July 21, 2016

ROUTE 208
ACCESS MANAGEMENT STUDY
Springfield Township, Mercer County, Pennsylvania

Transportation Solutions for Today and Tomorrow

Prepared for:

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1.0 INTRODUCTION AND OBJECTIVES

Springfield Township is a municipality located less than an hour's drive north of Pittsburgh, Pennsylvania. According to the 2010 Census, the Township's population was 1,981. While most of the township is rural, the land surrounding the interchange of Interstate 79 and the Route 208 corridor contains one of Mercer County's busiest and most-intensive suburban commercial zones. This area is home to the Grove City Premium Outlets, Wendell August's flagship store and workshop, the Grove City Airport, and numerous hotels and restaurants.

As stated in the Request for Proposals, "Development of the Grove City Premium Outlets in the mid-1990s fundamentally changed the character of the area and served as a catalyst for several other commercial land developments. As development pressure very quickly intensified, the SR 208 corridor saw a concomitant increase in vehicular traffic. Periodic improvements have been made to the roadway and signals to alleviate much of this congestion plaguing the corridor. Average annual daily traffic now stands at around 12,000 vehicles per day near I-79, through seasonal shopping peaks related to events such as Christmas or back-to-school shopping increase that number significantly."

"With no end in sight for commercial development, Springfield Township officials understand the need to be proactive about land-use controls in order to ensure that development is of high quality. Just as important, there is a collective realization that transportation and land use are inexorably linked; that proper transportation and land use planning can work to minimize congestion, provide higher levels of safety for all modes of transportation, and even make the corridor and the township a more interesting place, something often lacking in the suburban landscape."

Springfield Township has previously taken action to manage access within the Route 208 Corridor. As a part of the Township Subdivision and Land Development Ordinance, an amendment to provide access management standards in the corridor was adopted in 2007.

The Route 208 Access Management Study was conducted with the following goals as established by the Pennsylvania Department of Transportation (PennDOT), the Mercer County Regional Planning Commission (MCRPC) and Springfield Township:

1. Accommodate safe and efficient vehicular, pedestrian, and bicyclist traffic.
2. Provide for convenient and controlled access points to existing and future commercial development.
3. Integrate physical infrastructure (road lanes, multi-modal trails, and road crossings) with technological infrastructure (traffic signal timing and coordination) to promote safe and efficient travel along the corridor.
4. Coordinate existing and proposed transportation infrastructure with the current and future land use patterns along the corridor.
5. Examine ways to encourage adjacent property owners to better cooperate with respect to shared access and marginal access.

The study process included: a kick-off meeting with Township representatives, MCRPC, PennDOT and TA to gather information and discuss the study; a stakeholders meeting to present draft study results and recommendations, and to gather input; and a presentation to the Township Board of

Supervisors at their July 2016 meeting. Minutes from the March 2, 2016 kick-off meeting and the June 7, 2016 stakeholders meeting are included in the Appendix to this report. In addition, a copy of the Power Point presentation to the Board of Supervisors at their July 5, 2016 meeting is also included in the Appendix.

The following sections of this study provide descriptions of the existing conditions, access management principles, recommendations, implementation tools and a suggested access management ordinance language.

2.0 EXISTING CONDITIONS

2.1 Study Area

The Route 208 study corridor is located within the eastern part of Springfield Township, Mercer County, Pennsylvania. The study corridor consists of approximately 2.3 miles of State Route 208 (SR 208) extending from the intersection of Old Ash Road in the west to the Springfield Township / Pine Township boundary in the east. A map of the study area is presented in **Figure 1**.

SR 208 is classified by PennDOT as a minor arterial with average daily traffic (ADT) volumes that vary from 12,000 vehicles within the central core of the study area between the SR 258 intersections and at the I-79 interchange, to 6,000 vehicles at the east and west edges of the study area.

Within the environs of the study area, SR 208 is posted with a 45 mph speed limit from Old Ash Road to Holiday Inn Drive and from SR 258 east of I-79 to the Pine Township line. Additionally SR 208 is posted with a 35 mph speed limit from Holiday Inn Drive to SR 258 east of I-79 which includes the most densely developed areas.

