 | 6 | 11.00 | 10 |
| **Total** | **100.00** | **57** | **100.00** | **93** |

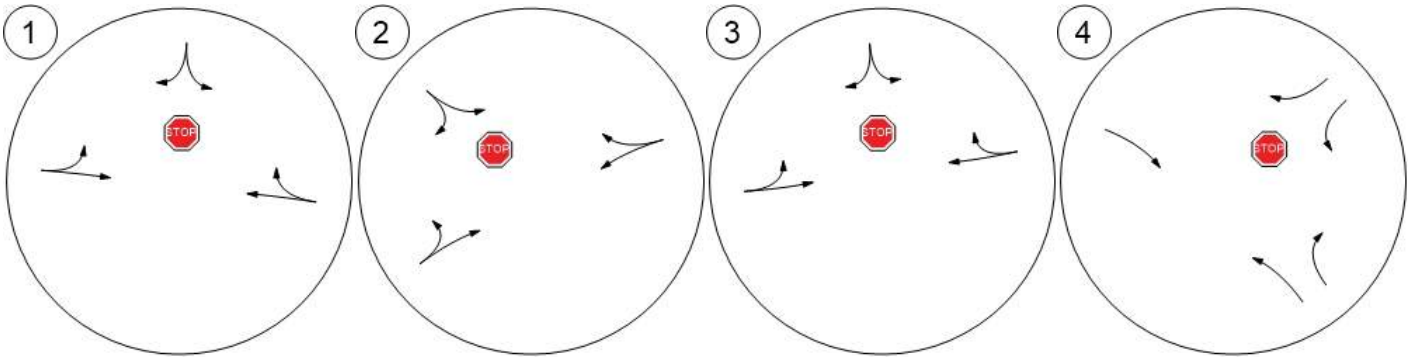
| Zone / Gate | Zone 16: Truck | | | |
|---|---|---|---|---|
| | To Truck: | | From Truck: | |
| | Share % | Trips | Share % | Trips |
| 1: Passenger | 0.00 | 0 | 0.00 | 0 |
| 2: Tatamy Rd | 0.00 | 0 | 0.00 | 0 |
| 3: Park Ave | 0.00 | 0 | 0.00 | 0 |
| 4: Nazareth Rd | 0.00 | 0 | 0.00 | 0 |
| 5: Northampton St (East) | 0.00 | 0 | 0.00 | 0 |
| 6: To/From West via US 22 | 50.00 | 3 | 50.00 | 3 |
| 7: Northampton St (West) | 0.00 | 0 | 0.00 | 0 |
| 8: Sales St | 0.00 | 0 | 0.00 | 0 |
| 9: 25th S | 0.00 | 0 | 0.00 | 0 |
| 10: To/From East via US 22 | 50.00 | 3 | 50.00 | 2 |
| 11: Wood Ave (Easton) | 0.00 | 0 | 0.00 | 0 |
| 12: 13th St (South) | 0.00 | 0 | 0.00 | 0 |
| 13: 13th St (North) | 0.00 | 0 | 0.00 | 0 |
| **Total** | **100.00** | **6** | **100.00** | **5** |

Report Figure 1: Study Intersections

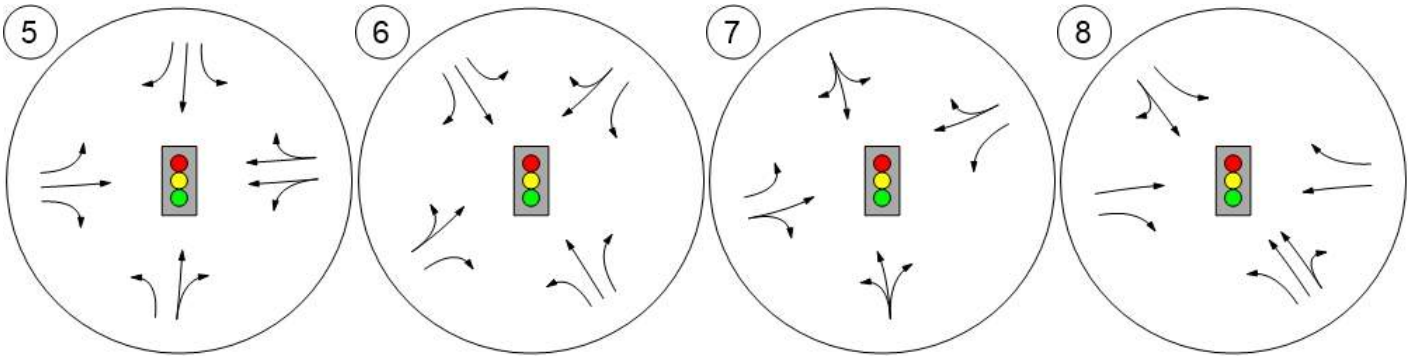


Report Figure 2: Lane Configuration and Traffic Control

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

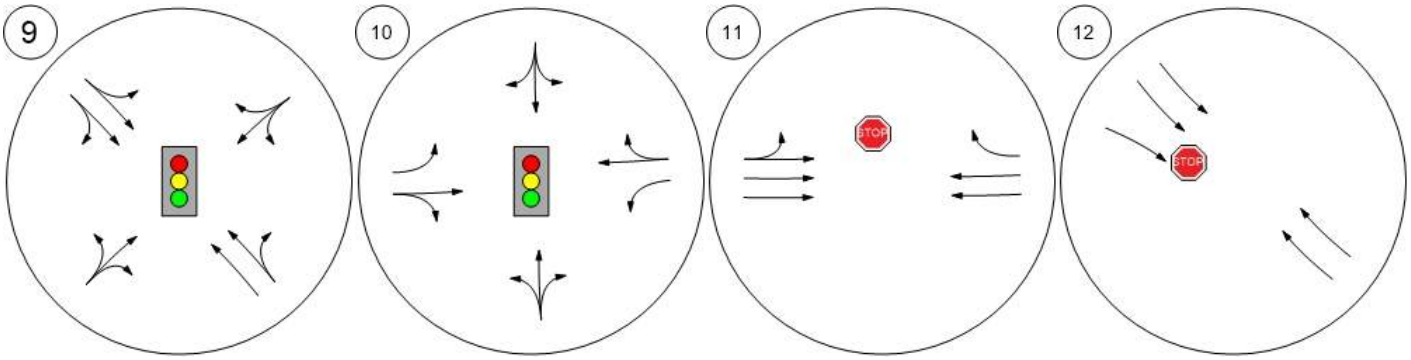



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024



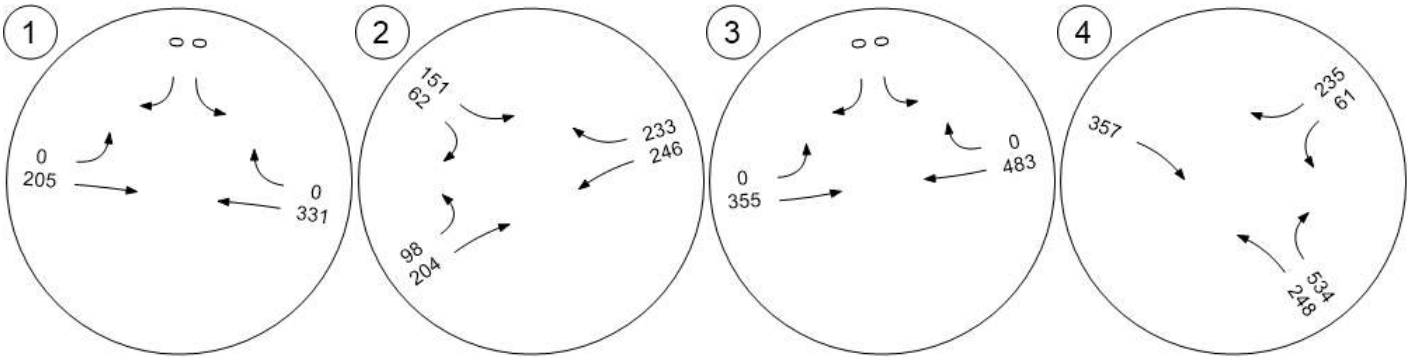
Report Figure 2: Lane Configuration and Traffic Control

Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) / Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U

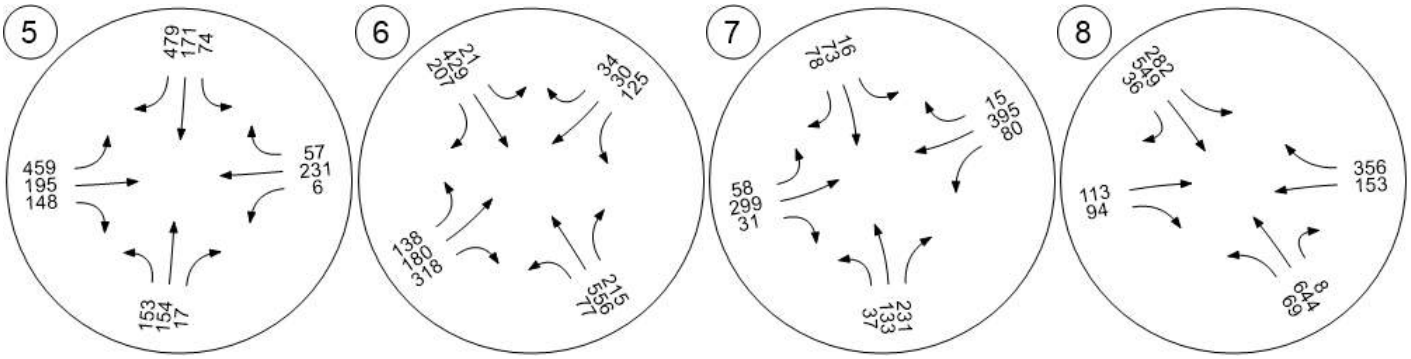


Report Figure 3a: Traffic Volume - Base Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

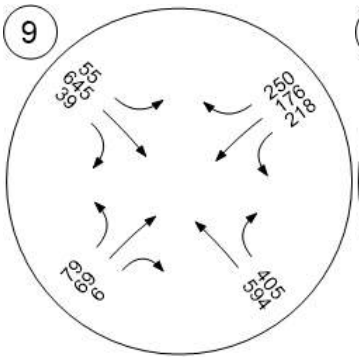



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024

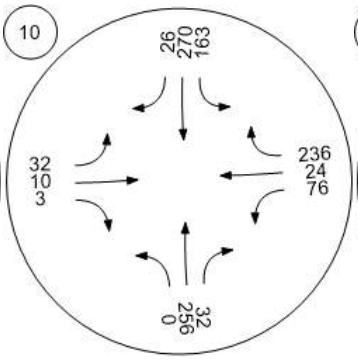


Report Figure 3a: Traffic Volume - Base Volume

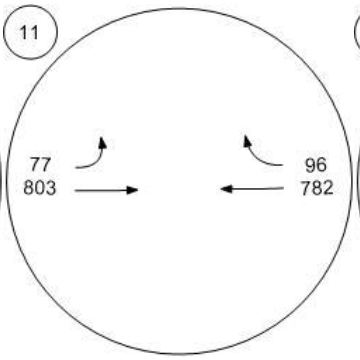
Nazareth Road (SR 0248) &



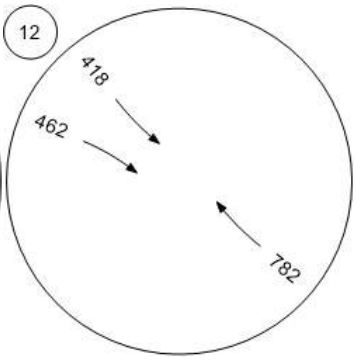

Hackett Avenue (SR 2017) /




Wood Avenue (SR 2017) & U

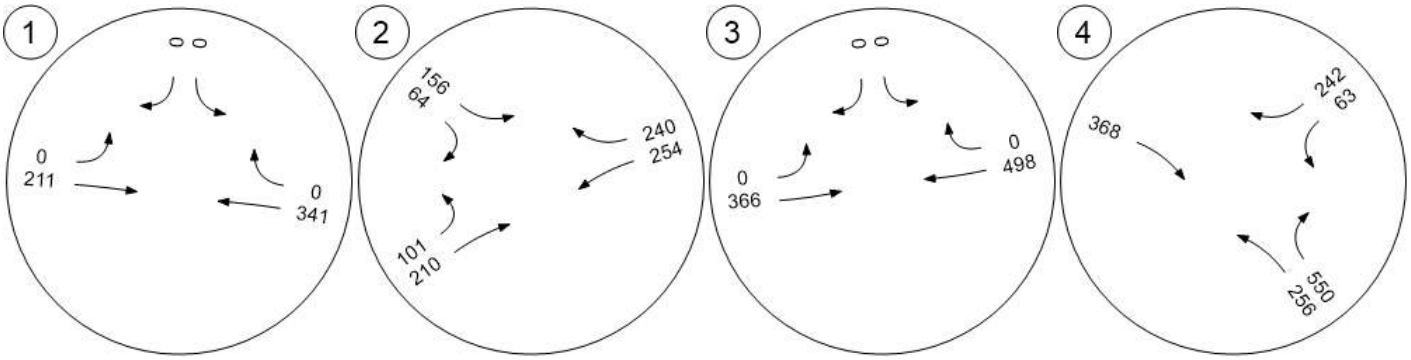



Wood Avenue (SR 2017) & U

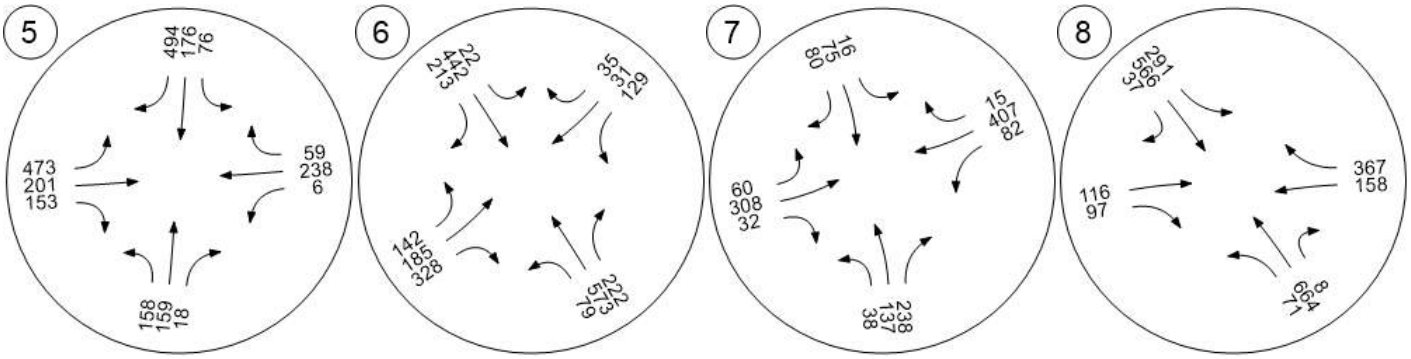


Report Figure 3c: Traffic Volume - Future Background Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