The right-of-way width along SR 208 varies in the study corridor from 40 feet to 55 feet, the majority of which is 50 feet (25 feet each side of the center line). With the construction of I-79 in the 1960s, the right-of-way within the SR 208 interchange area was widened up to 140 feet. The right-of-way was further expanded with the widening of SR 208 in 2005 between Oakley-Kelly Drive and SR 258 (South) from 57 feet to 106 feet in width.

The zoning classification along SR 208 within the study area includes C-1 and C-2 Commercial districts along with some small sections of Village district near Old Ash Road.

Within the 2.3 mile long study area, the following intersections and driveways exist along SR 208:

- 5 signalized intersections
    - SR 208 & Springfield Commons Driveway (signal installed but not operating)
    - SR 208 & SR 258 / Premium Outlets Driveway
    - SR 208 & I-79 Southbound Ramps
    - SR 208 & I-79 Northbound Ramps
    - SR 208 & SR 258
- 57 total access points (approximately 25 access points per mile)
    - 33 commercial driveways (58% of total)
    - 14 residential driveways (24% of total)

- 5 two-way stop controlled intersections (9% of total)
- 5 signalized intersections (9% of total)

The location and spacing of these access points are shown on **Figures 2A** through **2E**. The signal at SR 208 and the Springfield Commons Driveway will be placed in operation upon the initial occupancy of the development. In addition, the developer's agreement for Springfield Commons references a post-development traffic study that includes as a conditional improvement the installation of a traffic signal at the SR 208 and Veterans Road intersection, if warranted.

2.2 Reportable Crash Analysis

Crash data was requested from the Pennsylvania Department of Transportation (PennDOT) Bureau of Highway Safety and Traffic Engineering for the five most recent years of reportable crashes, specifically 2010 to 2014. This information was evaluated to determine if there exists a pattern of crashes with similar causation factors that would require mitigation.

According to PennDOT Publication 212, *Official Traffic Control Devices*, a crash problem is indicated by the occurrence of five or more reportable crashes with similar causation factors during a continuous 12-month period. Of the reportable crashes, there are no locations with five or more crashes with similar causation factors within a continuous 12-month period. Therefore, there does not appear to be any locations with crash patterns that would require mitigation. As detailed in **Table 1**, the five year period included a total of 76 reportable crashes along SR 208 in the study area as follows:

- SR 208 and Old Ash Road – Total of 5 crashes
  - 2 angle;
  - 2 rear end; and
  - 1 hit fixed object.
- Between Old Ash Road and Veterans Road – Total of 6 crashes
  - 3 hit fixed objects;
  - 2 angle; and
  - 1 rear end.
- SR 208 and Veterans Road – Total of 4 crashes
  - 4 angle.
- SR 208 and SR 258/Premium Outlets – Total of 14 crashes
  - 8 angle;
  - 3 rear end;
  - 2 hit fixed object; and
  - 1 non-collision.
- SR 208 and I-79 Southbound Ramps – Total of 13 crashes
  - 6 rear end;
  - 5 angle;
  - 1 Pedestrian; and
  - 1 Non Collision.
- Between I-79 Southbound Ramps and I-79 Northbound Ramps – Total of 1 crash
  - 1 rear end.

- SR 208 and I-79 Northbound Ramps – Total of 8 crashes
    - 5 rear end; and
    - 3 angle.
- Between I-79 Northbound Ramps and SR 208 – Total of 8 crashes
    - 3 angle;
    - 2 rear end;
    - 2 same direction side swipe; and
    - 1 hit fixed object.
- SR 208 and SR 258 – Total of 7 crashes
    - 3 rear end;
    - 2 angle;
    - 1 opposite direction sideswipe; and
    - 1 unknown.
- Between SR 258 and Pine Township Line – Total of 10 crashes
    - 5 rear end;
    - 4 angle; and
    - 1 hit fixed object.

Of these crashes there was one was fatal crash and one crash with major injuries, both of which occurred at the SR 208 and SR 258/Premium Outlets intersection.

2.3 Existing Conditions Traffic Volumes and Projected Traffic

Manual turning movement counts were performed during typical weekdays in February 2016 from 3:00 PM to 6:00 PM and on typical Saturdays in February and March 2016 from 11:00 AM to 2:00 PM at the following intersections within the study area:

- SR 208 & Old Ash Rd
- SR 208 & Veterans Rd
- SR 208 & SR 258/Prime Outlets
- SR 208 & I-79 Southbound Ramps
- SR 208 & I-79 Northbound Ramps
- SR 208 & SR 258

The intersection locations are presented in **Figure 1**.

The overall peak hours determined from these counts are as follows:

- PM Peak Hour – 4:30 PM to 5:30 PM
- Saturday Peak Hour – 12:45 PM to 1:45 PM

Summaries of the data collected during the manual turning movement counts at each of the intersections are included in the Appendix to this report.

In order to account for seasonal traffic fluctuations, PennDOT seasonal adjustment factors were applied to the counts for each intersection. These factors were obtained from the PennDOT iTMS (Internet Traffic Monitoring System) database by both roadway type and data of traffic count. In addition, projected site generated traffic from developments that have been approved, but not yet constructed, that would affect traffic volumes in the study area, have been incorporated. These developments include:

- The Springfield Commons Development located immediately west of the Premium Outlets
- The unbuilt portions of the Wendell August Development
- The Living Treasures Safari Park located along SR 258 south in Liberty Township

The traffic volumes used in the analysis were determined by adding the 2016 seasonally adjusted existing traffic volumes to the approved background developments total site generated trips. The resultant traffic volumes with approved developments are presented in **Figure 3**.

2.4 Capacity Analysis

Capacity calculations were performed for each of the aforementioned intersections using the methodologies published in the *Highway Capacity Manual 2010*, by the Transportation Research Board, 2010 using *Synchro, Version 8* traffic analysis and simulation software. This methodology determines how well an intersection, approach to an intersection, or movement at an intersection operates and assigns to it a level of service (LOS) A through F, with LOS A representing the best operating conditions and LOS F, the worst. LOS is based on a scale of delay in seconds to motorists. For new or improved signalized intersections, PennDOT utilizes a design LOS C (delays between 20 and 35 seconds) for rural conditions and LOS D (delays between 35 and 55 seconds) for urban conditions. The study area is considered rural on PennDOT's roadway classification map of Mercer County. Definitions of LOS have been included in the Appendix to this report.

The results of the capacity calculations performed for the design year traffic volumes are summarized in **Table 2** for the weekday PM and Saturday peak hours. The results of the capacity analysis revealed that each of the intersections are projected to operate at an overall intersection LOS C or better during each of the peak periods analyzed with one exception. The intersection of SR 208 and Premium Outlets/SR 258 is projected to operate at a LOS D during the Saturday peak hour. Copies of the capacity analysis performed are included in the Appendix to this report.

2.5 Queuing Analysis

Queuing analyses were performed for the aforementioned intersections using *Synchro Traffic Signal Coordination Software* by TrafficWare. The 95th percentile queue lengths are summarized in **Table 3** for the weekday PM and Saturday peak hours. Based on the results of the analyses, all queues are calculated to be contained within all existing available turn bay storage lengths and are also calculated to not extend beyond adjacent intersections, with the following exception:

- SR 208 and Springfield Commons Driveway (assuming signal is operational)
    - The eastbound SR 208 through queue is calculated to extend beyond Veterans Drive by 1 to 3 vehicles during the PM and Saturday peak hours, respectively.

Copies of the queuing analysis performed for design year conditions are included in the Appendix to this report.

3.0 RECOMMENDATIONS

In developing recommendations for this access management study, the following sources were relied upon:

- PennDOT Publication 574 *Access Management Model Ordinances for Pennsylvania Municipalities Handbook*, 2005.
- PA Code Chapter 441: *Access To and Occupancy of Highways by Driveways and Local Roads*, 1992.
- Transportation Research Board, *NCHRP Report 420: Impacts of Access Management Techniques*, 1999.
- New York State DOT *Model Access Management Ordinance*, 1998.
- Pennsylvania Department of Community and Economic Development, *Pennsylvania Municipalities Planning Code*, 2015.
- American Association of State Highway and Transportation Officials (AASHTO) *A Policy on the Geometric Design of Highways and Streets*, 2011.