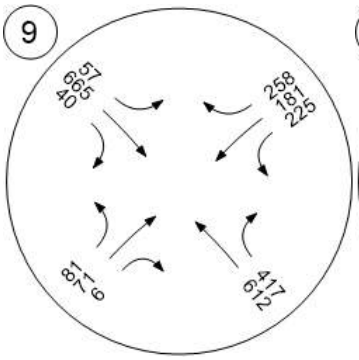



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024

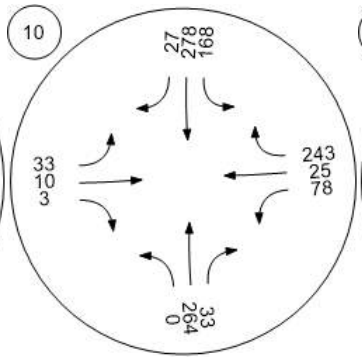


Report Figure 3c: Traffic Volume - Future Background Volume

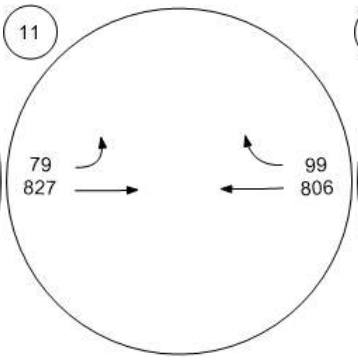
Nazareth Road (SR 0248) &



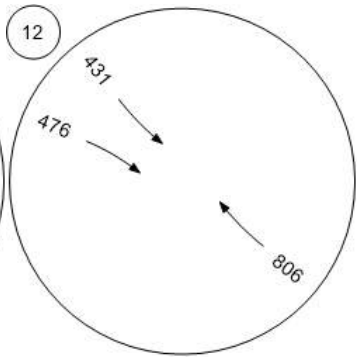

Hackett Avenue (SR 2017) /




Wood Avenue (SR 2017) & U

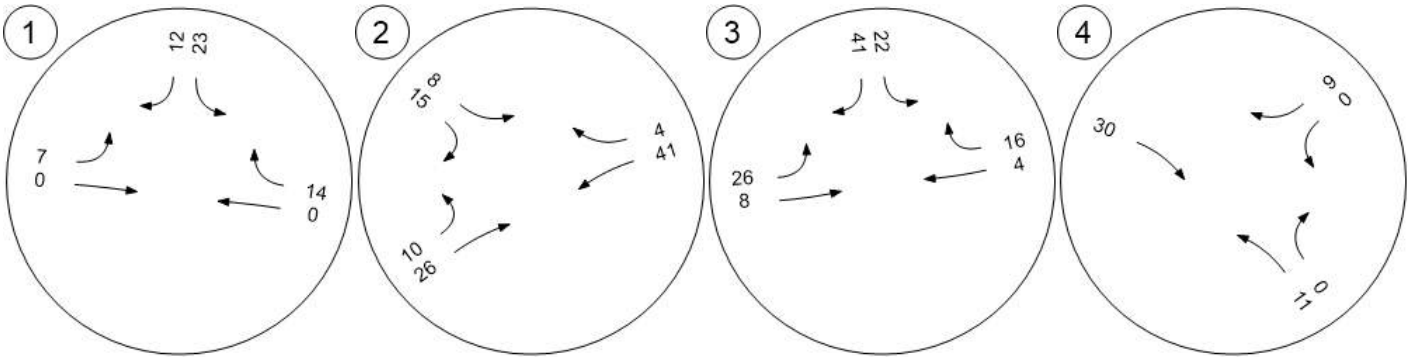



Wood Avenue (SR 2017) & U

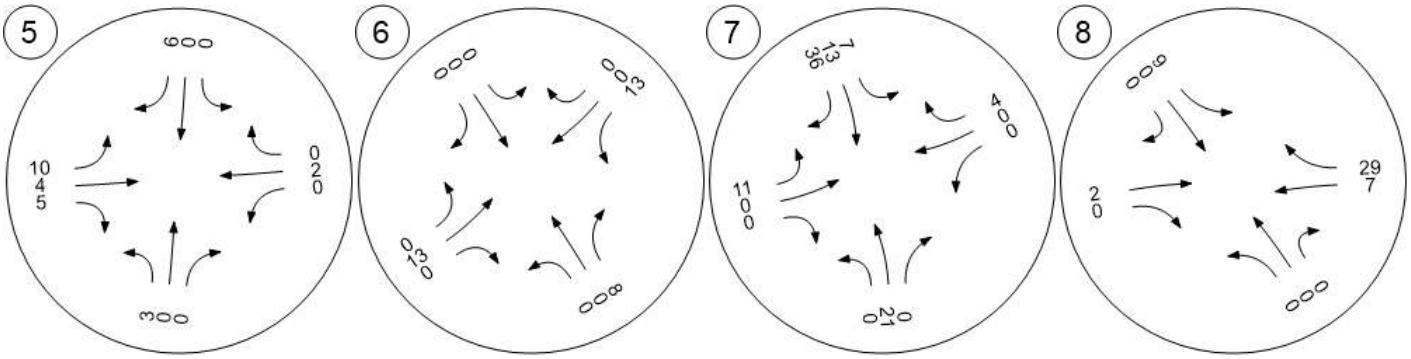


Report Figure 3d: Traffic Volume - Net New Site Trips

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

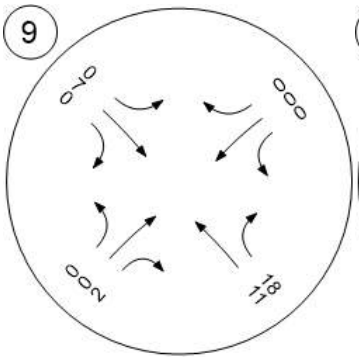



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024

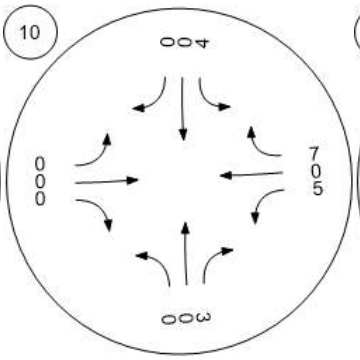


Report Figure 3d: Traffic Volume - Net New Site Trips

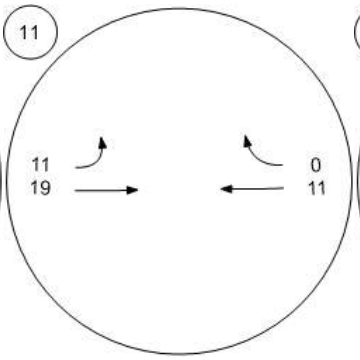
Nazareth Road (SR 0248) &



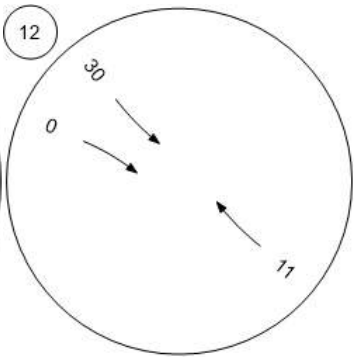

Hackett Avenue (SR 2017) /




Wood Avenue (SR 2017) & U

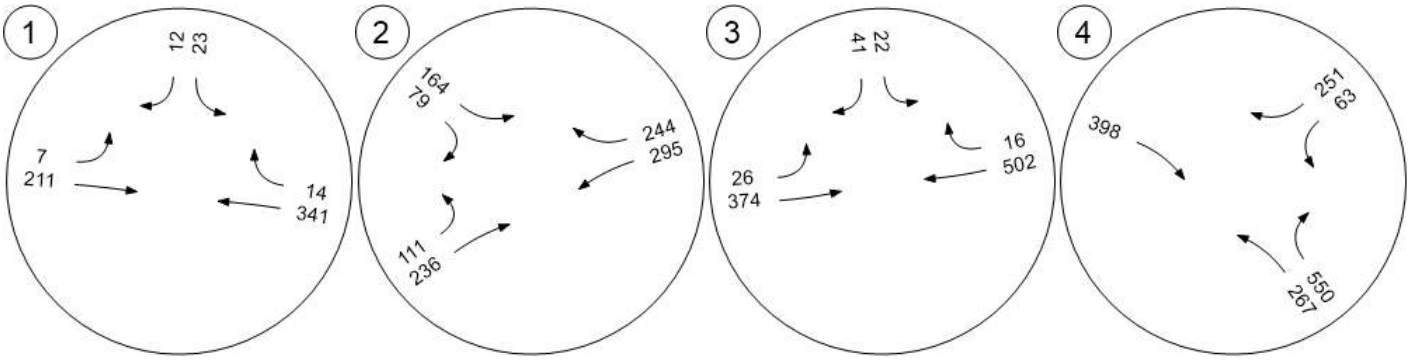



Wood Avenue (SR 2017) & U

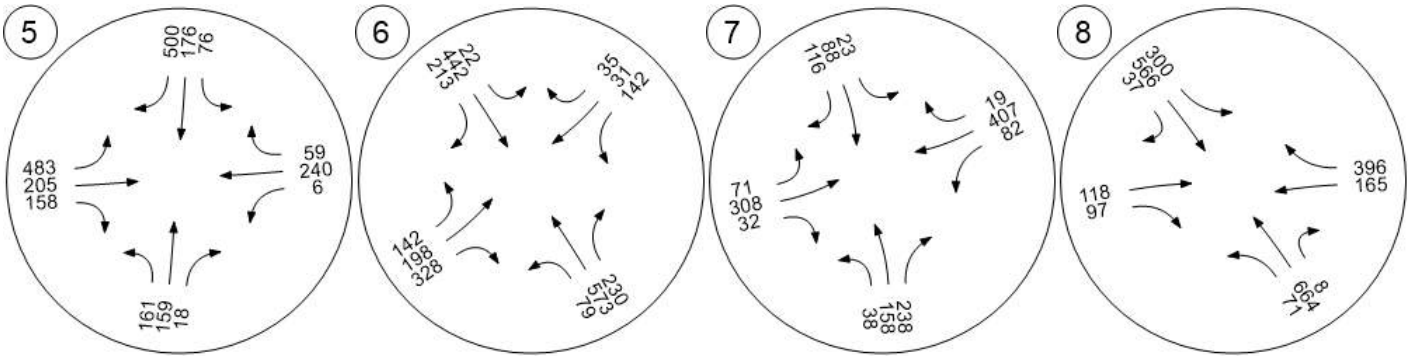


Report Figure 3f: Traffic Volume - Future Total Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

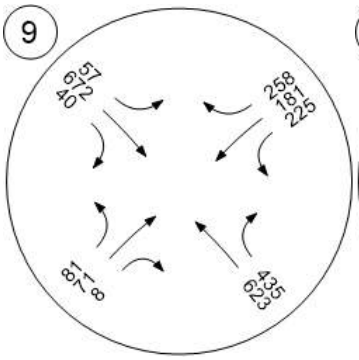



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024

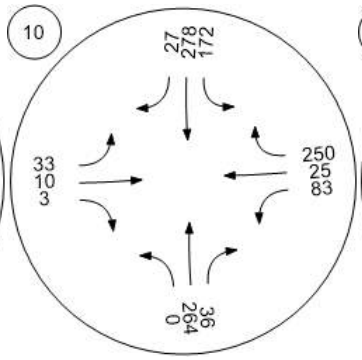


Report Figure 3f: Traffic Volume - Future Total Volume

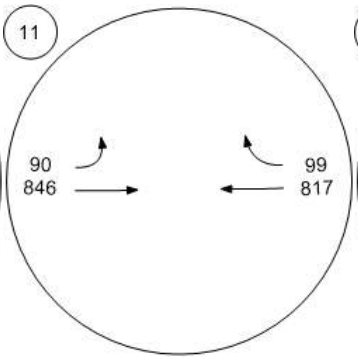
Nazareth Road (SR 0248) &



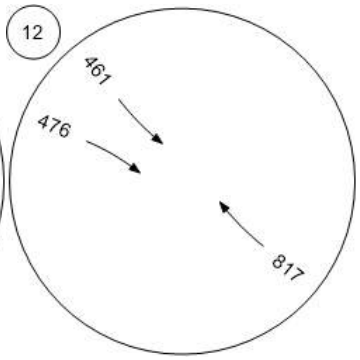

Hackett Avenue (SR 2017) /




Wood Avenue (SR 2017) & U

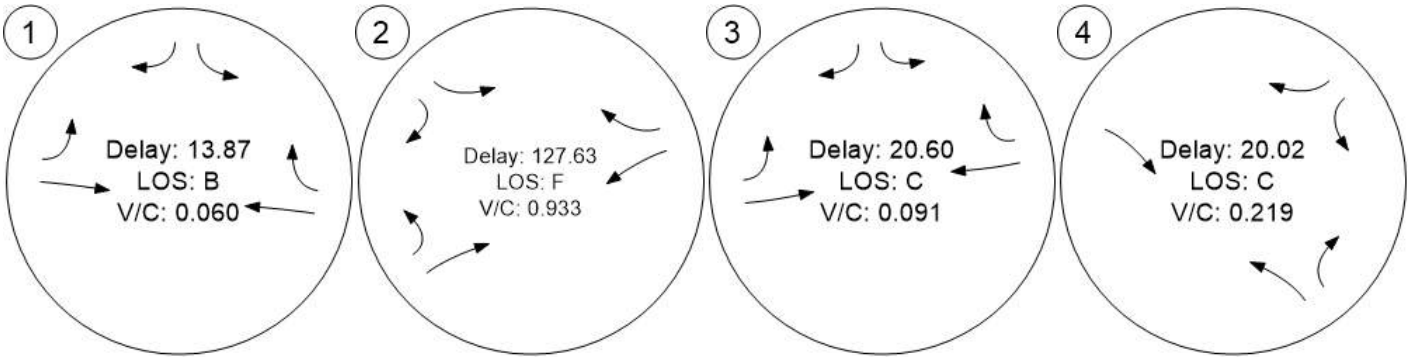



Wood Avenue (SR 2017) & U

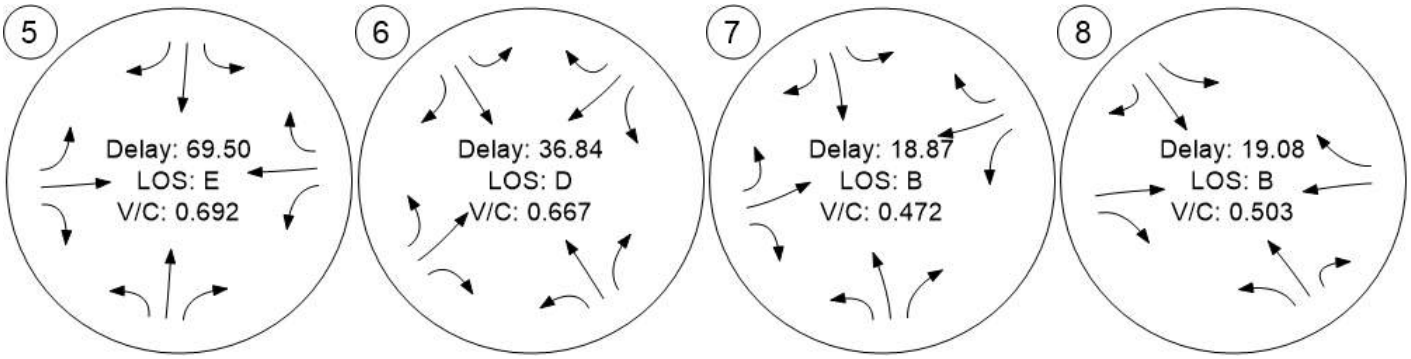


Report Figure 4: Traffic Conditions

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & U

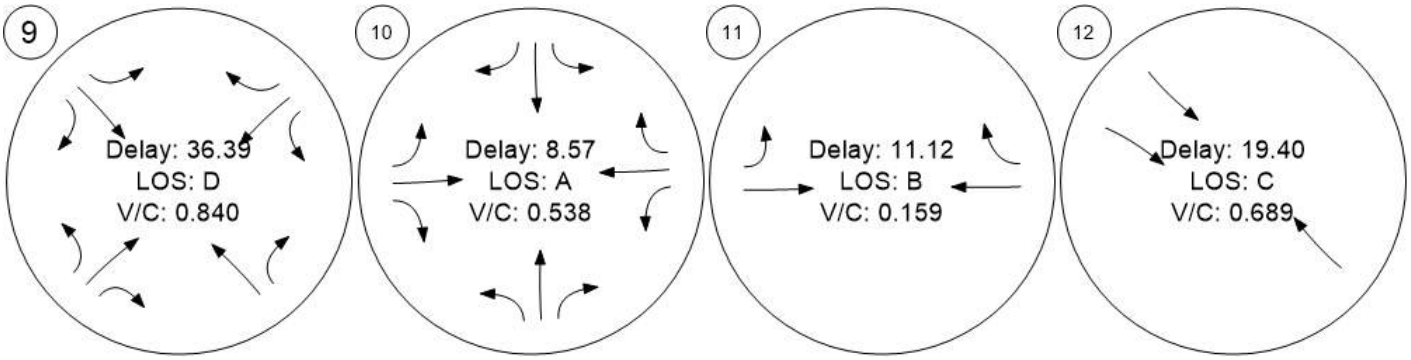



Wood Avenue (SR 2017) & N S 25th Street (SR 2012) & W Northampton Street (SR 024 Northampton Street (SR 024



Report Figure 4: Traffic Conditions

Nazareth Road (SR 0248) & Hackett Avenue (SR 2017) / Wood Avenue (SR 2017) & U Wood Avenue (SR 2017) & U



# PTV Vistro 2024 Reports

*With Development Conditions + Improvements (2025) – Weekday AM*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

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Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 13 2025 WD + IMP AM

Report File: C:\...\2025 WD + IMP AM.pdf
6/17/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | SB Left | 0.016 | 11.3 | B |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Two-way stop | HCM 7th Edition | SB Left | 0.426 | 23.1 | C |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | SB Left | 0.026 | 15.7 | C |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Signalized | HCM 7th Edition | SB Right | 0.663 | 36.7 | D |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Two-way stop | HCM 7th Edition | EB Left | 0.243 | 11.8 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**

**Intersection 1: Hackett Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.016 |

**Intersection Setup**

| Name | Proposed Site Access | | Hackett Avenue (SR 2017) | | Hackett Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | 40.00 | | 40.00 | |
| Grade [%] | 0.03 | | 0.05 | | -0.05 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Proposed Site Access | | Hackett Avenue (SR 2017) | | Hackett Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 176 | 176 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 43.00 | 0.00 | 0.00 | 3.00 | 1.00 | 7.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 8 | 2 | 14 | 0 | 0 | 27 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 8 | 2 | 14 | 178 | 178 | 27 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 1 | 4 | 49 | 49 | 8 |
| Total Analysis Volume [veh/h] | 9 | 2 | 16 | 198 | 198 | 30 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 11.32 | 9.18 | 8.61 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.05 | 0.05 | 0.03 | 0.03 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.36 | 1.36 | 0.67 | 0.67 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.93 | | 0.64 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.57 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**

**Intersection 2: Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 23.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.426 |

**Intersection Setup**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 150.00 | 100.00 | 100.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.01 | | 0.01 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 128 | 42 | 61 | 153 | 235 | 115 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 6.00 | 6.00 | 5.00 | 7.00 | 2.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 3 | 5 | 18 | 51 | 11 | 9 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 132 | 47 | 80 | 205 | 248 | 125 |
| Peak Hour Factor | 0.9040 | 0.9040 | 0.9040 | 0.9040 | 0.9040 | 0.9040 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 13 | 22 | 57 | 69 | 35 |
| Total Analysis Volume [veh/h] | 146 | 52 | 88 | 227 | 274 | 138 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.43 | 0.07 | 0.10 | 0.00 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 23.06 | 9.98 | 9.34 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 2.05 | 0.22 | 0.15 | 0.15 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 51.33 | 5.38 | 3.85 | 3.85 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 19.63 | | 2.61 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.09 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**

**Intersection 3: Wood Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 15.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.026 |

**Intersection Setup**

| Name | Proposed Site Access | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 200.00 | 100.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Proposed Site Access | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 281 | 298 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 43.00 | 27.00 | 6.00 | 3.00 | 2.00 | 17.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 8 | 11 | 51 | 3 | 9 | 29 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 8 | 11 | 51 | 286 | 310 | 29 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 3 | 14 | 79 | 86 | 8 |
| Total Analysis Volume [veh/h] | 9 | 12 | 57 | 318 | 344 | 32 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.03 | 0.02 | 0.06 | 0.00 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 15.66 | 10.33 | 9.32 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.13 | 0.13 | 0.20 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 3.32 | 3.32 | 5.12 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 12.61 | | 1.42 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.03 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**

**Intersection 5: Wood Avenue (SR 2017) & N. 13th Street (SR 2019)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 36.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.663 |

**Intersection Setup**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 12.00 | 11.00 | 12.00 | 15.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 20.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 105.00 | 100.00 | 285.00 | 115.00 | 100.00 | 100.00 | 100.00 | 100.00 | 75.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.09 | | | 0.10 | | | -0.05 | | | -0.02 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 152 | 125 | 5 | 57 | 137 | 615 | 363 | 163 | 123 | 6 | 226 | 65 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 3.00 | 0.00 | 4.00 | 7.00 | 3.00 | 4.00 | 2.00 | 1.00 | 0.00 | 1.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 6 | 0 | 0 | 0 | 0 | 12 | 2 | 1 | 1 | 0 | 4 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 333 | 0 | 0 | 70 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 159 | 126 | 4 | 57 | 138 | 299 | 368 | 165 | 55 | 6 | 232 | 66 |
| Peak Hour Factor | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 42 | 34 | 1 | 15 | 37 | 80 | 98 | 44 | 15 | 2 | 62 | 18 |
| Total Analysis Volume [veh/h] | 170 | 135 | 4 | 61 | 147 | 319 | 393 | 176 | 59 | 6 | 248 | 71 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 7 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 11 | 27 | 0 | 11 | 27 | 0 | 18 | 52 | 0 | 10 | 28 | 0 |
| Amber [s] | 4.5 | 4.5 | 0.0 | 4.5 | 4.5 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 19 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 3.5 | 3.5 | 0.0 | 3.5 | 3.5 | 0.0 | 2.5 | 2.5 | 0.0 | 4.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | | No | |
| Maximum Recall | No | Yes | | No | Yes | | No | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | C | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 | 0.00 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 12 | 33 | 7 | 28 | 28 | 37 | 37 | 37 | 13 | 13 |
| g / C, Green / Cycle | 0.13 | 0.35 | 0.07 | 0.30 | 0.30 | 0.40 | 0.40 | 0.40 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.08 | 0.05 | 0.11 | 0.26 | 0.28 | 0.10 | 0.04 | 0.10 | 0.10 |
| s, saturation flow rate [veh/h] | 1686 | 1747 | 1305 | 1328 | 1224 | 1397 | 1771 | 1517 | 1659 | 1567 |
| c, Capacity [veh/h] | 214 | 618 | 92 | 394 | 363 | 578 | 701 | 601 | 275 | 222 |
| d1, Uniform Delay [s] | 39.99 | 21.43 | 42.80 | 26.26 | 31.58 | 23.99 | 19.11 | 17.91 | 38.35 | 38.70 |
| k, delay calibration | 0.25 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 13.97 | 0.84 | 8.03 | 2.70 | 24.69 | 1.42 | 0.19 | 0.07 | 2.11 | 4.32 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.79 | 0.23 | 0.67 | 0.37 | 0.88 | 0.68 | 0.25 | 0.10 | 0.60 | 0.72 |
| d, Delay for Lane Group [s/veh] | 53.96 | 22.27 | 50.84 | 28.95 | 56.27 | 25.41 | 19.30 | 17.98 | 40.46 | 43.02 |
| Lane Group LOS | D | C | D | C | E | C | B | B | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 4.57 | 2.23 | 1.57 | 2.83 | 9.10 | 6.92 | 2.52 | 0.79 | 3.69 | 3.72 |
| 50th-Percentile Queue Length [ft/ln] | 114.24 | 55.83 | 39.14 | 70.71 | 227.58 | 173.06 | 63.06 | 19.82 | 92.28 | 92.91 |
| 95th-Percentile Queue Length [veh/ln] | 8.08 | 4.02 | 2.82 | 5.09 | 14.05 | 11.24 | 4.54 | 1.43 | 6.64 | 6.69 |
| 95th-Percentile Queue Length [ft/ln] | 201.88 | 100.49 | 70.45 | 127.28 | 351.29 | 280.93 | 113.51 | 35.67 | 166.10 | 167.24 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 53.96 | 22.27 | 22.27 | 50.84 | 28.95 | 56.27 | 25.41 | 19.30 | 17.98 | 40.46 | 41.38 | 43.02 |
| Movement LOS | D | C | C | D | C | E | C | B | B | D | D | D |
| d_A, Approach Delay [s/veh] | 39.70 | | | 48.02 | | | 23.00 | | | 41.72 | | |
| Approach LOS | D | | | D | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 36.66 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.663 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.60 | 7.85 | 6.42 | 15.47 | 33.58 | 13.38 | 5.99 | 2.01 | 16.37 | 15.83 |
| Stops [stops/h] | 174.30 | 85.18 | 59.72 | 107.89 | 347.24 | 264.05 | 96.22 | 30.24 | 140.80 | 141.76 |
| Fuel consumption [US gal/h] | 3.54 | 1.57 | 1.32 | 2.27 | 7.54 | 4.53 | 1.64 | 0.52 | 3.04 | 3.07 |
| CO [g/h] | 247.68 | 109.73 | 92.61 | 158.48 | 527.33 | 316.51 | 114.85 | 36.34 | 212.73 | 214.47 |
| NOx [g/h] | 48.19 | 21.35 | 18.02 | 30.84 | 102.60 | 61.58 | 22.35 | 7.07 | 41.39 | 41.73 |
| VOC [g/h] | 57.40 | 25.43 | 21.46 | 36.73 | 122.21 | 73.35 | 26.62 | 8.42 | 49.30 | 49.71 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.83 | 36.83 | 36.83 | 36.83 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.177 | 3.064 | 2.759 | 2.224 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 572 | 572 | 1102 | 593 |
| d_b, Bicycle Delay [s] | 24.05 | 24.05 | 9.51 | 23.34 |
| l_b,int, Bicycle LOS Score for Intersection | 2.071 | 2.979 | 2.711 | 1.828 |
| Bicycle LOS | B | C | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 11: Wood Avenue (SR 2017) & US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.243 |