According to the Pennsylvania Department of Transportation's publication *Access Management Model Ordinances for Pennsylvania Municipalities Handbook*, the goals of access management are accomplished through the following 10 principles:

1. **Provide a specialized roadway system** – it is important to design and manage roadways according to the primary functions that they are expected to serve;
2. **Limit direct access to major roadways** – roadways that serve higher volumes of regional through traffic need more access control to preserve their traffic function;
3. **Promote intersection hierarchy** – an efficient transportation network provides appropriate transitions from one classification of roadway to another;
4. **Locate signals to favor through movements** – long, uniform spacing of intersections and signals on major roadways enhances the ability to coordinate signals and ensure continuous movement of traffic at the desired speed;
5. **Preserve the functional area of intersections and interchanges** – the functional area is where motorists are responding to the intersection (i.e., decelerating, maneuvering into the appropriate lane to stop or complete a turn);
6. **Limit the number of conflict points** – drivers make more mistakes and are more likely to have collisions when they are presented with the complex driving situations created numerous conflicts. Traffic conflicts occur when the paths of vehicles intersect and may involve merging, diverging, stopping, weaving, or crossing movements;
7. **Separate conflict area**s – drivers need sufficient time to address one potential set of conflicts before facing another;
8. **Remove turning vehicles from through-traffic lanes** – turning lanes allow drivers to decelerate gradually out of the through lane and wait in a protected area for an opportunity to complete a turn, thereby reducing the severity and duration of conflict between turning vehicles and through traffic;
9. **Use non traversable medians to manage turn movements** – they minimize left turns or reduce driver workload and can be especially effective in improving roadway safety; and

10. **Provide a supporting street and circulation system** – a supporting network of local and collector streets to accommodate development, and unify property access and circulation systems. Interconnected streets provide alternate routes for bicyclists, pedestrians, and drivers.

The following recommendations have been developed based on the aforementioned principles and sources, as applicable for the study area. It should be noted that the recommendations described in Sections 3.1 to 3.8 may be implemented individually, or in some instances, are linked to other improvements such as the parallel service road and the spacing of future signals. Each section provides a background, justification and recommended actions.

3.1 Locate Future Signalized Intersections to Favor Through Movements

Background

Proper spacing of signals based on the speed through traffic helps promote the progressive movement of traffic. Current signal spacing ranges from 675 feet to 1,450 feet as follows:

- 875 feet from Springfield Commons Driveway to Premium Outlets/SR 258
- 775 feet from Premium Outlets/SR 258 to I-79 Southbound Ramps
- 675 feet from I-79 Southbound Ramps to I-79 Northbound Ramps
- 1,450 feet from I-79 Northbound Ramps to SR 258 (south)

Justification

NCHRP Report 420 recommends an optimum one-half mile (2,640 feet) signal spacing to maintain speeds of 35 to 45 mph. Signals at one-quarter mile spacing typically result in lower progression speeds of approximately 30 mph. Although the half mile spacing is not possible with the current configuration of SR 208, new signals should be placed at intervals of at least one-quarter mile (1,320 feet).

Recommended Actions

It is recommended that future signals be located at existing, new and/or re-aligned four-way intersections, if warranted, per the criteria in the FHWA *Manual on Uniform Traffic Control Devices*. These intersections may include:

- SR 208 & Old Ash Road
- SR 208 & Wendell August Forge Development driveway (north side) and new service road (south side)
- SR 208 & new service road (south side) and realigned Oakley Kelly Drive (north side)

This would result in the spacing of potential signals from 1,350 feet to 1,725 feet.

- 1,350 feet from Old Ash Road to Wendell August Forge Development driveway
- 1,425 feet from Wendell August Forge Development driveway to realigned Oakley Kelly Drive
- 1,725 feet from re-aligned Oakley Kelly Drive to Springfield Commons Driveway

As previously stated, the installation of a traffic signal at the SR 208 and Veterans Road intersection, if warranted, is a condition of the Springfield Commons developer's agreement. Since this intersection is 325 feet west of the signal at SR 208 and Springfield Commons, it is not recommended that a signal be installed at the Veterans Road intersection. Should volumes on Veterans Road, particularly left turns onto SR 208, warrant a signal in the future, this traffic can be diverted through the Springfield Commons development to the signalized intersection. Further

discussion of this diversion and limiting the left turns on Veterans Road at SR 208 is included in Section 3.2.

3.2 Limit the Number of Conflict Points

Background

The current *Springfield Township Subdivision and Land Development Ordinance* (SALDO) permits a minimum access spacing of 150 feet (for non-conforming lots) to 300 feet. Current driveway and intersection spacing along the SR 208 corridor varies from less than 50 feet to over 1,000 feet. Access points are spread out along the corridor, with the highest densities located near the I-79 interchange and near residential driveways on the edge of both the east and west boundaries of the study area. Detailed intersection spacing measurements are shown in **Figures 2A to 2E**.

The current SALDO also specifies driveway throat lengths, that is, the distance from the intersecting roadway to the first point of conflict on site, in accordance with the size of a development the driveway serves.

Justification

The PennDOT *Access Management Model Ordinances for Pennsylvania Municipalities Handbook* states that adequate driveway spacing allows greater speeds for through traffic, reduces the number of potential conflict points and helps preserve the capacity of the roadway. It provides a recommended minimum access spacing of 400 feet for a minor arterial to 600 feet for a principal arterial. SR 208 is classified as a minor arterial. Access driveways that are located between traffic signals should maintain the PennDOT recommended driveway spacing of 400 feet.

Driveway throat length should be sufficient so that vehicles entering a driveway do not immediately encounter cross traffic, turning traffic or parking spaces. Recommended throat length is determined by traffic volumes, vehicle queues and type of vehicles. PennDOT Chapter 441 provides minimum and desirable throat lengths for medium and high volume driveways. In addition to medium and high volume driveways, PennDOT's *Access Management Model Ordinances for Pennsylvania Municipalities Handbook* recommends throat lengths for minimum use and low volume driveways.

The restriction of left turns out of a driveway reduces interruptions to through traffic on roadways. Typically, vehicles making left turns exiting from a driveway or minor street onto a major street incur the highest delays. This can result in motorists accepting less than minimum gaps in the major street traffic which can lead to potential collisions.

Recommended Actions

Driveways for new development or parcels being redeveloped should be located a minimum of 400 feet from adjacent driveways and intersections along the same side of the roadway.

The following throat lengths are recommended based on PennDOT driveway volume classifications, defined by the average daily traffic (ADT) volumes they are intended to serve:

- Minimum use driveway (ADT: 1 to 50) – 25 feet
- Low volume driveway (ADT: 51 to 1,500) – 50 feet or as determined by a queuing analysis
- Medium volume driveway (ADT: 1,501 to 3,000) – 120 feet or as determined by a queuing analysis
- High volume driveway (ADT: >3,001) – 150 feet or as determined by a queuing analysis

Driveways are recommended to operate as 3/4 or limited access driveways providing left-in, right-in, right-out movements to reduce the number of conflict points. **Figure 4** presents a concept plan for a 3/4 or limited access driveway.

For clarification, existing driveways along the SR 208 study corridor may remain in their existing configuration until such time that the land use the driveway serves is not expanded, discontinued, or changed.

If it is determined that left turn movements from Veterans Road onto SR 208 incur long delays in the future and operate at deficient LOS, channelization in the form of the 3/4 driveway should be implemented.

Left turn egress movements that are prohibited from driveways onto SR 208 can be accommodated through U-turns at the nearest traffic signal or via an alternate parallel road.

Left turns into driveways can be made from the two-way left turn lanes and/or exclusive left turn lanes, if warranted.

Other recommendations that reduce or eliminate conflict points include:

- Consolidate driveways for non-residential uses so that two or more properties share an access point. A cross-access easement will be required.
- Limit the number of driveways to a maximum of one access driveway per parcel along SR 208 which complies with the required access driveway spacing standards for most parcels. Shared driveways should be encouraged.
- For properties that abut both SR 208 and an intersecting roadway (e.g. Veterans Road), access should be limited to the intersecting road.
- Wherever possible, realign driveways and public roadways opposite from each other to minimize conflict points.
- New driveways should be aligned opposite from each other or at a sufficient offset distance to reduce left turning conflicts.

3.3 Remove Left Turns From Through Movements

Background

There are presently exclusive left turn lanes or a two-way left-turn lane along a 1.0 mile segment of the SR 208 study corridor from Oakley-Kelly Drive to SR 258 South. There is a single through lane in either direction with left turns permitted from it along the remaining 1.3 miles of the corridor. Left turns from through lanes result in delay to the vehicles following the vehicle making the left turn. In addition, the potential for rear-end crashes increase when left turns share a lane with through traffic.