**Intersection Setup**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 50.00 | 0.00 |
| Speed [mph] | 30.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | -0.03 | | 0.03 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 113 | 656 | 872 | 191 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 4.00 | 3.00 | 1.00 | 2.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 7 | 4 | 22 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 121 | 666 | 901 | 193 |
| Peak Hour Factor | 1.0000 | 1.0000 | 0.9180 | 0.9180 | 0.9180 | 0.9180 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 33 | 181 | 245 | 53 |
| Total Analysis Volume [veh/h] | 0 | 0 | 132 | 725 | 981 | 210 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.24 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 11.77 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.24 | 0.12 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 5.93 | 2.96 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 1.81 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.76 | | | | | |
| Intersection LOS | B | | | | | |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 13 2025 WD + IMP AM

Report File: C:\...\2025 WD + IMP AM.pdf
6/17/2024

## Turning Movement Volume: Summary

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | 8 | 2 | 14 | 178 | 178 | 27 | 407 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | 132 | 47 | 80 | 205 | 248 | 125 | 837 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | 8 | 11 | 51 | 286 | 310 | 29 | 695 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | 159 | 126 | 5 | 57 | 138 | 632 | 368 | 165 | 125 | 6 | 232 | 66 | 2079 |

| ID | Intersection Name | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|
| | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | 121 | 666 | 901 | 193 | 1881 |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro Scenario 13 2025 WD + IMP AM

Report File: C:\...\2025 WD + IMP AM.pdf 6/17/2024

## Turning Movement Volume: Detail

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 0 | 0 | 0 | 176 | 176 | 0 | 352 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 8 | 2 | 14 | 0 | 0 | 27 | 51 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **8** | **2** | **14** | **178** | **178** | **27** | **407** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Final Base | 128 | 42 | 61 | 153 | 235 | 115 | 734 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 3 | 5 | 18 | 51 | 11 | 9 | 97 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **132** | **47** | **80** | **205** | **248** | **125** | **837** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 0 | 0 | 0 | 281 | 298 | 0 | 579 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 8 | 11 | 51 | 3 | 9 | 29 | 111 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **8** | **11** | **51** | **286** | **310** | **29** | **695** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Final Base | 152 | 125 | 5 | 57 | 137 | 615 | 363 | 163 | 123 | 6 | 226 | 65 | 2037 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 6 | 0 | 0 | 0 | 0 | 12 | 2 | 1 | 1 | 0 | 4 | 0 | 26 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **159** | **126** | **5** | **57** | **138** | **632** | **368** | **165** | **125** | **6** | **232** | **66** | **2079** |

| ID | Intersection Name | Volume Type | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Final Base | 113 | 656 | 872 | 191 | 1832 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 7 | 4 | 22 | 0 | 33 |
| | | Other | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **121** | **666** | **901** | **193** | **1881** |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 13 2025 WD + IMP AM

Report File: C:\...\2025 WD + IMP AM.pdf
6/17/2024

## Trip Generation summary

### Added Trips

| Zone ID: Name | Land Use variables | Code | Ind. Var. | Rate | Quantity | % In | % Out | % Int. Capture | Trips In Adj. | Trips Out Adj. | Total Trips Adj. | % of Total Trips |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1: Passenger | | 155 | SF | | 0.000 | 50.00 | 50.00 | 0.00 | 112 | 19 | 131 | 86.75 |
| 16: Truck | | 155 | SF | | 0.000 | 50.00 | 50.00 | 0.00 | 10 | 10 | 20 | 13.25 |
| | | | | | **Added Trips Total** | | | | **122** | **29** | **151** | **100.00** |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 13 2025 WD + IMP AM

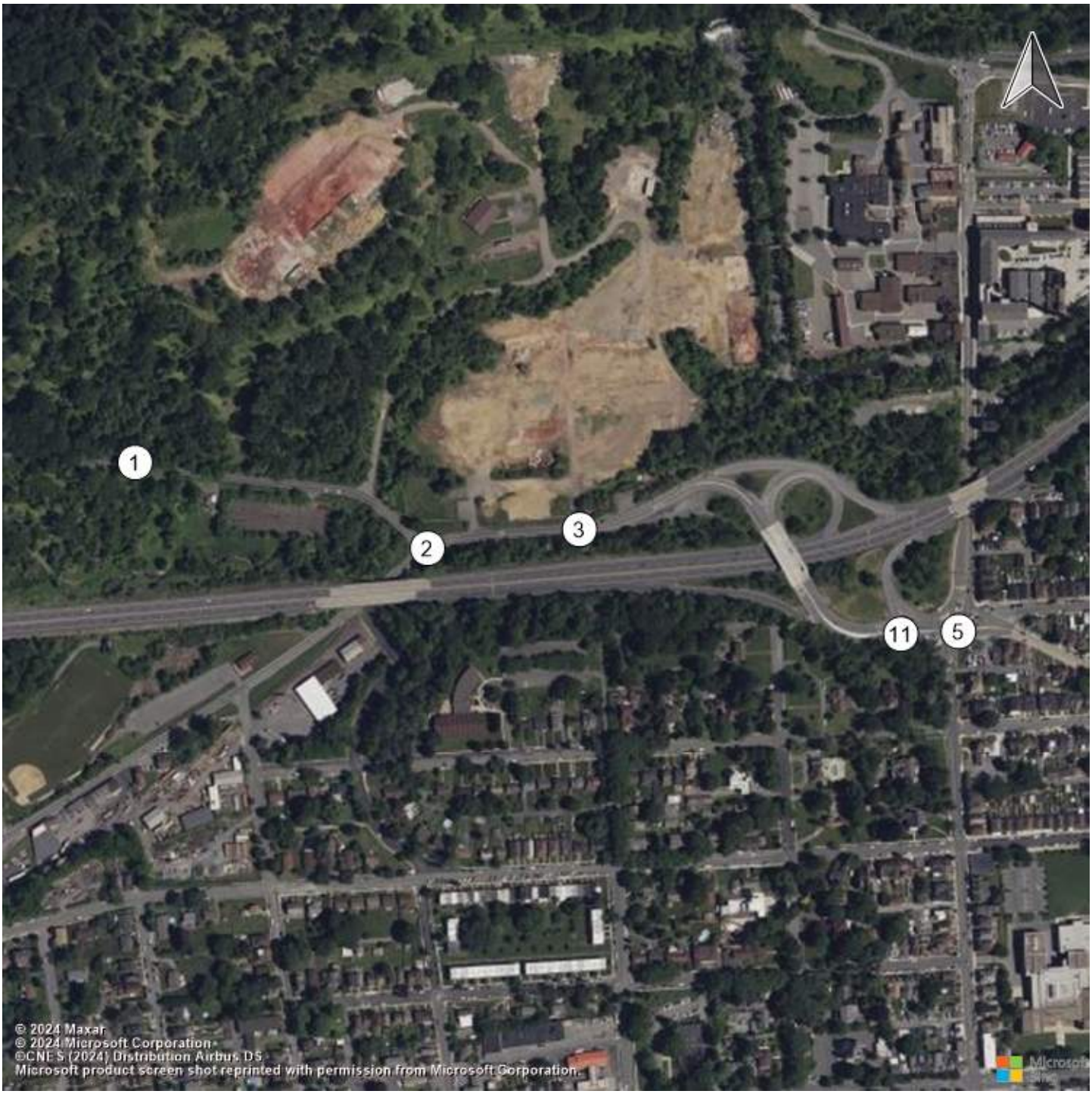
Report File: C:\...\2025 WD + IMP AM.pdf
6/17/2024

## Trip Distribution summary

| Zone / Gate | Zone 1: Passenger | | | |
|---|---|---|---|---|
| | To Passenger: | | From Passenger: | |
| | Share % | Trips | Share % | Trips |
| 16: Truck | 0.00 | 0 | 0.00 | 0 |
| 2: Tatamy Rd | 7.00 | 8 | 7.00 | 1 |
| 3: Park Ave | 5.00 | 6 | 5.00 | 1 |
| 4: Nazareth Rd | 12.00 | 13 | 12.00 | 2 |
| 5: Northampton St (East) | 7.00 | 8 | 7.00 | 1 |
| 6: To/From West via US 22 | 18.00 | 20 | 18.00 | 3 |
| 7: Northampton St (West) | 4.00 | 4 | 4.00 | 1 |
| 8: Sales St | 3.00 | 3 | 3.00 | 1 |
| 9: 25th S | 14.00 | 16 | 14.00 | 3 |
| 10: To/From East via US 22 | 10.00 | 11 | 10.00 | 2 |
| 11: Wood Ave (Easton) | 4.00 | 4 | 4.00 | 1 |
| 12: 13th St (South) | 5.00 | 6 | 5.00 | 1 |
| 13: 13th St (North) | 11.00 | 12 | 11.00 | 2 |
| **Total** | **100.00** | **111** | **100.00** | **19** |

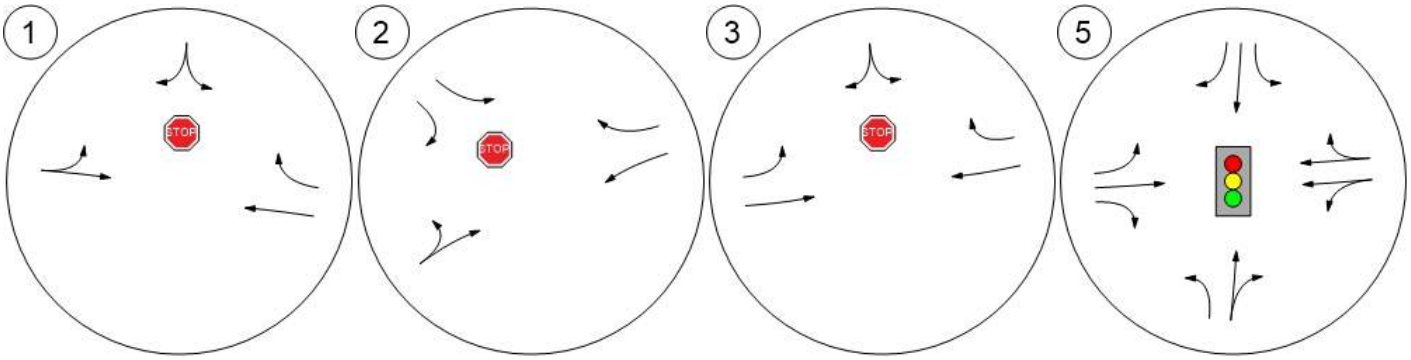
| Zone / Gate | Zone 16: Truck | | | |
|---|---|---|---|---|
| | To Truck: | | From Truck: | |
| | Share % | Trips | Share % | Trips |
| 1: Passenger | 0.00 | 0 | 0.00 | 0 |
| 2: Tatamy Rd | 0.00 | 0 | 0.00 | 0 |
| 3: Park Ave | 0.00 | 0 | 0.00 | 0 |
| 4: Nazareth Rd | 0.00 | 0 | 0.00 | 0 |
| 5: Northampton St (East) | 0.00 | 0 | 0.00 | 0 |
| 6: To/From West via US 22 | 50.00 | 5 | 50.00 | 5 |
| 7: Northampton St (West) | 0.00 | 0 | 0.00 | 0 |
| 8: Sales St | 0.00 | 0 | 0.00 | 0 |
| 9: 25th S | 0.00 | 0 | 0.00 | 0 |
| 10: To/From East via US 22 | 50.00 | 5 | 50.00 | 5 |
| 11: Wood Ave (Easton) | 0.00 | 0 | 0.00 | 0 |
| 12: 13th St (South) | 0.00 | 0 | 0.00 | 0 |
| 13: 13th St (North) | 0.00 | 0 | 0.00 | 0 |
| **Total** | **100.00** | **10** | **100.00** | **10** |

Report Figure 1: Study Intersections

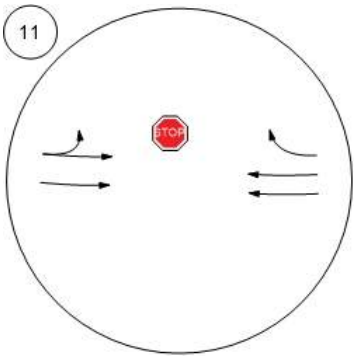


Report Figure 2: Lane Configuration and Traffic Control

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

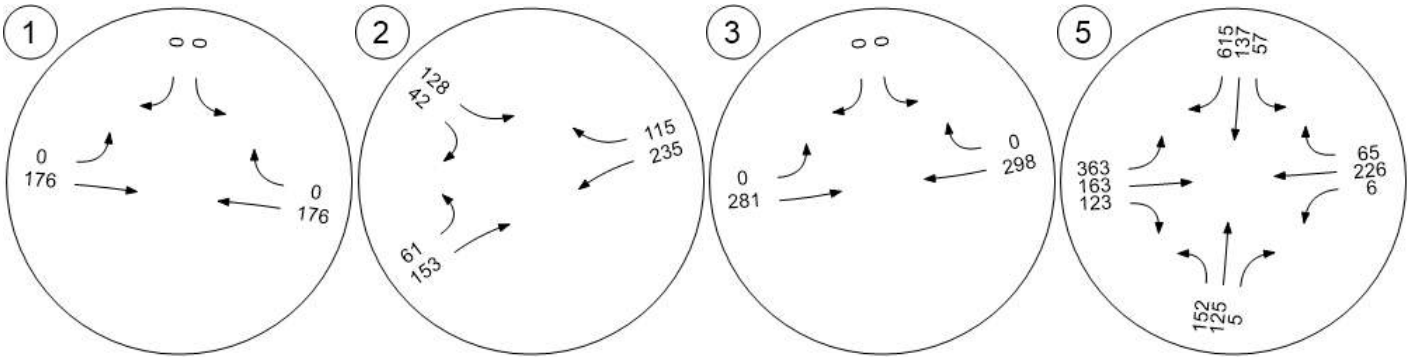



Wood Avenue (SR 2017) & U

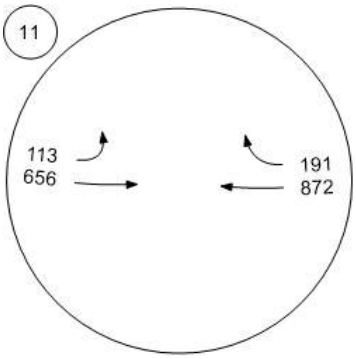


Report Figure 3a: Traffic Volume - Base Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

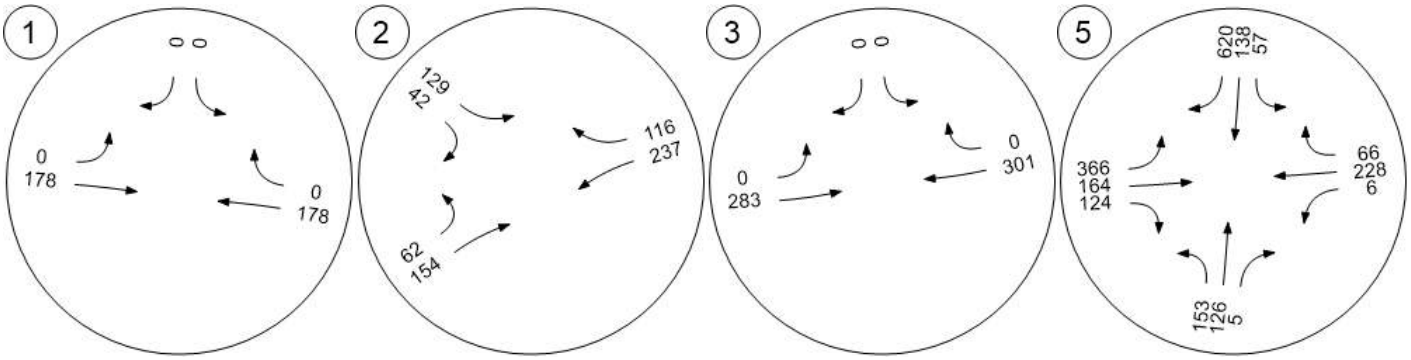



Wood Avenue (SR 2017) & U

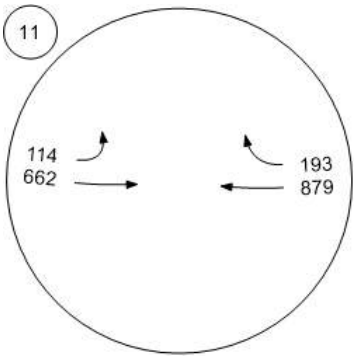


Report Figure 3c: Traffic Volume - Future Background Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

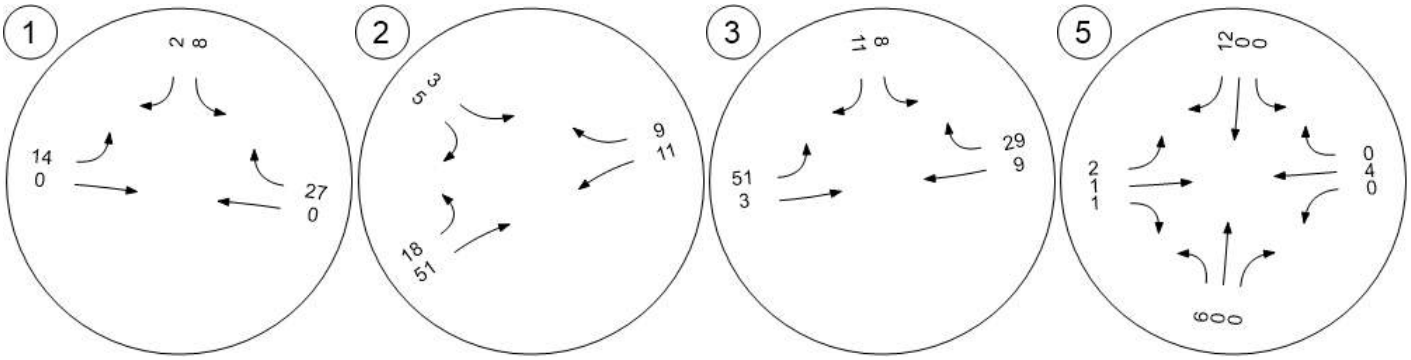



Wood Avenue (SR 2017) & U

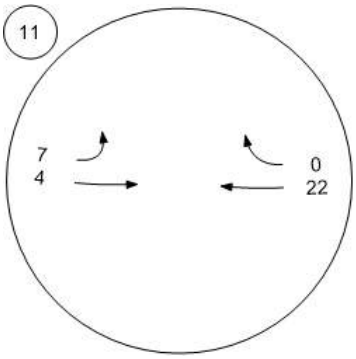


Report Figure 3d: Traffic Volume - Net New Site Trips

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

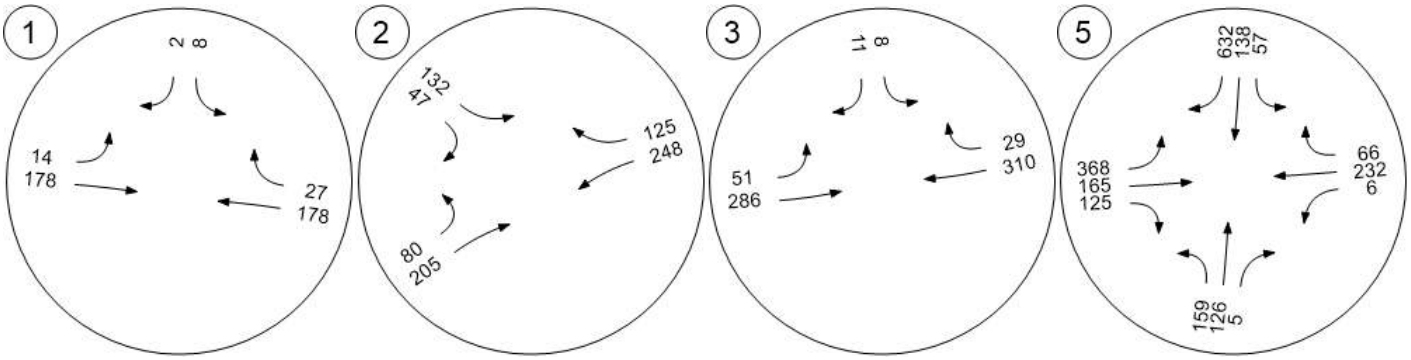



Wood Avenue (SR 2017) & U

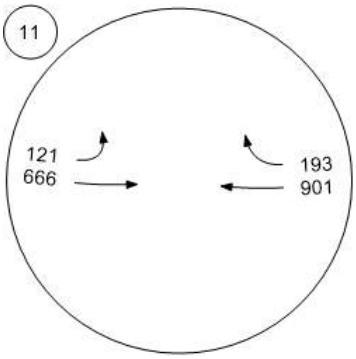


Report Figure 3f: Traffic Volume - Future Total Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