Justification

The PennDOT *Access Management Model Ordinances for Pennsylvania Municipalities Handbook* states that left turn lanes are usually provided for either a high left turn volume into a driveway or side street, or when a combination of left turn volumes and high through volumes causes long delays. They can also be used in locations with high rates of rear end crashes.

Left turn lanes are typically warranted by evaluating the left turn volume and advancing volume, the opposing volume, the speed, and percent heavy vehicles in the traffic flow. The criteria for this evaluation is included in PennDOT Publication 46, *Traffic Engineering Manual*.

Recommended Actions

It is recommended that a two-way left-turn lane (TWLTL) be provided throughout the SR 208 corridor. This includes a new TWLTL section from Old Ash Road to Oakley-Kelly Drive and a new TWLTL section east of the SR 258 intersection to the Pine Township line. At locations where a

significant number of left turns from SR 208 into a driveway are anticipated, an exclusive left turn lane should be considered in place of the TWLTL.

Conceptual plans of the proposed TWLTL sections are presented in **Figures 5** through **8.**

The addition of a TWLTL assuming 12 foot wide lanes and 8 foot wide shoulders represent a roadway section that will exceed the existing right-of-way width in several areas. Thus, right-of-way acquisition would be required along SR 208 to accommodate such widening.

Opinions of probable cost to widen SR 208 to provide TWLTLs including right-of-way acquisition are as follows:

- Provide 3,300 linear foot TWLTL section on SR 208 from Old Ash Road to Oakley-Kelly Drive: $2.0 million
- Provide 3,400 linear foot TWLTL section east of SR 258 to Pine Township line: $2.0 million

3.4 Provide a Supporting Street and Circulation System

Background

As additional development occurs in the SR 208 corridor, the increase in traffic volume and the number of accesses will increase. The beginning of a parallel service road has been initiated within the Springfield Commons development. Connecting to this parallel road system along the southern side of SR 208 can help divert trips from SR 208.

Justification

In order to divert traffic from SR 208, a parallel supporting service road system should be provided wherever possible. Provision of a service road will reduce the need for additional access points on SR 208. The parallel service road can provide improved access configurations for adjacent parcels. To implement future parallel service roads, easements need to be required through parcels as they are proposed for subdividing and development.

Recommended Actions

Due to the level of development along SR 208, a parallel access road is recommended south of SR 208 from Veterans Road to opposite the Wendell August driveway. **Figures 7** and **8** present a potential parallel access road that connects Veterans Road to a new potential signalized intersection with the Wendell August Forge Development, including an intermediate connection with SR 208. It is recommended that Oakley-Kelly Drive be realigned opposite the intermediate connection from the parallel access road to form a four-way “plus” intersection.

It is intended that these roads be designed and constructed to Township specifications and be adopted by the Township, regardless of how they are funded or the party constructing them.

Opinions of probable cost to implement the parallel access road, connector and Oakley Kelley Drive realignment including right-of-way acquisition are as follows:

- Construct 3,900 linear feet of parallel access road and connector: $2.7 million.
- Realign approximately 1,100 LF of Oakley-Kelly Drive opposite connector: $800,000.

Breakdowns of the opinions of probable cost are provided in the Appendix.

3.5 Provide Sidewalk and/or Multi-Use Trail Connections

Background

Presently, there is an 8 foot wide multi-use trail proposed along the south side of SR 208 from the Premium Outlet driveway to the Springfield Commons driveway, where it crosses SR 208 at a signalized crosswalk and continues along the north side of SR 208 to the Holiday Inn driveway. Construction of this trail is anticipated to occur in 2016.

Justification

With reduced number of access points along SR 208, pedestrian and bicycle visibility should be improved and with fewer conflict points. Future developments along the SR 208 corridor should be required to provide sidewalks and/or a multi-use trail along all adjacent roadways that are envisioned to connect with the proposed multi-use trial.

Recommended Actions

Sidewalks and/or multi-use trails should be provided at a minimum on either the north or south side of SR 208 along the entire corridor. When developments have access to a parallel service road, sidewalks and/or multi-use trails should be provided on the parallel road. Future sidewalks/multi-use trails should be designed to coordinate with the proposed SR 208 multi-use trail. Sidewalk and/or trail crossings of driveways should be clearly delineated with pavement markings

3.6 Restrict Zoning Standards for Desired Developments

Background

Presently, the Township Zoning Ordinance allows single family residential in the C-1 and C-2 zoning districts. Any development or redevelopment of existing properties should conform to the future land uses established by the Township. Any redevelopment of existing properties should be held to the access management standards established.

Justification

PennDOT Chapter 441 states that the number of driveway locations to be permitted to serve a property will be based on preserving the flow of traffic and highway safety, considering the amount and type of traffic the driveway is expected to serve, the location, type and density of the development, the type and character of the roadway which it accesses, interior traffic patterns, frontage and other criteria consistent with the AASHTO publication entitled *A Policy on Geometric Design of Highways and Streets*.

Recommended Actions

Where applicable, access points should be consolidated or removed to coincide with the access management standards established.

Development of single family properties along SR 208 should provide a single access along SR 208, not individual driveways.

3.7 Springfield Commons Internal Connection

Background

A 50 foot wide right-of-way is situated between the Elephant & Castle restaurant and Wendy's, connecting SR 208 with Lot 4 of the Springfield Commons development. There is currently a driveway serving both the Elephant & Castle and Wendy's on this right-of-way.

Justification

A driveway connection from SR 208 with the Springfield Commons development between the Elephant & Castle restaurant and Wendy's would promote the goal of unifying property access and circulation systems, providing alternate routes for pedestrians and drivers.

Recommended Actions

It is recommended that an internal connection be provided between the Springfield Commons development and Elephant & Castle / Wendy's. This internal connection is shown on **Figure 5**.

3.8 Realign Pine Road

Background

Pine Road (T-770) intersects SR 208 at an approximate 45 degree angle at a three-leg intersection. This alignment creates issues with turning vehicles and the ability of motorists to look left at an acute angle from Pine Road when entering SR 208.

Justification

Without channelization, i.e. corner islands, AASHTO's *A Policy on Geometric Design of Highways and Streets* recommends that the angle of intersection of three-leg or "T" intersections be not generally more than 30 degrees from perpendicular.

Recommended Actions

Consider realignment of Pine Road to intersect with SR 208 at a 90 degree angle or as close to a 90 degree angle as possible in order to improve ease of access to and from Pine Road.

- Realign approximately 310 LF of Pine Road to intersect SR 208 at a 90 degree intersection: $200,000.

A breakdown of the opinion of probable cost is provided in the Appendix.

4.0 IMPLEMENTATION TOOLS

This section provides a narrative on methods to implement the recommendations in Sections 3.1 through 3.8. Discussion on the funding of the recommendations involving public improvements such as turn lanes, traffic signals and parallel access roads, along with the adoption of all recommendations by Township ordinance is provided.

4.1 Potential Funding Strategies

For the purposes of this discussion, public improvements are defined as the signals recommended in Section 3.1, the widening of SR 208 for left turn lanes recommended in Section 3.3, the parallel access road including connector and realignment of Oakley-Kelly Drive recommended in Section 3.4, and the realignment of Pine Road recommended in Section 3.8. All other recommendations including access to individual parcels, internal connectors and sidewalks or multi-use trails are assumed to be fully funded by individual developments as they occur.

There are several sources from which funding of the aforementioned recommendations are possible. A brief description of each follows.

Federal/State/Local TIP Funding

For improvements along SR 208, Federal and State funding with a local match is a possibility however, the widening would need to benefit public intersections, i.e. State or Township roads. Any widening that incidentally occurs along property frontage with private driveways may be benefitted. The process for securing such funding includes programming at the MPO (MCRPC) and State level to be placed on the Transportation Improvement Program (TIP). The TIP is updated every two years. Some projects are placed on the Long Range Transportation Plan in advance of being funded on the TIP. Due to transportation funding constraints, the likelihood of successfully placing a project such as the SR 208 turn lanes on the TIP would appear low.

Local Roadway Improvement Funds

Township funds could be used towards a portion or all of local roadway improvements such as the parallel access road, Oakley-Kelly Drive and Pine Road realignments, and the potential future traffic signals.

Developer Funding

Private funding by developers remains a viable means to implement various components of the recommended public improvements. In particular, those sections of the parallel access road and connector road alignment that abut or cross development parcels, and the widening of SR 208 for turn lanes may be designed, constructed and funded by developers of land within the study corridor. Some of these improvements may be completed through the PennDOT highway occupancy permit (HOP) process where access onto a state road is involved. This includes the installation of needed traffic signals.