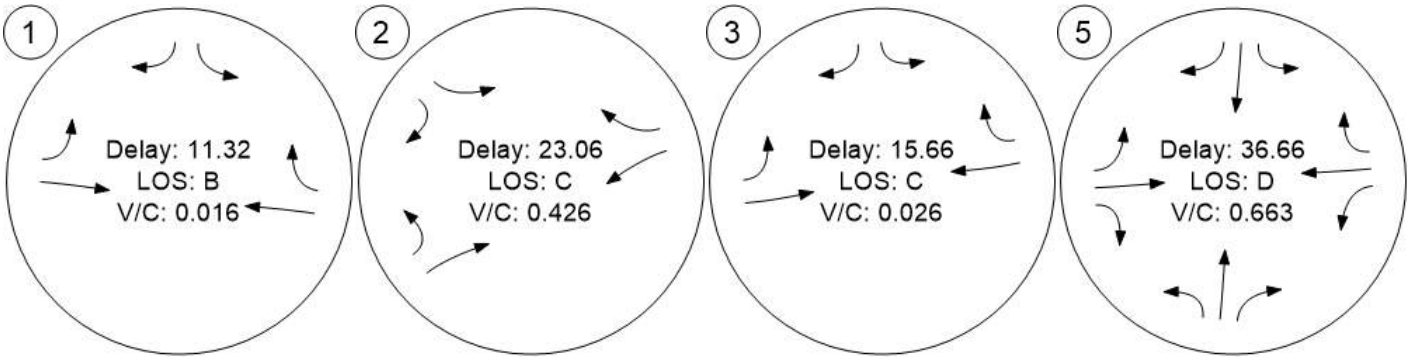



Wood Avenue (SR 2017) & U

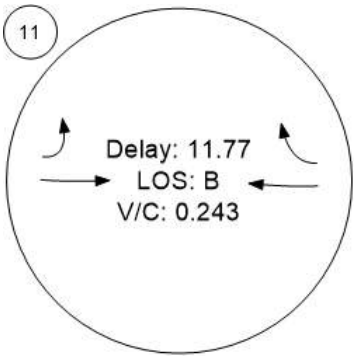


Report Figure 4: Traffic Conditions

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N




Wood Avenue (SR 2017) & U



# PTV Vistro 2024 Reports

*With Development Conditions + Improvements (2025) – Weekday PM*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

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Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 14 2025 WD + IMP PM

Report File: C:\...\2025 WD + IMP PM.pdf
6/17/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | SB Left | 0.058 | 13.6 | B |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Two-way stop | HCM 7th Edition | SB Left | 0.705 | 47.8 | E |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | SB Left | 0.086 | 19.7 | C |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Signalized | HCM 7th Edition | SB Right | 0.677 | 65.5 | E |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Two-way stop | HCM 7th Edition | EB Left | 0.155 | 11.0 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**

**Intersection 1: Hackett Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 13.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.058 |

**Intersection Setup**

| Name | Proposed Site Access | | Hackett Avenue (SR 2017) | | Hackett Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | 40.00 | | 40.00 | |
| Grade [%] | 0.03 | | 0.05 | | -0.05 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Proposed Site Access | | Hackett Avenue (SR 2017) | | Hackett Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 205 | 331 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 9.00 | 0.00 | 0.00 | 2.00 | 2.00 | 7.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 23 | 12 | 7 | 0 | 0 | 14 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 23 | 12 | 7 | 207 | 334 | 14 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 3 | 2 | 58 | 93 | 4 |
| Total Analysis Volume [veh/h] | 26 | 13 | 8 | 230 | 371 | 16 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.06 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 13.57 | 10.77 | 9.08 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.25 | 0.25 | 0.01 | 0.01 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 6.18 | 6.18 | 0.33 | 0.33 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 12.64 | | 0.31 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.85 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**

**Intersection 2: Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 47.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.705 |

**Intersection Setup**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 150.00 | 100.00 | 100.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.01 | | 0.01 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 151 | 62 | 98 | 204 | 246 | 233 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.00 | 3.00 | 3.00 | 3.00 | 3.00 | 2.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 8 | 15 | 10 | 26 | 41 | 4 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 160 | 78 | 109 | 232 | 289 | 239 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 44 | 21 | 30 | 64 | 79 | 66 |
| Total Analysis Volume [veh/h] | 176 | 86 | 120 | 255 | 318 | 263 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.70 | 0.12 | 0.16 | 0.00 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 47.77 | 10.60 | 10.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | E | B | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 4.73 | 0.40 | 0.21 | 0.21 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 118.29 | 9.99 | 5.35 | 5.35 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 35.57 | | 3.20 | | 0.00 | |
| Approach LOS | E | | A | | A | |
| d_I, Intersection Delay [s/veh] | 8.64 | | | | | |
| Intersection LOS | E | | | | | |

**Intersection Level Of Service Report**

**Intersection 3: Wood Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 19.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.086 |

**Intersection Setup**

| Name | Proposed Site Access | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 200.00 | 100.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Proposed Site Access | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 355 | 483 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 5.00 | 5.00 | 8.00 | 2.00 | 2.00 | 19.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 22 | 41 | 26 | 8 | 4 | 16 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 22 | 41 | 26 | 366 | 491 | 16 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 11 | 7 | 102 | 136 | 4 |
| Total Analysis Volume [veh/h] | 24 | 46 | 29 | 407 | 546 | 18 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.09 | 0.08 | 0.04 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 19.69 | 13.16 | 9.90 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.60 | 0.60 | 0.12 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 14.97 | 14.97 | 2.95 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 15.40 | | 0.66 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.28 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Wood Avenue (SR 2017) & N. 13th Street (SR 2019)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 65.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.677 |

**Intersection Setup**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 12.00 | 11.00 | 12.00 | 15.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 20.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 105.00 | 100.00 | 285.00 | 115.00 | 100.00 | 100.00 | 100.00 | 100.00 | 75.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.09 | | | 0.10 | | | -0.05 | | | -0.02 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 153 | 154 | 17 | 74 | 171 | 479 | 459 | 195 | 148 | 6 | 231 | 57 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.00 | 5.00 | 12.00 | 7.00 | 2.00 | 5.00 | 2.00 | 2.00 | 3.00 | 0.00 | 1.00 | 14.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 3 | 0 | 0 | 0 | 0 | 6 | 10 | 4 | 5 | 0 | 2 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 210 | 0 | 0 | 74 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 157 | 155 | 16 | 75 | 172 | 279 | 473 | 201 | 80 | 6 | 235 | 57 |
| Peak Hour Factor | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 41 | 40 | 4 | 19 | 45 | 72 | 122 | 52 | 21 | 2 | 61 | 15 |
| Total Analysis Volume [veh/h] | 163 | 160 | 17 | 78 | 178 | 289 | 490 | 208 | 83 | 6 | 243 | 59 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 7 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 21 | 49 | 0 | 10 | 22 | 0 |
| Amber [s] | 4.5 | 4.5 | 0.0 | 4.5 | 4.5 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 19 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 3.5 | 3.5 | 0.0 | 3.5 | 3.5 | 0.0 | 2.5 | 2.5 | 0.0 | 4.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | | No | |
| Maximum Recall | No | Yes | | No | Yes | | No | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | C | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 | 0.00 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 11 | 17 | 7 | 13 | 13 | 38 | 38 | 38 | 12 | 12 |
| g / C, Green / Cycle | 0.14 | 0.21 | 0.09 | 0.17 | 0.17 | 0.48 | 0.48 | 0.48 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.10 | 0.06 | 0.13 | 0.24 | 0.34 | 0.12 | 0.06 | 0.09 | 0.10 |
| s, saturation flow rate [veh/h] | 1659 | 1699 | 1265 | 1399 | 1199 | 1455 | 1771 | 1493 | 1639 | 1582 |
| c, Capacity [veh/h] | 229 | 362 | 113 | 231 | 198 | 752 | 853 | 719 | 295 | 239 |
| d1, Uniform Delay [s] | 32.49 | 27.26 | 34.84 | 31.53 | 32.95 | 16.22 | 12.01 | 11.23 | 31.12 | 31.45 |
| k, delay calibration | 0.11 | 0.50 | 0.11 | 0.50 | 0.50 | 0.12 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.05 | 4.65 | 7.18 | 21.82 | 233.90 | 1.11 | 0.15 | 0.07 | 1.45 | 2.81 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 11.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.71 | 0.49 | 0.69 | 0.77 | 1.46 | 0.65 | 0.24 | 0.12 | 0.53 | 0.64 |
| d, Delay for Lane Group [s/veh] | 36.55 | 31.91 | 42.01 | 53.35 | 266.85 | 28.53 | 12.16 | 11.30 | 32.57 | 34.26 |
| Lane Group LOS | D | C | D | D | F | C | B | B | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 3.11 | 3.25 | 1.62 | 4.49 | 16.42 | 6.11 | 1.98 | 0.74 | 2.75 | 2.80 |
| 50th-Percentile Queue Length [ft/ln] | 77.66 | 81.35 | 40.60 | 112.23 | 410.56 | 152.81 | 49.40 | 18.45 | 68.71 | 70.03 |
| 95th-Percentile Queue Length [veh/ln] | 5.59 | 5.86 | 2.92 | 7.96 | 26.76 | 10.17 | 3.56 | 1.33 | 4.95 | 5.04 |
| 95th-Percentile Queue Length [ft/ln] | 139.78 | 146.43 | 73.09 | 199.10 | 669.12 | 254.17 | 88.92 | 33.21 | 123.68 | 126.05 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.55 | 31.91 | 31.91 | 42.01 | 53.35 | 266.85 | 28.53 | 12.16 | 11.30 | 32.57 | 33.22 | 34.26 |
| Movement LOS | D | C | C | D | D | F | C | B | B | C | C | C |
| d_A, Approach Delay [s/veh] | 34.13 | | | 164.94 | | | 22.34 | | | 33.41 | | |
| Approach LOS | C | | | F | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 65.47 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.677 | | | | | | | | | | | |

**Emissions**

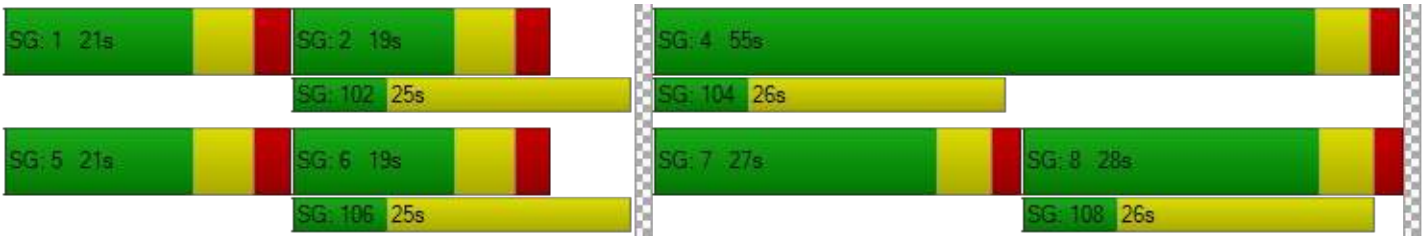
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.21 | 10.00 | 8.21 | 18.74 | 30.42 | 16.84 | 7.15 | 2.85 | 15.39 | 15.13 |
| Stops [stops/h] | 141.96 | 148.71 | 74.22 | 205.15 | 750.50 | 279.33 | 90.31 | 33.73 | 125.60 | 128.01 |
| Fuel consumption [US gal/h] | 2.63 | 2.65 | 1.54 | 4.19 | 22.49 | 5.59 | 1.47 | 0.55 | 2.56 | 2.60 |
| CO [g/h] | 183.89 | 185.15 | 107.51 | 292.84 | 1572.38 | 390.55 | 102.50 | 38.67 | 178.96 | 182.06 |
| NOx [g/h] | 35.78 | 36.02 | 20.92 | 56.98 | 305.93 | 75.99 | 19.94 | 7.52 | 34.82 | 35.42 |
| VOC [g/h] | 42.62 | 42.91 | 24.92 | 67.87 | 364.41 | 90.51 | 23.75 | 8.96 | 41.48 | 42.19 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 29.16 | 29.16 | 29.16 | 29.16 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.201 | 2.914 | 2.755 | 2.222 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 305 | 305 | 1244 | 559 |
| d_b, Bicycle Delay [s] | 28.30 | 28.30 | 5.63 | 20.46 |
| l_b,int, Bicycle LOS Score for Intersection | 2.122 | 2.805 | 2.970 | 1.814 |
| Bicycle LOS | B | C | C | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Wood Avenue (SR 2017) & US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.155 |

**Intersection Setup**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 50.00 | 0.00 |
| Speed [mph] | 30.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | -0.03 | | 0.03 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 77 | 803 | 782 | 96 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 4.00 | 2.00 | 2.00 | 0.00 |
| Growth Factor | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 | 1.0086 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 11 | 19 | 11 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 89 | 829 | 800 | 97 |
| Peak Hour Factor | 1.0000 | 1.0000 | 0.9430 | 0.9430 | 0.9430 | 0.9430 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 24 | 220 | 212 | 26 |
| Total Analysis Volume [veh/h] | 0 | 0 | 94 | 879 | 848 | 103 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.15 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 11.03 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.17 | 0.08 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 4.13 | 2.06 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 1.07 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.54 | | | | | |
| Intersection LOS | B | | | | | |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 14 2025 WD + IMP PM

Report File: C:\...\2025 WD + IMP PM.pdf
6/17/2024

## Turning Movement Volume: Summary

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | 23 | 12 | 7 | 207 | 334 | 14 | 597 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | 160 | 78 | 109 | 232 | 289 | 239 | 1107 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | 22 | 41 | 26 | 366 | 491 | 16 | 962 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | 157 | 155 | 17 | 75 | 172 | 489 | 473 | 201 | 154 | 6 | 235 | 57 | 2191 |

| ID | Intersection Name | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|
| | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | 89 | 829 | 800 | 97 | 1815 |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 14 2025 WD + IMP PM

Report File: C:\...\2025 WD + IMP PM.pdf
6/17/2024

## Turning Movement Volume: Detail

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 0 | 0 | 0 | 205 | 331 | 0 | 536 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 23 | 12 | 7 | 0 | 0 | 14 | 56 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **23** | **12** | **7** | **207** | **334** | **14** | **597** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Final Base | 151 | 62 | 98 | 204 | 246 | 233 | 994 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 8 | 15 | 10 | 26 | 41 | 4 | 104 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **160** | **78** | **109** | **232** | **289** | **239** | **1107** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 0 | 0 | 0 | 355 | 483 | 0 | 838 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 22 | 41 | 26 | 8 | 4 | 16 | 117 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **22** | **41** | **26** | **366** | **491** | **16** | **962** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Final Base | 153 | 154 | 17 | 74 | 171 | 479 | 459 | 195 | 148 | 6 | 231 | 57 | 2144 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 3 | 0 | 0 | 0 | 0 | 6 | 10 | 4 | 5 | 0 | 2 | 0 | 30 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **157** | **155** | **17** | **75** | **172** | **489** | **473** | **201** | **154** | **6** | **235** | **57** | **2191** |

| ID | Intersection Name | Volume Type | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Final Base | 77 | 803 | 782 | 96 | 1758 |
| | | Growth Factor | 1.01 | 1.01 | 1.01 | 1.01 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 11 | 19 | 11 | 0 | 41 |
| | | Other | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **89** | **829** | **800** | **97** | **1815** |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 14 2025 WD + IMP PM

Report File: C:\...\2025 WD + IMP PM.pdf
6/17/2024

## Trip Generation summary

### Added Trips

| Zone ID: Name | Land Use variables | Code | Ind. Var. | Rate | Quantity | % In | % Out | % Int. Capture | Trips In Adj. | Trips Out Adj. | Total Trips Adj. | % of Total Trips |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1: Passenger | | 155 | SF | | 0.000 | 50.00 | 50.00 | 0.00 | 58 | 93 | 151 | 93.79 |
| 16: Truck | | 155 | SF | | 0.000 | 50.00 | 50.00 | 0.00 | 5 | 5 | 10 | 6.21 |
| | | | | | **Added Trips Total** | | | | **63** | **98** | **161** | **100.00** |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 14 2025 WD + IMP PM

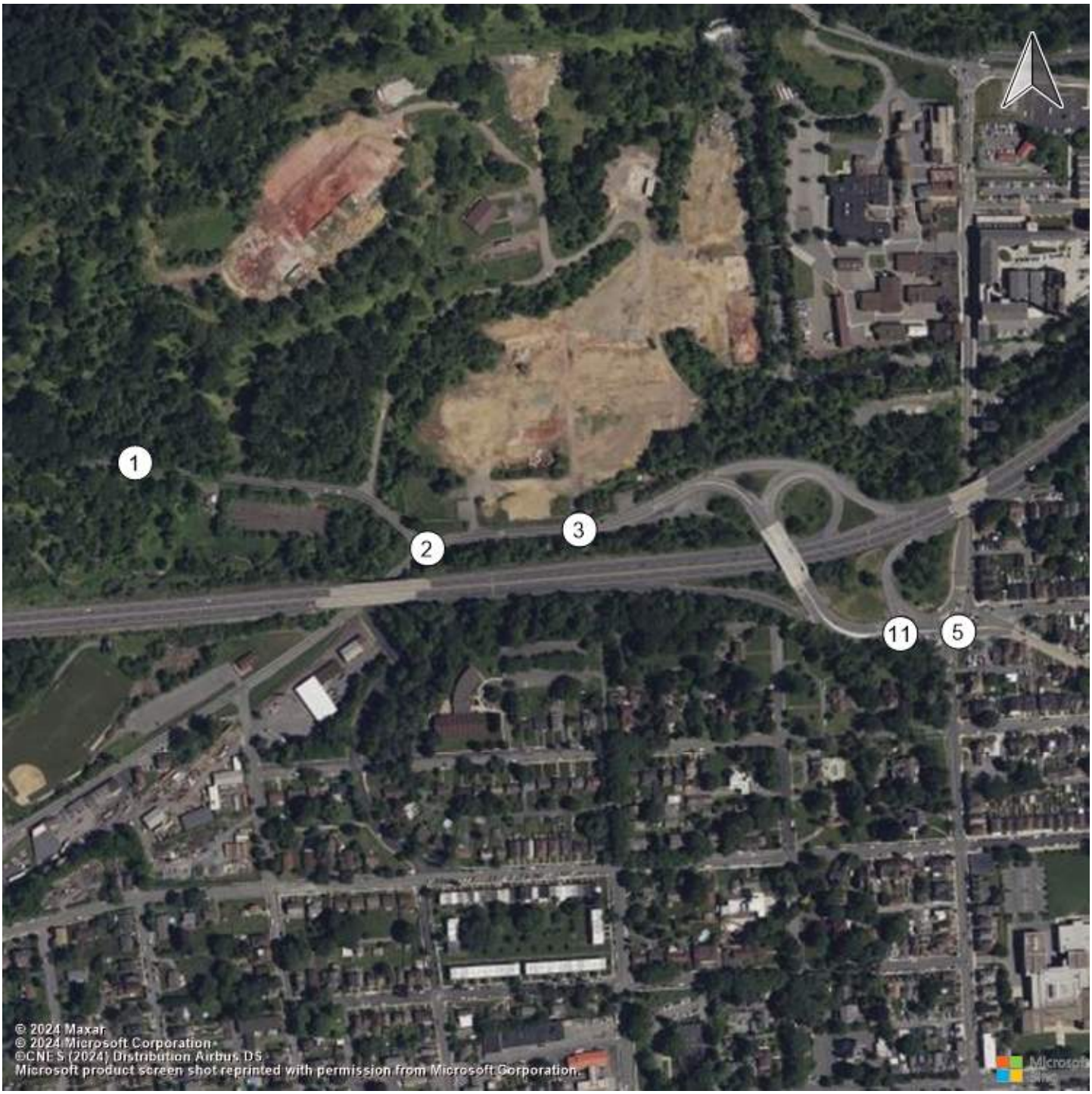
Report File: C:\...\2025 WD + IMP PM.pdf
6/17/2024

## Trip Distribution summary

| Zone / Gate | Zone 1: Passenger | | | |
|---|---|---|---|---|
| | To Passenger: | | From Passenger: | |
| | Share % | Trips | Share % | Trips |
| 16: Truck | 0.00 | 0 | 0.00 | 0 |
| 2: Tatamy Rd | 7.00 | 4 | 7.00 | 7 |
| 3: Park Ave | 5.00 | 3 | 5.00 | 5 |
| 4: Nazareth Rd | 12.00 | 7 | 12.00 | 11 |
| 5: Northampton St (East) | 7.00 | 4 | 7.00 | 7 |
| 6: To/From West via US 22 | 18.00 | 10 | 18.00 | 15 |
| 7: Northampton St (West) | 4.00 | 2 | 4.00 | 4 |
| 8: Sales St | 3.00 | 2 | 3.00 | 3 |
| 9: 25th S | 14.00 | 8 | 14.00 | 13 |
| 10: To/From East via US 22 | 10.00 | 6 | 10.00 | 9 |
| 11: Wood Ave (Easton) | 4.00 | 2 | 4.00 | 4 |
| 12: 13th St (South) | 5.00 | 3 | 5.00 | 5 |
| 13: 13th St (North) | 11.00 | 6 | 11.00 | 10 |
| **Total** | **100.00** | **57** | **100.00** | **93** |

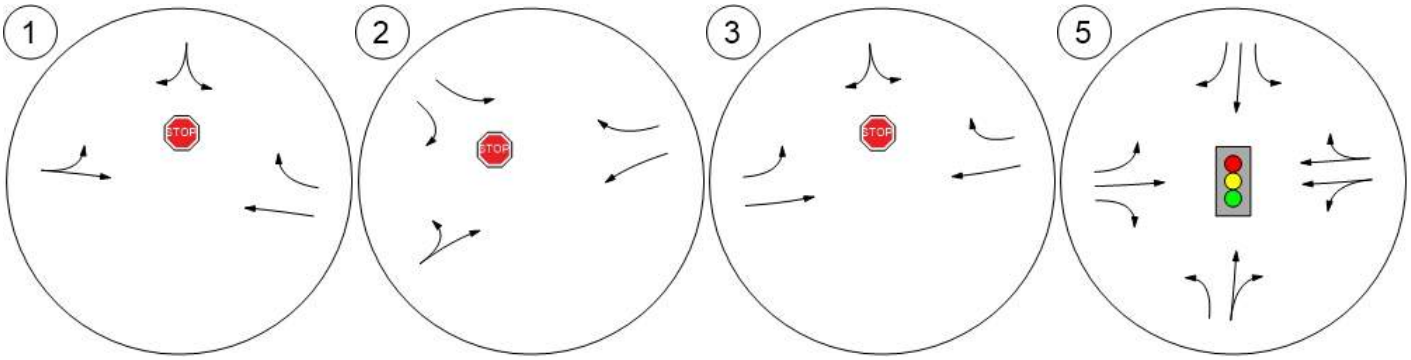
| Zone / Gate | Zone 16: Truck | | | |
|---|---|---|---|---|
| | To Truck: | | From Truck: | |
| | Share % | Trips | Share % | Trips |
| 1: Passenger | 0.00 | 0 | 0.00 | 0 |
| 2: Tatamy Rd | 0.00 | 0 | 0.00 | 0 |
| 3: Park Ave | 0.00 | 0 | 0.00 | 0 |
| 4: Nazareth Rd | 0.00 | 0 | 0.00 | 0 |
| 5: Northampton St (East) | 0.00 | 0 | 0.00 | 0 |
| 6: To/From West via US 22 | 50.00 | 3 | 50.00 | 3 |
| 7: Northampton St (West) | 0.00 | 0 | 0.00 | 0 |
| 8: Sales St | 0.00 | 0 | 0.00 | 0 |
| 9: 25th S | 0.00 | 0 | 0.00 | 0 |
| 10: To/From East via US 22 | 50.00 | 3 | 50.00 | 2 |
| 11: Wood Ave (Easton) | 0.00 | 0 | 0.00 | 0 |
| 12: 13th St (South) | 0.00 | 0 | 0.00 | 0 |
| 13: 13th St (North) | 0.00 | 0 | 0.00 | 0 |
| **Total** | **100.00** | **6** | **100.00** | **5** |

Report Figure 1: Study Intersections

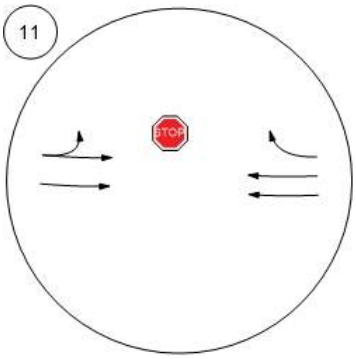


Report Figure 2: Lane Configuration and Traffic Control

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

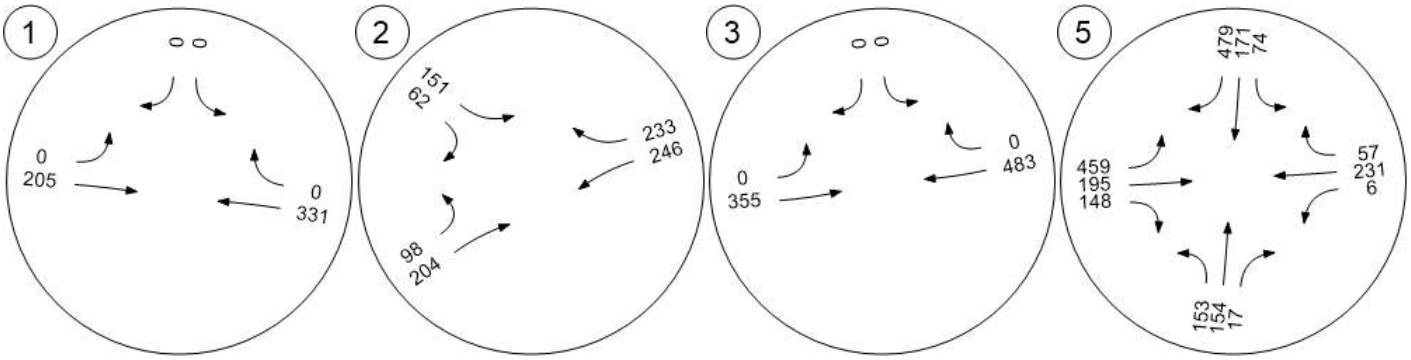



Wood Avenue (SR 2017) & U

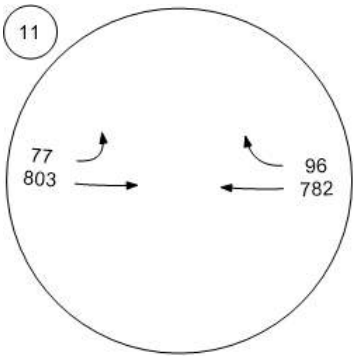


Report Figure 3a: Traffic Volume - Base Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

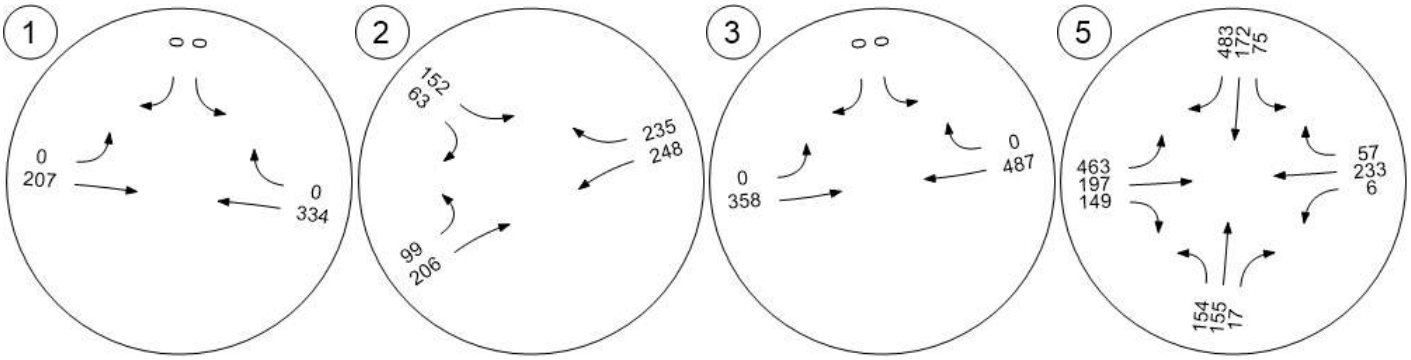



Wood Avenue (SR 2017) & U

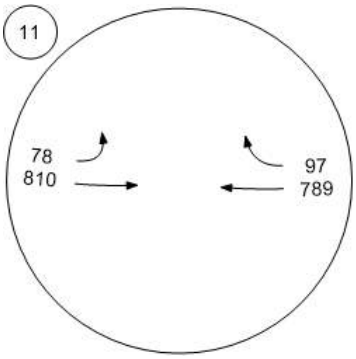


Report Figure 3c: Traffic Volume - Future Background Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

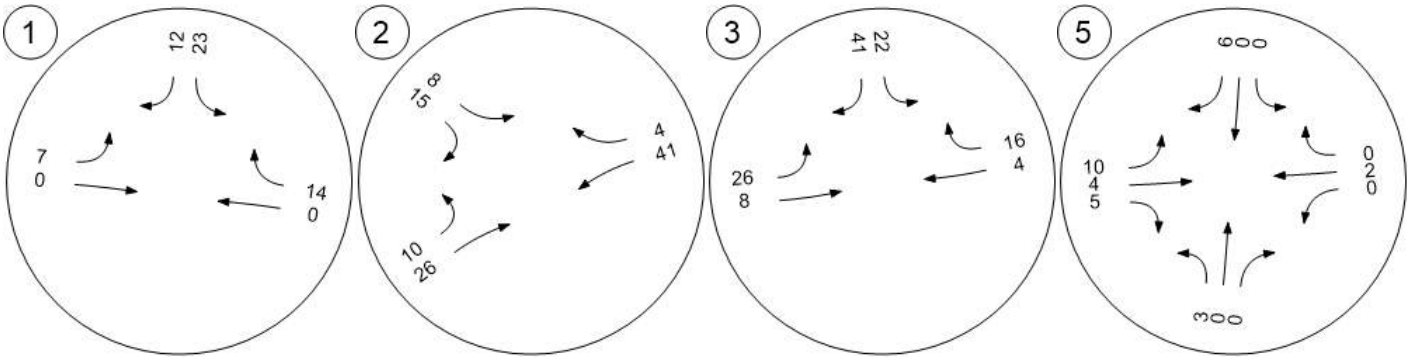



Wood Avenue (SR 2017) & U

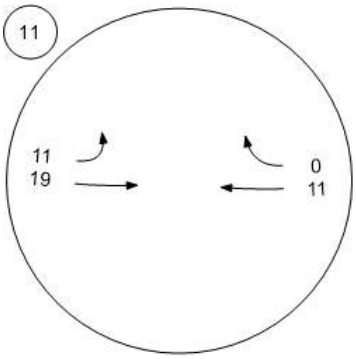


Report Figure 3d: Traffic Volume - Net New Site Trips

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

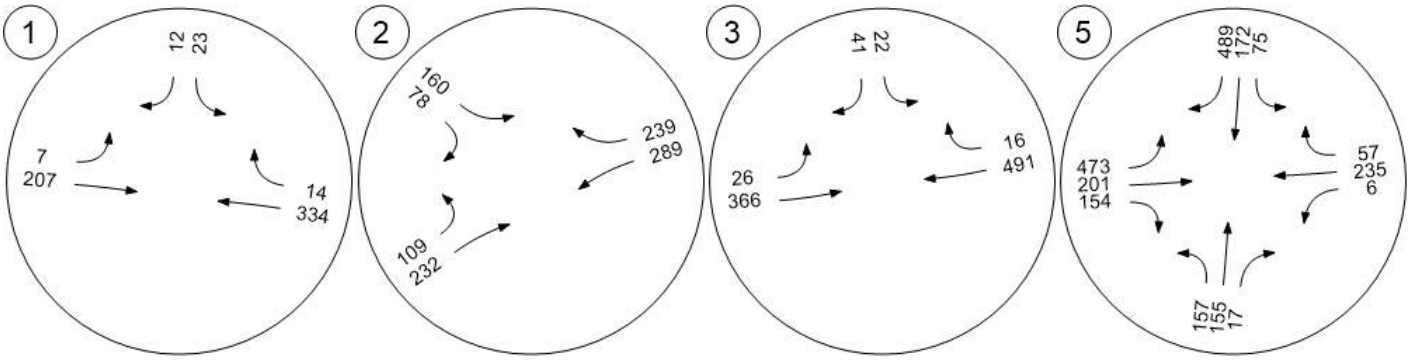



Wood Avenue (SR 2017) & U

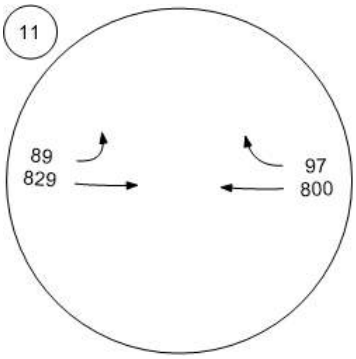


Report Figure 3f: Traffic Volume - Future Total Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

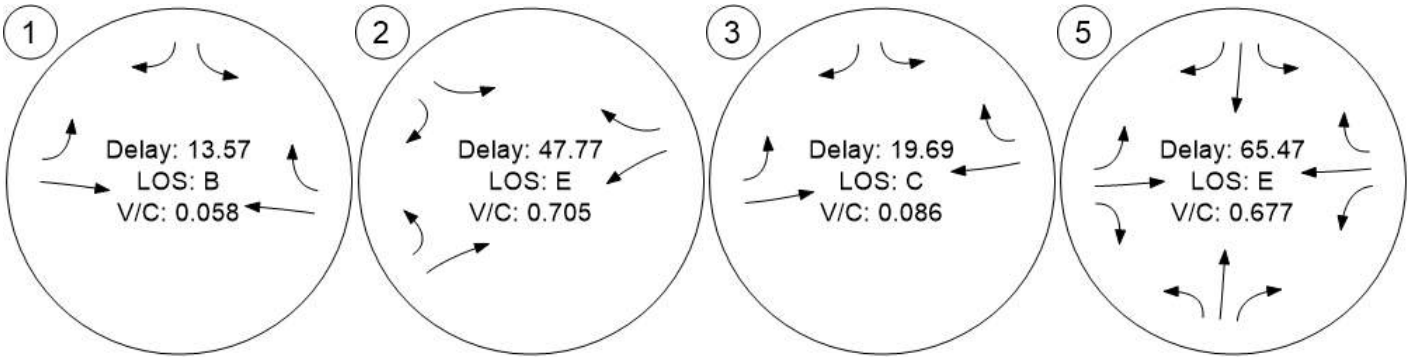



Wood Avenue (SR 2017) & U

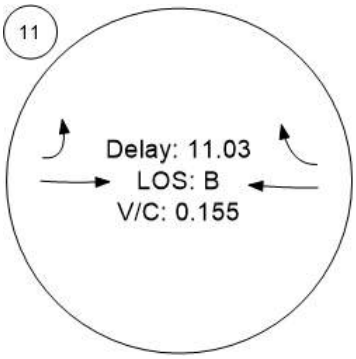


Report Figure 4: Traffic Conditions

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N




Wood Avenue (SR 2017) & U



# PTV Vistro 2024 Reports

*With Development Conditions + Improvements (2030) – Weekday AM*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

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Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 15 2030 WD + IMP AM

Report File: C:\...\2030 WD + IMP AM.pdf
6/17/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | SB Left | 0.016 | 11.4 | B |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Two-way stop | HCM 7th Edition | SB Left | 0.446 | 24.2 | C |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | SB Left | 0.026 | 15.9 | C |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Signalized | HCM 7th Edition | SB Right | 0.677 | 37.7 | D |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Two-way stop | HCM 7th Edition | EB Left | 0.251 | 11.9 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**

**Intersection 1: Hackett Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.016 |

**Intersection Setup**

| Name | Proposed Site Access | | Hackett Avenue (SR 2017) | | Hackett Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | 40.00 | | 40.00 | |
| Grade [%] | 0.03 | | 0.05 | | -0.05 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Proposed Site Access | | Hackett Avenue (SR 2017) | | Hackett Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 176 | 176 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 43.00 | 0.00 | 0.00 | 3.00 | 1.00 | 7.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 8 | 2 | 14 | 0 | 0 | 27 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 8 | 2 | 14 | 181 | 181 | 27 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 1 | 4 | 50 | 50 | 8 |
| Total Analysis Volume [veh/h] | 9 | 2 | 16 | 201 | 201 | 30 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 11.39 | 9.20 | 8.61 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.05 | 0.05 | 0.03 | 0.03 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.37 | 1.37 | 0.67 | 0.67 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.99 | | 0.64 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.56 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**

**Intersection 2: Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 24.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.446 |

**Intersection Setup**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 150.00 | 100.00 | 100.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.01 | | 0.01 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 128 | 42 | 61 | 153 | 235 | 115 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 6.00 | 6.00 | 5.00 | 7.00 | 2.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 3 | 5 | 18 | 51 | 11 | 9 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 135 | 48 | 81 | 209 | 253 | 128 |
| Peak Hour Factor | 0.9040 | 0.9040 | 0.9040 | 0.9040 | 0.9040 | 0.9040 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 37 | 13 | 22 | 58 | 70 | 35 |
| Total Analysis Volume [veh/h] | 149 | 53 | 90 | 231 | 280 | 142 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.45 | 0.07 | 0.11 | 0.00 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 24.17 | 10.03 | 9.38 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 2.21 | 0.22 | 0.16 | 0.16 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 55.13 | 5.54 | 3.94 | 3.94 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 20.46 | | 2.63 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.27 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**

**Intersection 3: Wood Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 15.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.026 |

**Intersection Setup**

| Name | Proposed Site Access | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 200.00 | 100.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Proposed Site Access | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 281 | 298 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 43.00 | 27.00 | 6.00 | 3.00 | 2.00 | 17.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 8 | 11 | 51 | 3 | 9 | 29 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 8 | 11 | 51 | 293 | 316 | 29 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 3 | 14 | 81 | 88 | 8 |
| Total Analysis Volume [veh/h] | 9 | 12 | 57 | 326 | 351 | 32 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | |
|---|---|---|---|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.03 | 0.02 | 0.06 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 15.92 | 10.39 | 9.35 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.14 | 0.14 | 0.21 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 3.39 | 3.39 | 5.15 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 12.76 | | 1.39 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.02 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**

**Intersection 5: Wood Avenue (SR 2017) & N. 13th Street (SR 2019)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 37.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.677 |

**Intersection Setup**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 12.00 | 11.00 | 12.00 | 15.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 20.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 105.00 | 100.00 | 285.00 | 115.00 | 100.00 | 100.00 | 100.00 | 100.00 | 75.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.09 | | | 0.10 | | | -0.05 | | | -0.02 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 152 | 125 | 5 | 57 | 137 | 615 | 363 | 163 | 123 | 6 | 226 | 65 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 3.00 | 0.00 | 3.00 | 7.00 | 3.00 | 4.00 | 2.00 | 1.00 | 0.00 | 1.00 | 9.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 6 | 0 | 0 | 0 | 0 | 12 | 2 | 1 | 1 | 0 | 4 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 340 | 0 | 0 | 72 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 163 | 129 | 4 | 59 | 141 | 306 | 376 | 169 | 56 | 6 | 237 | 67 |
| Peak Hour Factor | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 | 0.9360 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 44 | 34 | 1 | 16 | 38 | 82 | 100 | 45 | 15 | 2 | 63 | 18 |
| Total Analysis Volume [veh/h] | 174 | 138 | 4 | 63 | 151 | 327 | 402 | 181 | 60 | 6 | 253 | 72 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 7 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 11 | 27 | 0 | 11 | 27 | 0 | 18 | 52 | 0 | 10 | 28 | 0 |
| Amber [s] | 4.5 | 4.5 | 0.0 | 4.5 | 4.5 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 19 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 3.5 | 3.5 | 0.0 | 3.5 | 3.5 | 0.0 | 2.5 | 2.5 | 0.0 | 4.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | | No | |
| Maximum Recall | No | Yes | | No | Yes | | No | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | C | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 | 0.00 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 12 | 33 | 7 | 28 | 28 | 38 | 38 | 38 | 14 | 14 |
| g / C, Green / Cycle | 0.13 | 0.35 | 0.07 | 0.30 | 0.30 | 0.40 | 0.40 | 0.40 | 0.14 | 0.14 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.08 | 0.05 | 0.11 | 0.27 | 0.29 | 0.10 | 0.04 | 0.10 | 0.10 |
| s, saturation flow rate [veh/h] | 1686 | 1747 | 1319 | 1328 | 1224 | 1392 | 1771 | 1517 | 1676 | 1567 |
| c, Capacity [veh/h] | 214 | 614 | 94 | 393 | 362 | 580 | 705 | 604 | 282 | 227 |
| d1, Uniform Delay [s] | 40.26 | 21.69 | 42.89 | 26.50 | 32.04 | 24.08 | 19.11 | 17.86 | 38.32 | 38.64 |
| k, delay calibration | 0.26 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 16.31 | 0.88 | 8.02 | 2.84 | 28.20 | 1.57 | 0.19 | 0.07 | 2.05 | 4.16 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.81 | 0.23 | 0.67 | 0.38 | 0.90 | 0.69 | 0.26 | 0.10 | 0.60 | 0.71 |
| d, Delay for Lane Group [s/veh] | 56.57 | 22.57 | 50.91 | 29.33 | 60.25 | 25.65 | 19.30 | 17.93 | 40.37 | 42.80 |
| Lane Group LOS | E | C | D | C | E | C | B | B | D | D |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 4.82 | 2.30 | 1.62 | 2.93 | 9.70 | 7.15 | 2.60 | 0.81 | 3.78 | 3.76 |
| 50th-Percentile Queue Length [ft/ln] | 120.39 | 57.52 | 40.46 | 73.27 | 242.53 | 178.74 | 65.06 | 20.17 | 94.57 | 94.05 |
| 95th-Percentile Queue Length [veh/ln] | 8.41 | 4.14 | 2.91 | 5.28 | 14.81 | 11.53 | 4.68 | 1.45 | 6.81 | 6.77 |
| 95th-Percentile Queue Length [ft/ln] | 210.36 | 103.54 | 72.83 | 131.88 | 370.23 | 288.37 | 117.10 | 36.30 | 170.23 | 169.29 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 56.57 | 22.57 | 22.57 | 50.91 | 29.33 | 60.25 | 25.65 | 19.30 | 17.93 | 40.37 | 41.23 | 42.80 |
| Movement LOS | E | C | C | D | C | E | C | B | B | D | D | D |
| d_A, Approach Delay [s/veh] | 41.29 | | | 50.53 | | | 23.14 | | | 41.56 | | |
| Approach LOS | D | | | D | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 37.70 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.677 | | | | | | | | | | | |

**Emissions**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.83 | 8.02 | 6.63 | 15.90 | 34.42 | 13.68 | 6.16 | 2.04 | 16.76 | 16.04 |
| Stops [stops/h] | 183.27 | 87.57 | 61.60 | 111.54 | 369.21 | 272.11 | 99.04 | 30.70 | 143.97 | 143.18 |
| Fuel consumption [US gal/h] | 3.76 | 1.62 | 1.37 | 2.35 | 8.10 | 4.67 | 1.69 | 0.53 | 3.11 | 3.10 |
| CO [g/h] | 262.53 | 112.99 | 95.67 | 163.99 | 566.02 | 326.18 | 118.17 | 36.89 | 217.45 | 216.55 |
| NOx [g/h] | 51.08 | 21.98 | 18.61 | 31.91 | 110.13 | 63.46 | 22.99 | 7.18 | 42.31 | 42.13 |
| VOC [g/h] | 60.84 | 26.19 | 22.17 | 38.01 | 131.18 | 75.59 | 27.39 | 8.55 | 50.40 | 50.19 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 36.93 | 36.93 | 36.93 | 36.93 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.182 | 3.081 | 2.766 | 2.226 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 571 | 571 | 1099 | 592 |
| d_b, Bicycle Delay [s] | 24.15 | 24.15 | 9.59 | 23.44 |
| l_b,int, Bicycle LOS Score for Intersection | 2.083 | 3.013 | 2.739 | 1.833 |
| Bicycle LOS | B | C | B | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Intersection Level Of Service Report**
**Intersection 11: Wood Avenue (SR 2017) & US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.251 |

**Intersection Setup**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 50.00 | 0.00 |
| Speed [mph] | 30.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | -0.03 | | 0.03 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 113 | 656 | 872 | 191 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 4.00 | 3.00 | 1.00 | 2.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 7 | 4 | 22 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 123 | 680 | 921 | 197 |
| Peak Hour Factor | 1.0000 | 1.0000 | 0.9180 | 0.9180 | 0.9180 | 0.9180 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 33 | 185 | 251 | 54 |
| Total Analysis Volume [veh/h] | 0 | 0 | 134 | 741 | 1003 | 215 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.25 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 11.90 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.24 | 0.12 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 6.03 | 3.01 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 1.82 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.76 | | | | | |
| Intersection LOS | B | | | | | |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 15 2030 WD + IMP AM

Report File: C:\...\2030 WD + IMP AM.pdf
6/17/2024

## Turning Movement Volume: Summary

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | 8 | 2 | 14 | 181 | 181 | 27 | 413 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | 135 | 48 | 81 | 209 | 253 | 128 | 854 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | 8 | 11 | 51 | 293 | 316 | 29 | 708 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | 163 | 129 | 5 | 59 | 141 | 646 | 376 | 169 | 128 | 6 | 237 | 67 | 2126 |

| ID | Intersection Name | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|
| | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | 123 | 680 | 921 | 197 | 1921 |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 15 2030 WD + IMP AM

Report File: C:\...\2030 WD + IMP AM.pdf
6/17/2024

## Turning Movement Volume: Detail

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 0 | 0 | 0 | 176 | 176 | 0 | 352 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 8 | 2 | 14 | 0 | 0 | 27 | 51 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **8** | **2** | **14** | **181** | **181** | **27** | **413** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Final Base | 128 | 42 | 61 | 153 | 235 | 115 | 734 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 3 | 5 | 18 | 51 | 11 | 9 | 97 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **135** | **48** | **81** | **209** | **253** | **128** | **854** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 0 | 0 | 0 | 281 | 298 | 0 | 579 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 8 | 11 | 51 | 3 | 9 | 29 | 111 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **8** | **11** | **51** | **293** | **316** | **29** | **708** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Final Base | 152 | 125 | 5 | 57 | 137 | 615 | 363 | 163 | 123 | 6 | 226 | 65 | 2037 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 6 | 0 | 0 | 0 | 0 | 12 | 2 | 1 | 1 | 0 | 4 | 0 | 26 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **163** | **129** | **5** | **59** | **141** | **646** | **376** | **169** | **128** | **6** | **237** | **67** | **2126** |

| ID | Intersection Name | Volume Type | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Final Base | 113 | 656 | 872 | 191 | 1832 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 7 | 4 | 22 | 0 | 33 |
| | | Other | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **123** | **680** | **921** | **197** | **1921** |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 15 2030 WD + IMP AM

Report File: C:\...\2030 WD + IMP AM.pdf
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## Trip Generation summary

### Added Trips

| Zone ID: Name | Land Use variables | Code | Ind. Var. | Rate | Quantity | % In | % Out | % Int. Capture | Trips In Adj. | Trips Out Adj. | Total Trips Adj. | % of Total Trips |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1: Passenger | | 155 | SF | | 0.000 | 50.00 | 50.00 | 0.00 | 112 | 19 | 131 | 86.75 |
| 16: Truck | | 155 | SF | | 0.000 | 50.00 | 50.00 | 0.00 | 10 | 10 | 20 | 13.25 |
| | | | | | **Added Trips Total** | | | | **122** | **29** | **151** | **100.00** |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 15 2030 WD + IMP AM

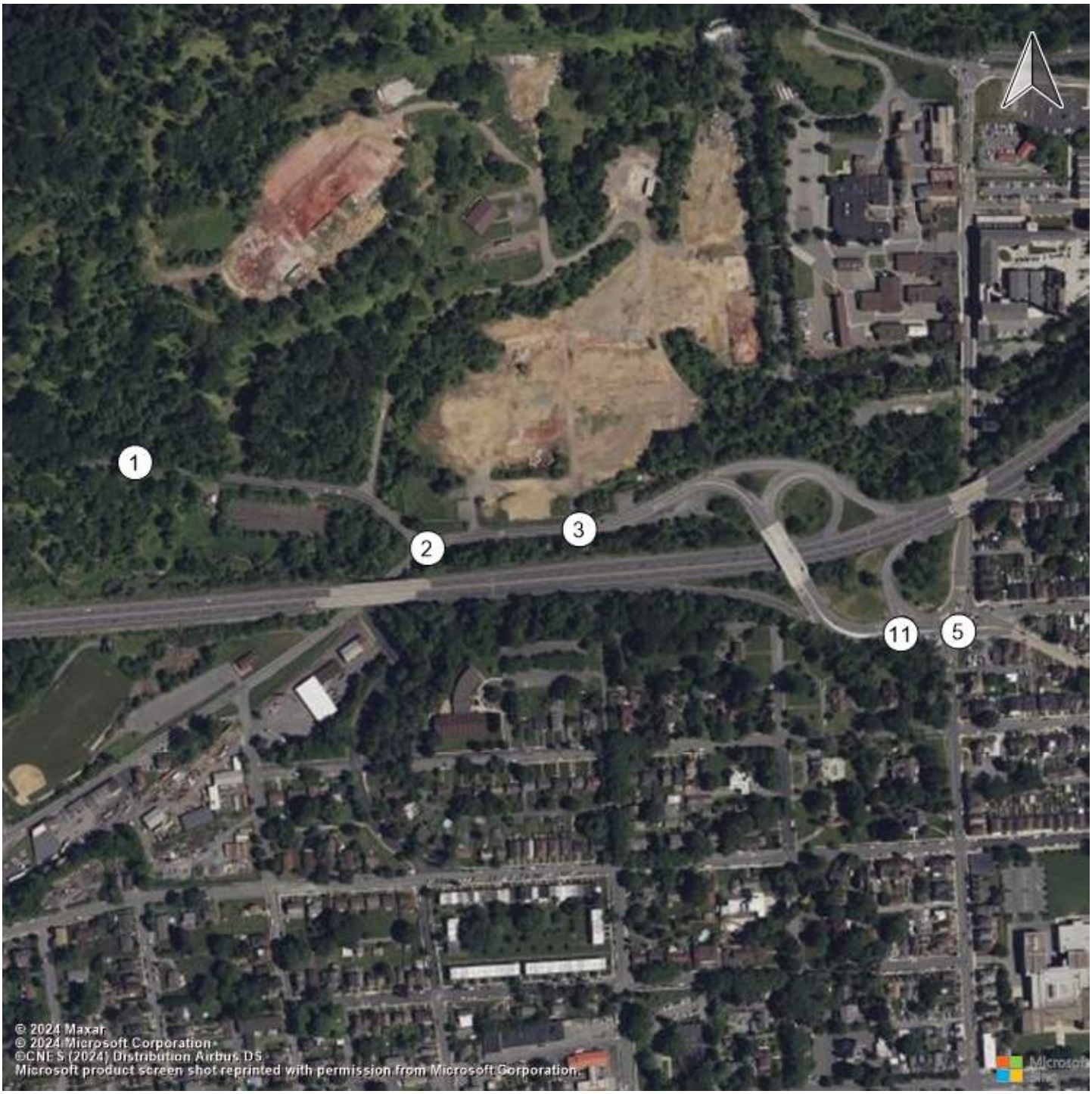
Report File: C:\...\2030 WD + IMP AM.pdf
6/17/2024

## Trip Distribution summary

| Zone / Gate | Zone 1: Passenger | | | |
|---|---|---|---|---|
| | To Passenger: | | From Passenger: | |
| | Share % | Trips | Share % | Trips |
| 16: Truck | 0.00 | 0 | 0.00 | 0 |
| 2: Tatamy Rd | 7.00 | 8 | 7.00 | 1 |
| 3: Park Ave | 5.00 | 6 | 5.00 | 1 |
| 4: Nazareth Rd | 12.00 | 13 | 12.00 | 2 |
| 5: Northampton St (East) | 7.00 | 8 | 7.00 | 1 |
| 6: To/From West via US 22 | 18.00 | 20 | 18.00 | 3 |
| 7: Northampton St (West) | 4.00 | 4 | 4.00 | 1 |
| 8: Sales St | 3.00 | 3 | 3.00 | 1 |
| 9: 25th S | 14.00 | 16 | 14.00 | 3 |
| 10: To/From East via US 22 | 10.00 | 11 | 10.00 | 2 |
| 11: Wood Ave (Easton) | 4.00 | 4 | 4.00 | 1 |
| 12: 13th St (South) | 5.00 | 6 | 5.00 | 1 |
| 13: 13th St (North) | 11.00 | 12 | 11.00 | 2 |
| **Total** | **100.00** | **111** | **100.00** | **19** |

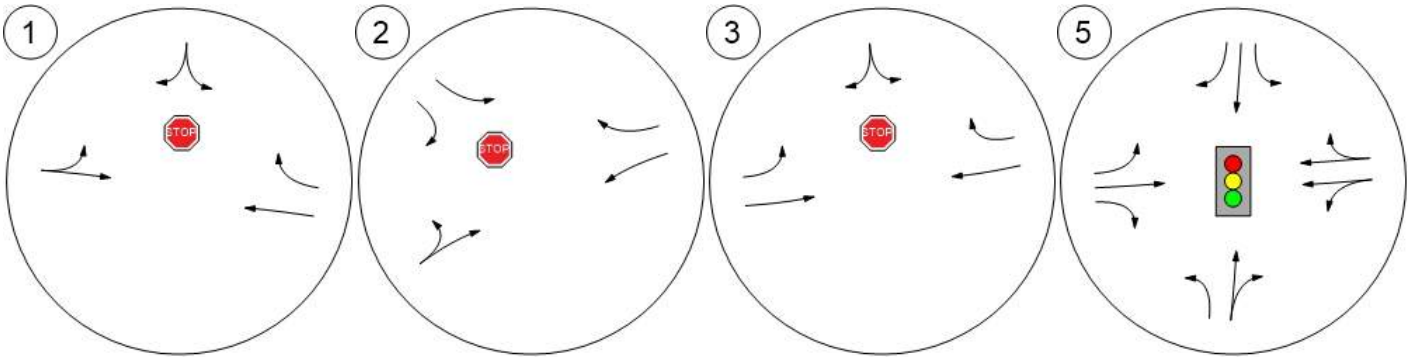
| Zone / Gate | Zone 16: Truck | | | |
|---|---|---|---|---|
| | To Truck: | | From Truck: | |
| | Share % | Trips | Share % | Trips |
| 1: Passenger | 0.00 | 0 | 0.00 | 0 |
| 2: Tatamy Rd | 0.00 | 0 | 0.00 | 0 |
| 3: Park Ave | 0.00 | 0 | 0.00 | 0 |
| 4: Nazareth Rd | 0.00 | 0 | 0.00 | 0 |
| 5: Northampton St (East) | 0.00 | 0 | 0.00 | 0 |
| 6: To/From West via US 22 | 50.00 | 5 | 50.00 | 5 |
| 7: Northampton St (West) | 0.00 | 0 | 0.00 | 0 |
| 8: Sales St | 0.00 | 0 | 0.00 | 0 |
| 9: 25th S | 0.00 | 0 | 0.00 | 0 |
| 10: To/From East via US 22 | 50.00 | 5 | 50.00 | 5 |
| 11: Wood Ave (Easton) | 0.00 | 0 | 0.00 | 0 |
| 12: 13th St (South) | 0.00 | 0 | 0.00 | 0 |
| 13: 13th St (North) | 0.00 | 0 | 0.00 | 0 |
| **Total** | **100.00** | **10** | **100.00** | **10** |

Report Figure 1: Study Intersections

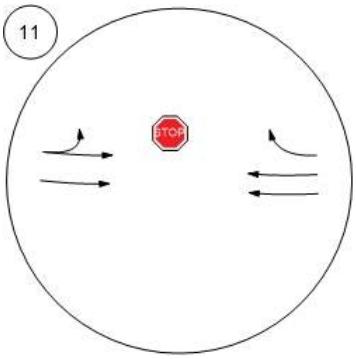


Report Figure 2: Lane Configuration and Traffic Control

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

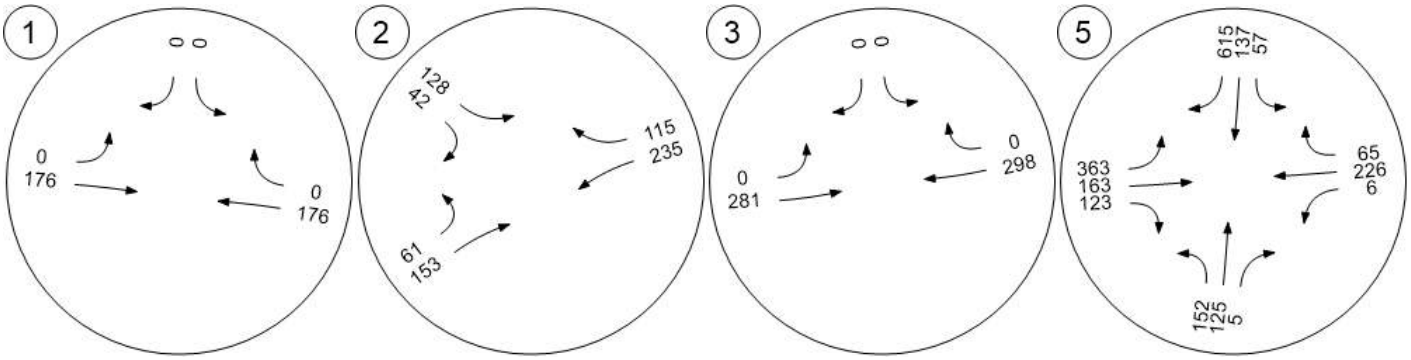



Wood Avenue (SR 2017) & U

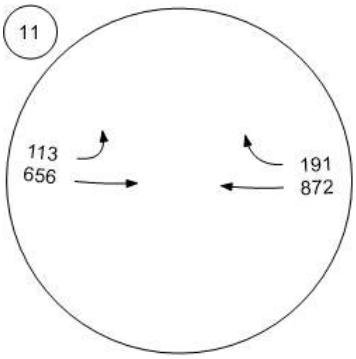


Report Figure 3a: Traffic Volume - Base Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

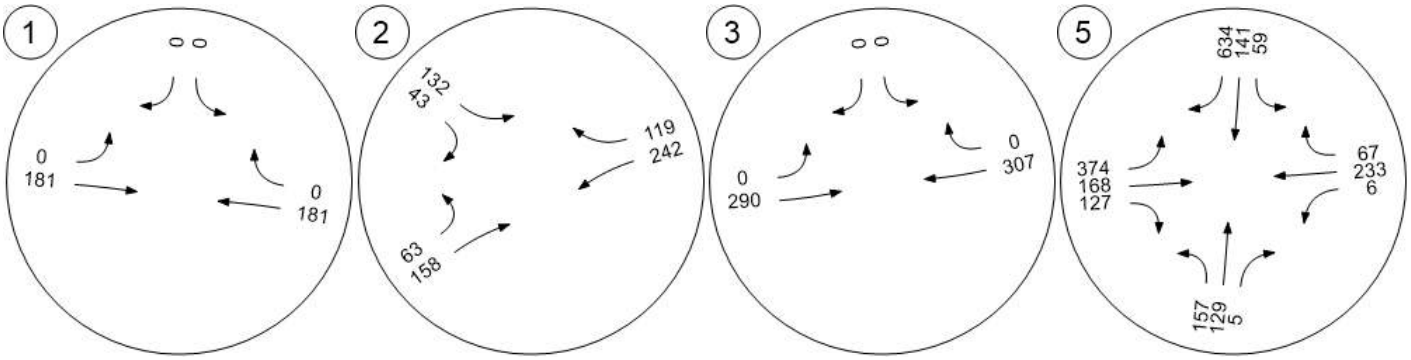



Wood Avenue (SR 2017) & U

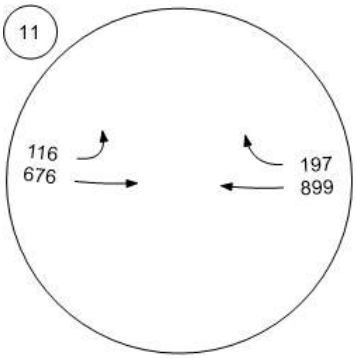


Report Figure 3c: Traffic Volume - Future Background Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

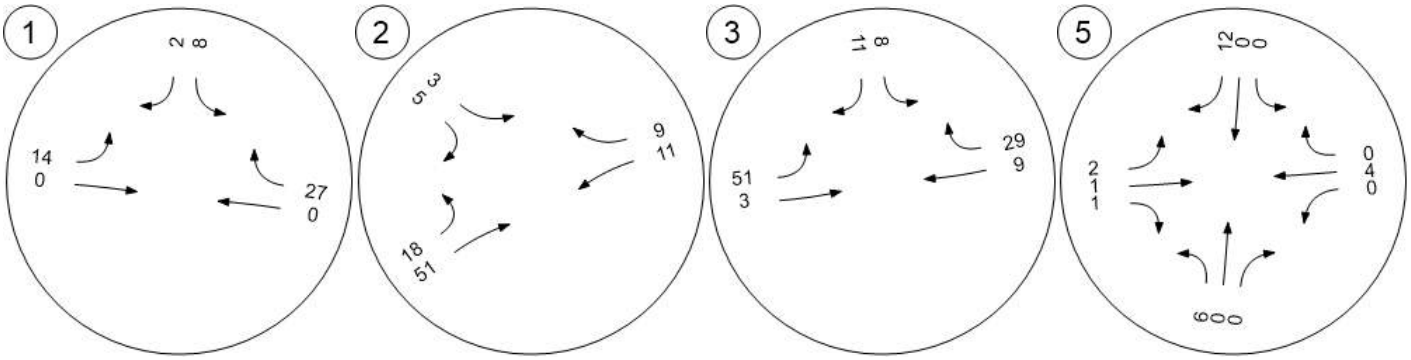



Wood Avenue (SR 2017) & U

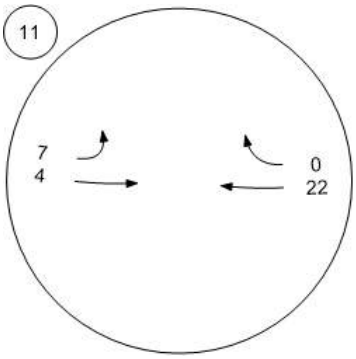


Report Figure 3d: Traffic Volume - Net New Site Trips

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

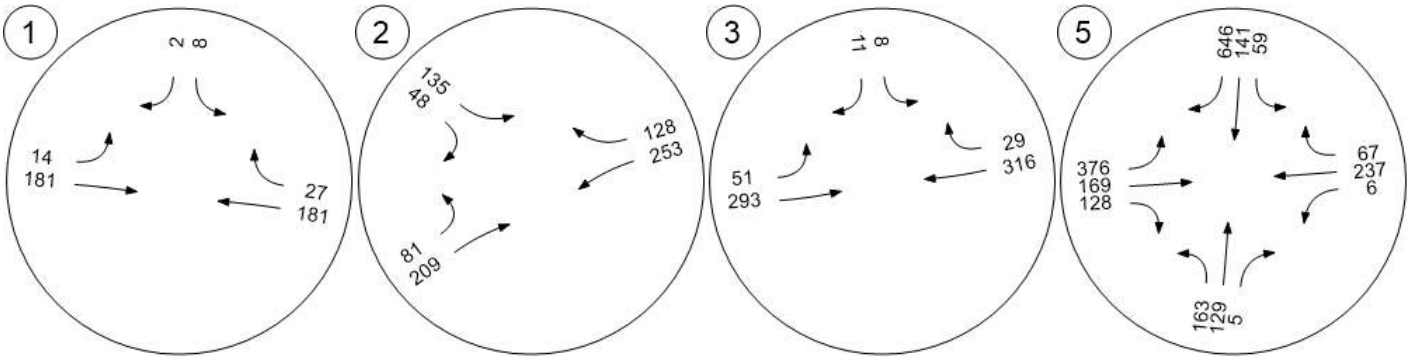



Wood Avenue (SR 2017) & U

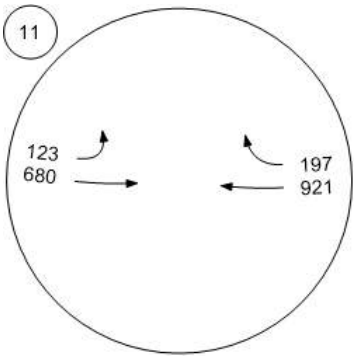


Report Figure 3f: Traffic Volume - Future Total Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

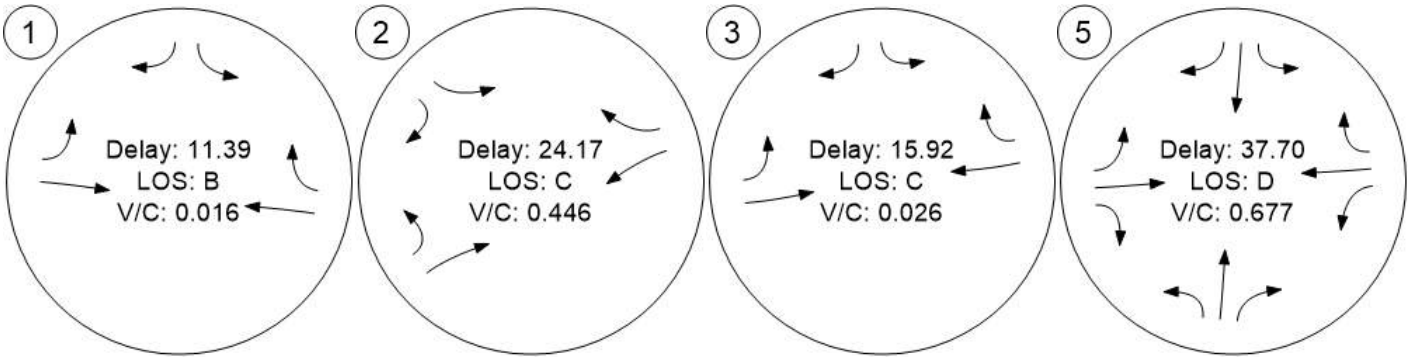



Wood Avenue (SR 2017) & U

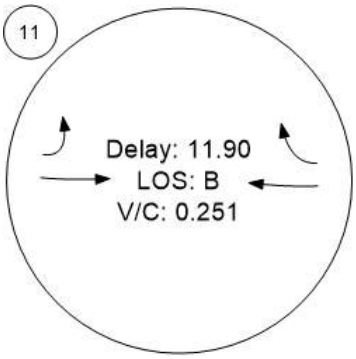


Report Figure 4: Traffic Conditions

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N




Wood Avenue (SR 2017) & U



# PTV Vistro 2024 Reports

*With Development Conditions + Improvements (2030) – Weekday PM*

Transportation Impact Study for the Proposed Warehouse Development at 1525 Wood Ave

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Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 16 2030 WD + IMP PM

Report File: C:\...\2030 WD + IMP PM.pdf
6/17/2024

**Intersection Analysis Summary**

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|---|---|---|---|---|---|---|---|
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | SB Left | 0.059 | 13.7 | B |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Two-way stop | HCM 7th Edition | SB Left | 0.743 | 53.2 | F |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Two-way stop | HCM 7th Edition | SB Left | 0.089 | 20.4 | C |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Signalized | HCM 7th Edition | SB Right | 0.692 | 69.1 | E |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Two-way stop | HCM 7th Edition | EB Left | 0.159 | 11.1 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**

**Intersection 1: Hackett Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 13.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.059 |

**Intersection Setup**

| Name | Proposed Site Access | | Hackett Avenue (SR 2017) | | Hackett Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | 40.00 | | 40.00 | |
| Grade [%] | 0.03 | | 0.05 | | -0.05 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Proposed Site Access | | Hackett Avenue (SR 2017) | | Hackett Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 205 | 331 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 9.00 | 0.00 | 0.00 | 2.00 | 2.00 | 7.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 23 | 12 | 7 | 0 | 0 | 14 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 23 | 12 | 7 | 211 | 341 | 14 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 3 | 2 | 59 | 95 | 4 |
| Total Analysis Volume [veh/h] | 26 | 13 | 8 | 234 | 379 | 16 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.06 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 13.75 | 10.85 | 9.11 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.25 | 0.25 | 0.01 | 0.01 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 6.30 | 6.30 | 0.33 | 0.33 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 12.78 | | 0.30 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.85 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report**

**Intersection 2: Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024)**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 53.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.743 |

**Intersection Setup**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 150.00 | 100.00 | 100.00 | 100.00 | 175.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 40.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.05 | | -0.01 | | 0.01 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Hackett Avenue (SR 2017) | | Wood Avenue (SR 2024) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 151 | 62 | 98 | 204 | 246 | 233 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.00 | 3.00 | 3.00 | 3.00 | 3.00 | 2.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 8 | 15 | 10 | 26 | 41 | 4 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 164 | 79 | 111 | 236 | 295 | 244 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 45 | 22 | 30 | 65 | 81 | 67 |
| Total Analysis Volume [veh/h] | 180 | 87 | 122 | 259 | 324 | 268 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.74 | 0.12 | 0.17 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 53.21 | 10.67 | 10.05 | 0.00 | 0.00 | 0.00 |
| Movement LOS | F | B | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 5.20 | 0.41 | 0.22 | 0.22 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 130.00 | 10.22 | 5.45 | 5.45 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 39.35 | | 3.22 | | 0.00 | |
| Approach LOS | E | | A | | A | |
| d_I, Intersection Delay [s/veh] | 9.46 | | | | | |
| Intersection LOS | F | | | | | |

**Intersection Level Of Service Report**

**Intersection 3: Wood Avenue (SR 2017) & Proposed Site Access Driveway**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 20.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.089 |

**Intersection Setup**

| Name | Proposed Site Access | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 1 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 200.00 | 100.00 | 100.00 | 200.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 25.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | Proposed Site Access | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 355 | 483 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 5.00 | 58.00 | 8.00 | 2.00 | 2.00 | 19.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 22 | 41 | 26 | 8 | 4 | 16 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 22 | 41 | 26 | 374 | 502 | 16 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 11 | 7 | 104 | 139 | 4 |
| Total Analysis Volume [veh/h] | 24 | 46 | 29 | 416 | 558 | 18 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | No | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | No | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.09 | 0.09 | 0.04 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 20.36 | 14.08 | 9.95 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.65 | 0.65 | 0.12 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 16.14 | 16.14 | 2.98 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 16.23 | | 0.65 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.31 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report**
**Intersection 5: Wood Avenue (SR 2017) & N. 13th Street (SR 2019)**

| | | | |
|---|---|---|---|
| Control Type: | Signalized | Delay (sec / veh): | 69.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.692 |

**Intersection Setup**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 11.00 | 11.00 | 12.00 | 11.00 | 12.00 | 15.00 | 12.00 | 12.00 | 11.00 | 12.00 | 11.00 | 20.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 230.00 | 100.00 | 100.00 | 105.00 | 100.00 | 285.00 | 115.00 | 100.00 | 100.00 | 100.00 | 100.00 | 75.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 35.00 | | | 35.00 | | | 35.00 | | | 35.00 | | |
| Grade [%] | -0.09 | | | 0.10 | | | -0.05 | | | -0.02 | | |
| Curb Present | Yes | | | Yes | | | Yes | | | Yes | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | N 13th Street (SR 2019) | | | N 13th Street (SR 2019) | | | Wood Avenue (SR 2017) | | | Wood Avenue (SR 2017) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 153 | 154 | 17 | 74 | 171 | 479 | 459 | 195 | 148 | 6 | 231 | 57 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.00 | 5.00 | 12.00 | 7.00 | 2.00 | 5.00 | 2.00 | 2.00 | 3.00 | 0.00 | 1.00 | 14.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 3 | 0 | 0 | 0 | 0 | 6 | 10 | 4 | 5 | 0 | 2 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 215 | 0 | 0 | 76 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 161 | 159 | 17 | 76 | 176 | 285 | 483 | 205 | 82 | 6 | 240 | 59 |
| Peak Hour Factor | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 | 0.9660 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 42 | 41 | 4 | 20 | 46 | 74 | 125 | 53 | 21 | 2 | 62 | 15 |
| Total Analysis Volume [veh/h] | 167 | 165 | 18 | 79 | 182 | 295 | 500 | 212 | 85 | 6 | 248 | 61 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | |
|---|---|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | *Free Running* |
| Actuation Type | *Fully actuated* |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

**Phasing & Timing (Basic)**

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | ProtPer | Permiss | Permiss | Permiss | Permiss | Permiss |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Signal Group | 5 | 2 | 0 | 1 | 6 | 0 | 7 | 4 | 0 | 3 | 8 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 14 | 12 | 0 | 14 | 12 | 0 | 21 | 49 | 0 | 10 | 22 | 0 |
| Amber [s] | 4.5 | 4.5 | 0.0 | 4.5 | 4.5 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 19 | 0 | 0 | 19 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 | 2.5 | 2.5 | 0.0 |
| I2, Clearance Lost Time [s] | 3.5 | 3.5 | 0.0 | 3.5 | 3.5 | 0.0 | 2.5 | 2.5 | 0.0 | 4.0 | 2.5 | 0.0 |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 40.0 | 0.0 | 0.0 | 40.0 | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Phasing & Timing: Free Running (No Pattern)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Split [s] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 7 | 10 | 0 | 7 | 10 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | | No | |
| Maximum Recall | No | Yes | | No | Yes | | No | No | | | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | | No | |

**Exclusive Pedestrian Phase**

| | |
|---|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

**Lane Group Calculations**

| Lane Group | L | C | L | C | R | L | C | R | C | C |
|---|---|---|---|---|---|---|---|---|---|---|
| C, Calculated Cycle Length [s] | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| L, Total Lost Time per Cycle [s] | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 |
| l2, Clearance Lost Time [s] | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 | 0.00 | 2.50 | 2.50 | 2.50 | 2.50 |
| g_i, Effective Green Time [s] | 11 | 17 | 7 | 13 | 13 | 39 | 39 | 39 | 12 | 12 |
| g / C, Green / Cycle | 0.14 | 0.21 | 0.09 | 0.16 | 0.16 | 0.48 | 0.48 | 0.48 | 0.15 | 0.15 |
| (v / s)_i Volume / Saturation Flow Rate | 0.10 | 0.11 | 0.06 | 0.13 | 0.25 | 0.34 | 0.12 | 0.06 | 0.10 | 0.10 |
| s, saturation flow rate [veh/h] | 1659 | 1698 | 1265 | 1399 | 1199 | 1453 | 1771 | 1493 | 1633 | 1581 |
| c, Capacity [veh/h] | 233 | 361 | 114 | 228 | 195 | 751 | 857 | 723 | 294 | 240 |
| d1, Uniform Delay [s] | 32.81 | 27.74 | 35.22 | 32.15 | 33.41 | 16.44 | 12.07 | 11.27 | 31.53 | 31.88 |
| k, delay calibration | 0.11 | 0.50 | 0.11 | 0.50 | 0.50 | 0.14 | 0.11 | 0.11 | 0.11 | 0.11 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.13 | 5.01 | 7.21 | 24.66 | 254.47 | 1.31 | 0.15 | 0.07 | 1.53 | 2.99 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 11.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Lane Group Results**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X, volume / capacity | 0.72 | 0.51 | 0.69 | 0.80 | 1.51 | 0.67 | 0.25 | 0.12 | 0.54 | 0.65 |
| d, Delay for Lane Group [s/veh] | 36.94 | 32.75 | 42.42 | 56.81 | 287.88 | 28.95 | 12.22 | 11.34 | 33.06 | 34.87 |
| Lane Group LOS | D | C | D | E | F | C | B | B | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | Yes | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 3.23 | 3.44 | 1.67 | 4.79 | 17.40 | 6.38 | 2.04 | 0.76 | 2.85 | 2.92 |
| 50th-Percentile Queue Length [ft/ln] | 80.67 | 86.01 | 41.63 | 119.69 | 435.01 | 159.56 | 50.97 | 19.10 | 71.33 | 73.03 |
| 95th-Percentile Queue Length [veh/ln] | 5.81 | 6.19 | 3.00 | 8.38 | 28.38 | 10.53 | 3.67 | 1.38 | 5.14 | 5.26 |
| 95th-Percentile Queue Length [ft/ln] | 145.20 | 154.82 | 74.93 | 209.40 | 709.42 | 263.14 | 91.75 | 34.39 | 128.39 | 131.46 |

**Movement, Approach, & Intersection Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.94 | 32.75 | 32.75 | 42.42 | 56.81 | 287.88 | 28.95 | 12.22 | 11.34 | 33.06 | 33.76 | 34.87 |
| Movement LOS | D | C | C | D | E | F | C | B | B | C | C | C |
| d_A, Approach Delay [s/veh] | 34.75 | | | 177.37 | | | 22.62 | | | 33.96 | | |
| Approach LOS | C | | | F | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 69.13 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.692 | | | | | | | | | | | |

**Emissions**

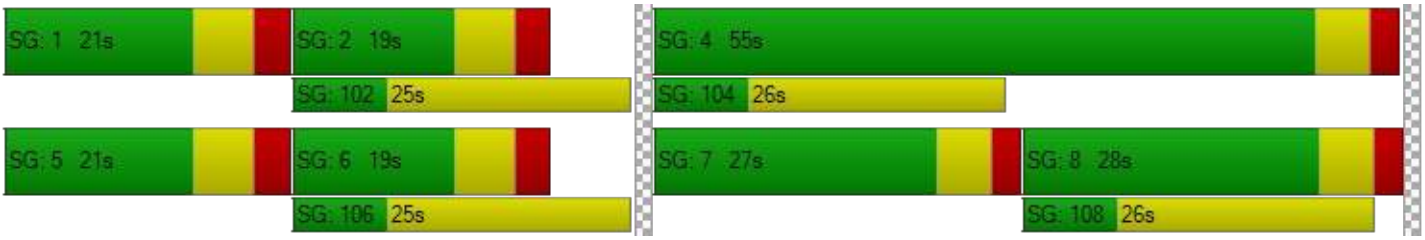
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle Miles Traveled [mph] | 9.43 | 10.34 | 8.32 | 19.16 | 31.05 | 17.02 | 7.22 | 2.89 | 15.71 | 15.50 |
| Stops [stops/h] | 145.70 | 155.35 | 75.18 | 216.17 | 785.70 | 288.19 | 92.06 | 34.50 | 128.83 | 131.91 |
| Fuel consumption [US gal/h] | 2.71 | 2.78 | 1.56 | 4.46 | 24.37 | 5.76 | 1.49 | 0.57 | 2.63 | 2.69 |
| CO [g/h] | 189.46 | 194.46 | 109.35 | 311.75 | 1703.59 | 402.73 | 104.48 | 39.56 | 184.16 | 188.26 |
| NOx [g/h] | 36.86 | 37.83 | 21.28 | 60.66 | 331.46 | 78.36 | 20.33 | 7.70 | 35.83 | 36.63 |
| VOC [g/h] | 43.91 | 45.07 | 25.34 | 72.25 | 394.82 | 93.34 | 24.21 | 9.17 | 42.68 | 43.63 |

**Other Modes**

| | | | | |
|---|---|---|---|---|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 29.62 | 29.62 | 29.62 | 29.62 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.209 | 2.928 | 2.762 | 2.224 |
| Crosswalk LOS | B | C | C | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 301 | 301 | 1229 | 552 |
| d_b, Bicycle Delay [s] | 28.77 | 28.77 | 5.92 | 20.90 |
| l_b,int, Bicycle LOS Score for Intersection | 2.139 | 2.832 | 3.000 | 1.819 |
| Bicycle LOS | B | C | C | A |

## Sequence

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report**
**Intersection 11: Wood Avenue (SR 2017) & US 22 East Ramp**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.159 |

**Intersection Setup**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 50.00 | 0.00 |
| Speed [mph] | 30.00 | | 35.00 | | 35.00 | |
| Grade [%] | 0.00 | | -0.03 | | 0.03 | |
| Crosswalk | No | | No | | No | |

**Volumes**

| Name | US 22 East On-Ramp | | Wood Avenue (SR 2017) | | Wood Avenue (SR 2017) | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 0 | 0 | 77 | 803 | 782 | 96 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 4.00 | 2.00 | 2.00 | 0.00 |
| Growth Factor | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 | 1.0305 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 11 | 19 | 11 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 90 | 846 | 817 | 99 |
| Peak Hour Factor | 1.0000 | 1.0000 | 0.9430 | 0.9430 | 0.9430 | 0.9430 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 24 | 224 | 217 | 26 |
| Total Analysis Volume [veh/h] | 0 | 0 | 95 | 897 | 866 | 105 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| | | | | | | |
|---|---|---|---|---|---|---|
| Priority Scheme | Stop | | Free | | Free | |
| Flared Lane | | | | | | |
| Storage Area [veh] | 0 | | 0 | | 0 | |
| Two-Stage Gap Acceptance | | | | | | |
| Number of Storage Spaces in Median | 0 | | 0 | | 0 | |

**Movement, Approach, & Intersection Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.16 | 0.01 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 11.12 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | | B | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.17 | 0.08 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 4.18 | 2.09 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 1.07 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.54 | | | | | |
| Intersection LOS | B | | | | | |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 16 2030 WD + IMP PM

Report File: C:\...\2030 WD + IMP PM.pdf
6/17/2024

## Turning Movement Volume: Summary

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | 23 | 12 | 7 | 211 | 341 | 14 | 608 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | 164 | 79 | 111 | 236 | 295 | 244 | 1129 |

| ID | Intersection Name | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Thru | Thru | Right | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | 22 | 41 | 26 | 374 | 502 | 16 | 981 |

| ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | 161 | 159 | 18 | 76 | 176 | 500 | 483 | 205 | 158 | 6 | 240 | 59 | 2241 |

| ID | Intersection Name | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|
| | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | 90 | 846 | 817 | 99 | 1852 |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 16 2030 WD + IMP PM

Report File: C:\...\2030 WD + IMP PM.pdf
6/17/2024

## Turning Movement Volume: Detail

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 1 | Hackett Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 0 | 0 | 0 | 205 | 331 | 0 | 536 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 23 | 12 | 7 | 0 | 0 | 14 | 56 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **23** | **12** | **7** | **211** | **341** | **14** | **608** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 2 | Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) / (SR 2024) | Final Base | 151 | 62 | 98 | 204 | 246 | 233 | 994 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 8 | 15 | 10 | 26 | 41 | 4 | 104 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **164** | **79** | **111** | **236** | **295** | **244** | **1129** |

| ID | Intersection Name | Volume Type | Southbound | | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Right | Left | Thru | Thru | Right | |
| 3 | Wood Avenue (SR 2017) & Proposed Site Access Driveway | Final Base | 0 | 0 | 0 | 355 | 483 | 0 | 838 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 22 | 41 | 26 | 8 | 4 | 16 | 117 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **22** | **41** | **26** | **374** | **502** | **16** | **981** |

| ID | Intersection Name | Volume Type | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Total Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | |
| 5 | Wood Avenue (SR 2017) & N. 13th Street (SR 2019) | Final Base | 153 | 154 | 17 | 74 | 171 | 479 | 459 | 195 | 148 | 6 | 231 | 57 | 2144 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 3 | 0 | 0 | 0 | 0 | 6 | 10 | 4 | 5 | 0 | 2 | 0 | 30 |
| | | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **161** | **159** | **18** | **76** | **176** | **500** | **483** | **205** | **158** | **6** | **240** | **59** | **2241** |

| ID | Intersection Name | Volume Type | Eastbound | | Westbound | | Total Volume |
|---|---|---|---|---|---|---|---|
| | | | Left | Thru | Thru | Right | |
| 11 | Wood Avenue (SR 2017) & US 22 East Ramp | Final Base | 77 | 803 | 782 | 96 | 1758 |
| | | Growth Factor | 1.03 | 1.03 | 1.03 | 1.03 | - |
| | | In Process | 0 | 0 | 0 | 0 | 0 |
| | | Net New Trips | 11 | 19 | 11 | 0 | 41 |
| | | Other | 0 | 0 | 0 | 0 | 0 |
| | | **Future Total** | **90** | **846** | **817** | **99** | **1852** |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 16 2030 WD + IMP PM

Report File: C:\...\2030 WD + IMP PM.pdf
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## Trip Generation summary

### Added Trips

| Zone ID: Name | Land Use variables | Code | Ind. Var. | Rate | Quantity | % In | % Out | % Int. Capture | Trips In Adj. | Trips Out Adj. | Total Trips Adj. | % of Total Trips |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1: Passenger | | 155 | SF | | 0.000 | 50.00 | 50.00 | 0.00 | 58 | 93 | 151 | 93.79 |
| 16: Truck | | 155 | SF | | 0.000 | 50.00 | 50.00 | 0.00 | 5 | 5 | 10 | 6.21 |
| | | | | | **Added Trips Total** | | | | **63** | **98** | **161** | **100.00** |

Proposed Warehouse at 1525 Wood Ave

Vistro File: c:\...\1525 Wood Ave TIS_Cycle 3 Analyses.vistro
Scenario 16 2030 WD + IMP PM

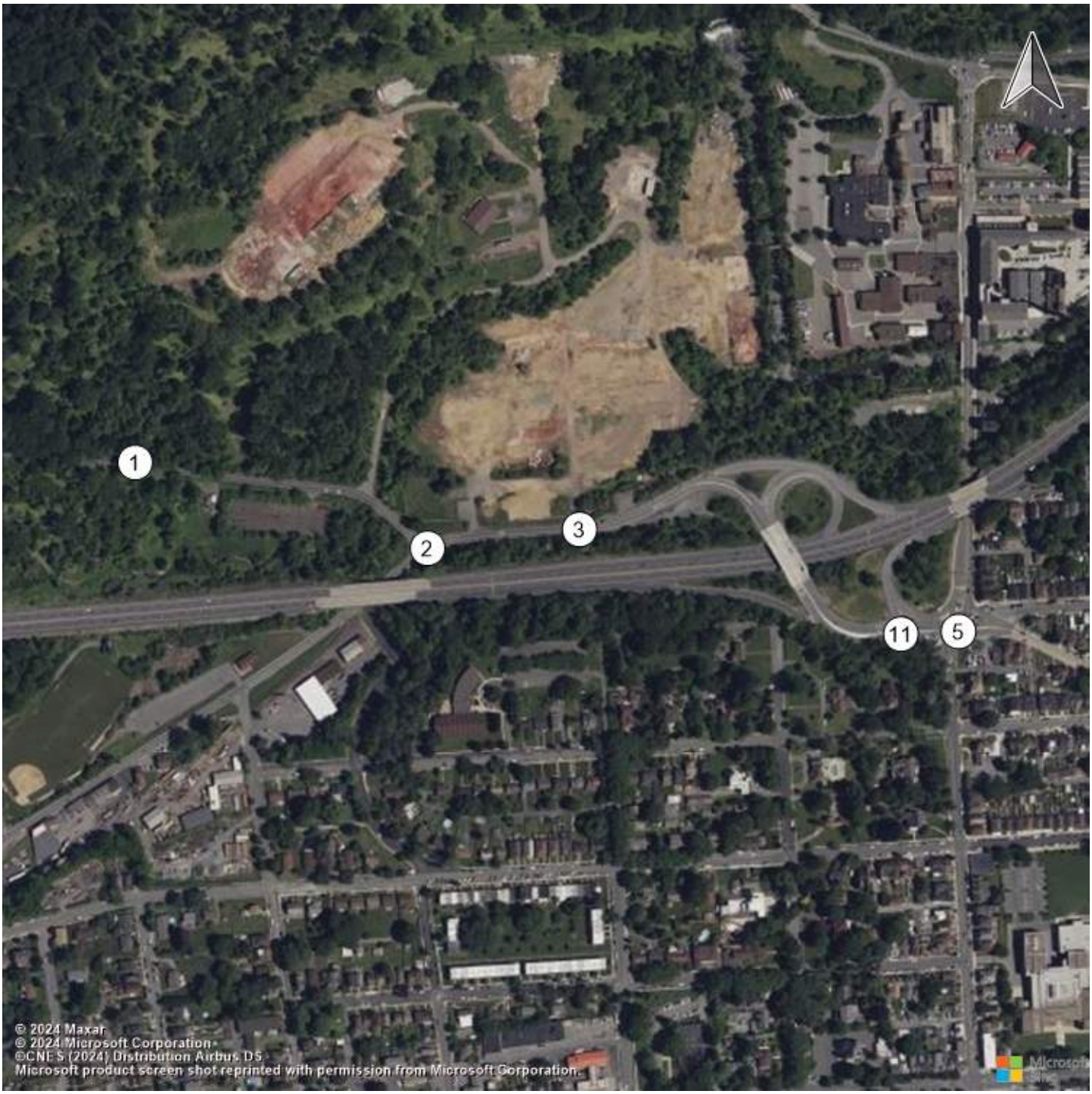
Report File: C:\...\2030 WD + IMP PM.pdf
6/17/2024

## Trip Distribution summary

| Zone / Gate | Zone 1: Passenger | | | |
|---|---|---|---|---|
| | To Passenger: | | From Passenger: | |
| | Share % | Trips | Share % | Trips |
| 16: Truck | 0.00 | 0 | 0.00 | 0 |
| 2: Tatamy Rd | 7.00 | 4 | 7.00 | 7 |
| 3: Park Ave | 5.00 | 3 | 5.00 | 5 |
| 4: Nazareth Rd | 12.00 | 7 | 12.00 | 11 |
| 5: Northampton St (East) | 7.00 | 4 | 7.00 | 7 |
| 6: To/From West via US 22 | 18.00 | 10 | 18.00 | 15 |
| 7: Northampton St (West) | 4.00 | 2 | 4.00 | 4 |
| 8: Sales St | 3.00 | 2 | 3.00 | 3 |
| 9: 25th S | 14.00 | 8 | 14.00 | 13 |
| 10: To/From East via US 22 | 10.00 | 6 | 10.00 | 9 |
| 11: Wood Ave (Easton) | 4.00 | 2 | 4.00 | 4 |
| 12: 13th St (South) | 5.00 | 3 | 5.00 | 5 |
| 13: 13th St (North) | 11.00 | 6 | 11.00 | 10 |
| **Total** | **100.00** | **57** | **100.00** | **93** |

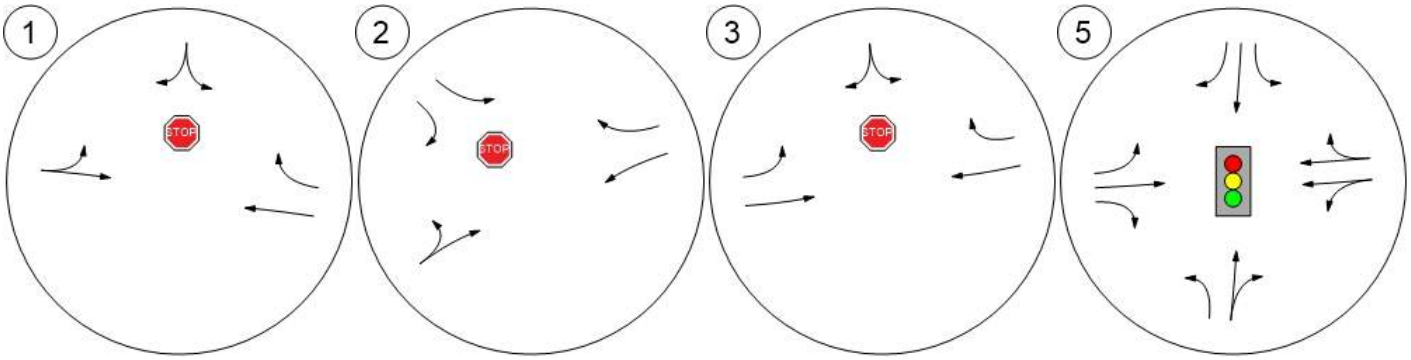
| Zone / Gate | Zone 16: Truck | | | |
|---|---|---|---|---|
| | To Truck: | | From Truck: | |
| | Share % | Trips | Share % | Trips |
| 1: Passenger | 0.00 | 0 | 0.00 | 0 |
| 2: Tatamy Rd | 0.00 | 0 | 0.00 | 0 |
| 3: Park Ave | 0.00 | 0 | 0.00 | 0 |
| 4: Nazareth Rd | 0.00 | 0 | 0.00 | 0 |
| 5: Northampton St (East) | 0.00 | 0 | 0.00 | 0 |
| 6: To/From West via US 22 | 50.00 | 3 | 50.00 | 3 |
| 7: Northampton St (West) | 0.00 | 0 | 0.00 | 0 |
| 8: Sales St | 0.00 | 0 | 0.00 | 0 |
| 9: 25th S | 0.00 | 0 | 0.00 | 0 |
| 10: To/From East via US 22 | 50.00 | 3 | 50.00 | 2 |
| 11: Wood Ave (Easton) | 0.00 | 0 | 0.00 | 0 |
| 12: 13th St (South) | 0.00 | 0 | 0.00 | 0 |
| 13: 13th St (North) | 0.00 | 0 | 0.00 | 0 |
| **Total** | **100.00** | **6** | **100.00** | **5** |

Report Figure 1: Study Intersections

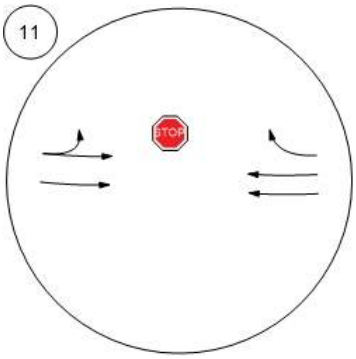


Report Figure 2: Lane Configuration and Traffic Control

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

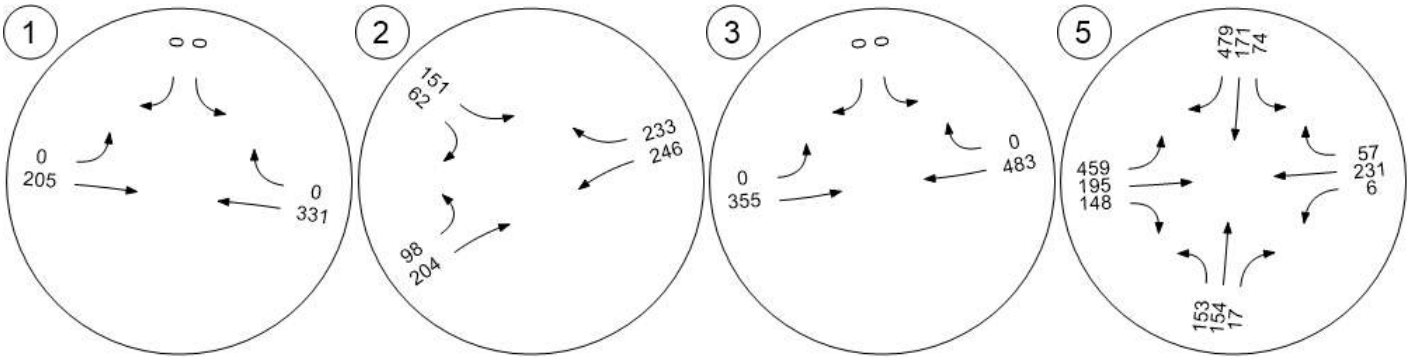



Wood Avenue (SR 2017) & U

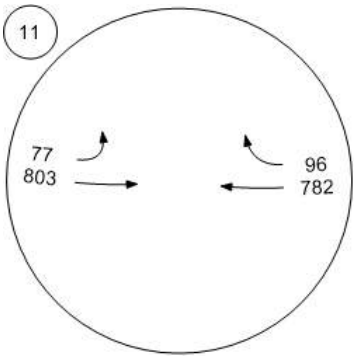


Report Figure 3a: Traffic Volume - Base Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

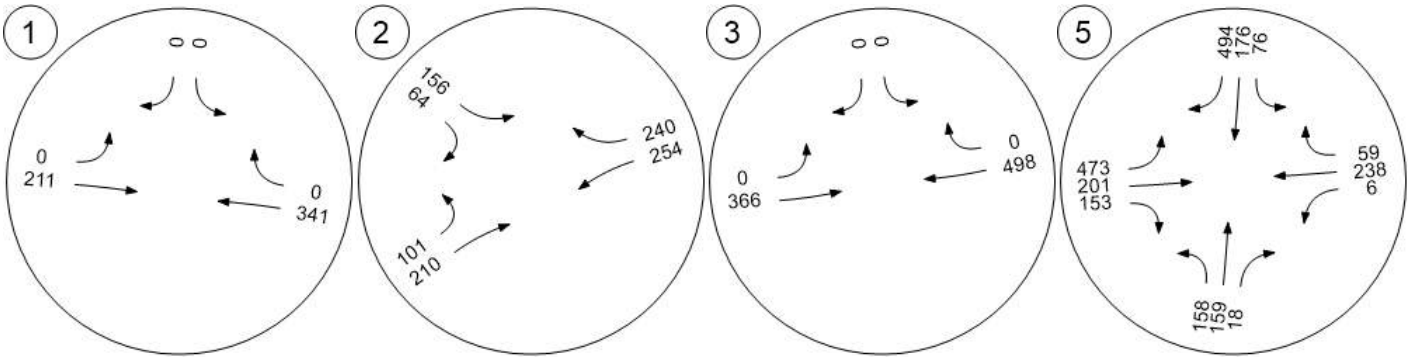



Wood Avenue (SR 2017) & U

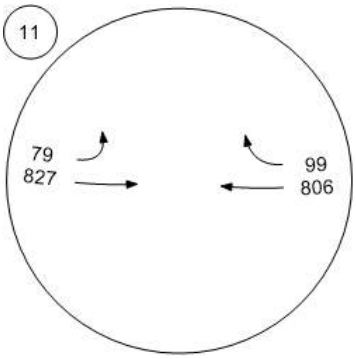


Report Figure 3c: Traffic Volume - Future Background Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

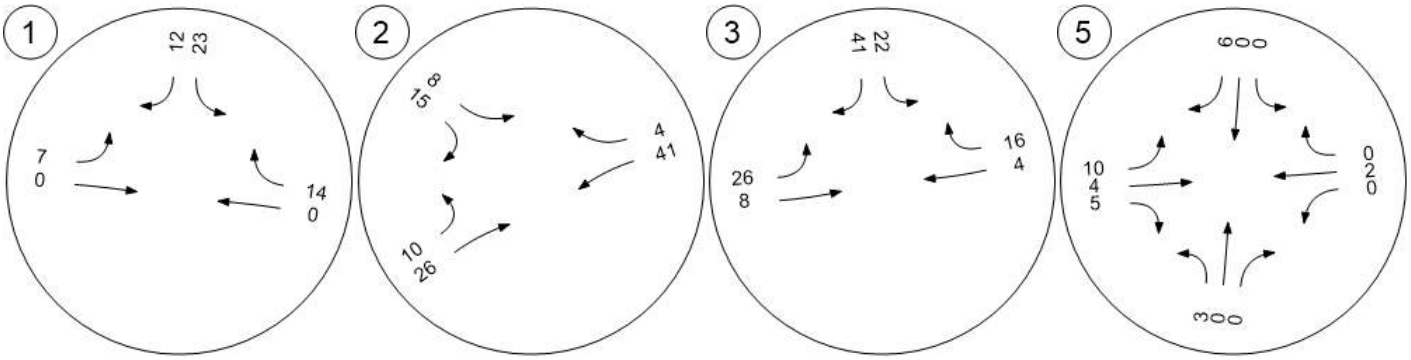



Wood Avenue (SR 2017) & U

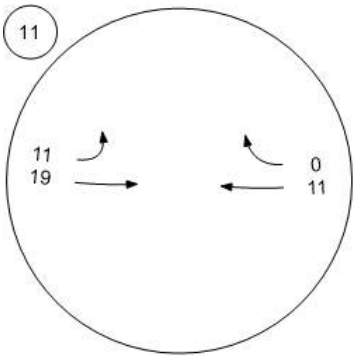


Report Figure 3d: Traffic Volume - Net New Site Trips

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

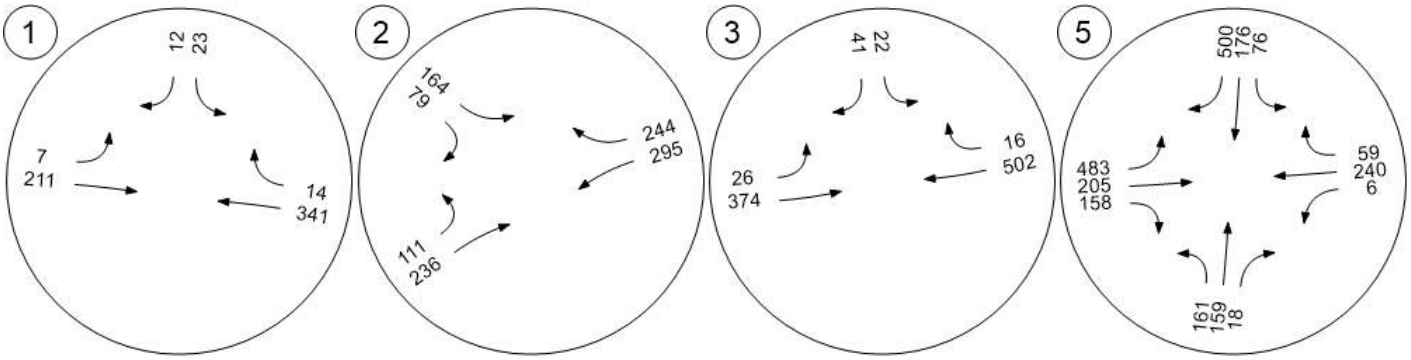



Wood Avenue (SR 2017) & U

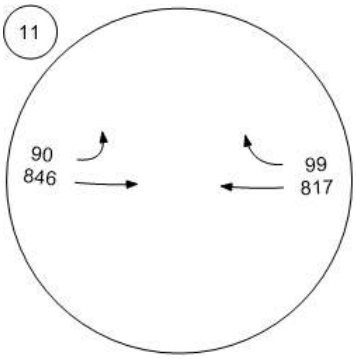


Report Figure 3f: Traffic Volume - Future Total Volume

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N

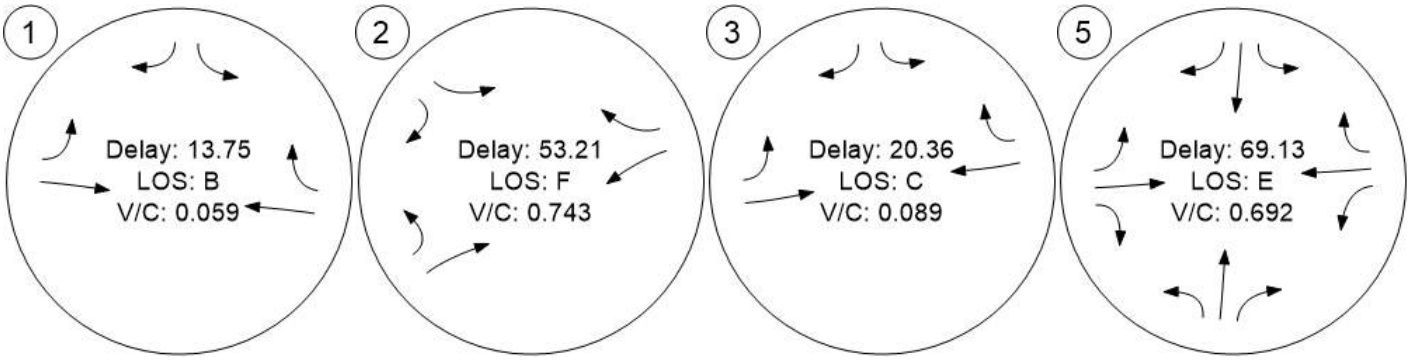



Wood Avenue (SR 2017) & U



Report Figure 4: Traffic Conditions

Hackett Avenue (SR 2017) & Hackett Avenue (SR 2017) & Wood Avenue (SR 2017) & P Wood Avenue (SR 2017) & N




Wood Avenue (SR 2017) & U