Transportation Impact Fees

Pennsylvania Act 209 of 1990 authorized municipalities in the Commonwealth to implement transportation impact fees on new development. Article V-A of the *Pennsylvania Municipalities Planning Code* provides the grant of power and procedure for enacting impact fees. The funds generated by transportation impact fees must be used to mitigate the traffic generated by new development within a transportation service area where the development is located. One stipulation of impact fees is that no more than 50 percent of the cost of a project within state right-of-way may be funded by impact fees. Typically, municipalities with a transportation impact fee ordinance fund projects with a mix of impact fees and other funding, such as developer contributions and other municipal funding.

Other Funding

Other State funding programs such as the Multi-Modal Transportation Fund and Transportation Alternatives Program may be applied for to fund non-motorized travel such as trail construction and pedestrian enhancements. Two PennDOT programs for the upgrade and replacement of traffic signals are Automated Red Light Enforcement (ARLE) grants and the Green Light Go (GLG) program, although GLG requires a local government funding match.

4.2 Adopting an Ordinance

Access Management Ordinance

A goal of this study is to adopt an updated access management ordinance that incorporates many or all of the recommendations outlined in this report. Attached is suggested language for an access management ordinance. This language was derived from other similar ordinances and PennDOT's *Access Management Model Ordinances for Pennsylvania Municipalities Handbook*.

Such an ordinance would need to be publicly advertised, with a public hearing and comment period, followed by a vote by the Township Board of Supervisors.

Adopting an Official Map

In order to preserve a future right-of-way and obligate developers of parcels along the recommended parallel access road and connector alignments, the Township could adopt an official map. An official map shows the locations of planned future public lands and facilities such as streets, trails, parks and open space. The official map expresses a municipality's interest in acquiring these lands for public purposes sometime in the future and notifies developers and property owners of this interest. Official maps are permitted per Article IV of the *Pennsylvania Municipalities Planning Code*.

Transportation Impact Fee Ordinance

As a follow-up to adopting an access management ordinance, and to help establish a funding mechanism for several of the recommendations within this study, the Township could implement a transportation impact fee ordinance. As stated previously, Article V-A of the *Pennsylvania Municipalities Planning Code* provides the grant of power and procedure for enacting impact fees. The transportation service area for the impact fee ordinance would be envisioned to be the same as the 1.9 square mile Tax Increment Financing District encompassing the SR 208 study area comprising most of the potential development area of the Township.

This concludes the Route 208 Access Management Study for Springfield Township, Mercer County, Pennsylvania. The attachments to this report provide suggested access management ordinance language, tables, figures and a technical appendix.

Suggested Access Management Ordinance Language

This section provides suggested language that may be adopted by Springfield Township for an updated access management ordinance.

Title

This ordinance shall be known as the Springfield Township Access Management Ordinance. When referred to hereafter, it will be known as "this Ordinance" or the "Access Management Ordinance."

Intent and Purpose

The purpose of this Ordinance is to regulate the location and general design of public and private access to State Route 208 within the limits of Old Ash Road to the west and the Pine Township border to the east, within Springfield Township, Mercer County, Pennsylvania in order to:

1. Accommodate safe and efficient vehicular, pedestrian, and bicycle traffic;

2. Provide for convenient and controlled access points to existing and future commercial development;

3. Integrate physical infrastructure (road lanes, multi-modal trails, and road crossings) with technological infrastructure (traffic signal timing and coordination) to promote safe and efficient travel along the corridor;

4. Coordinate existing and proposed transportation infrastructure with the current and future land use patterns along the corridor; and

5. Encourage shared access between adjacent property owners.

Access Management Area

The requirements of this Ordinance apply within Springfield Township, Mercer County, Pennsylvania for State Route 208 within the limits of Old Ash Road to the west and the Springfield Township border to the east and shall include the properties within the proposed Springfield Township Tax Increment Financing District. When referred to hereafter, this area will be known as the "Access Management Area." This Ordinance supplements the requirements of the Springfield Township Subdivision and Land Development Ordinance. Therefore, all standards and requirements of this Ordinance are in addition to the requirements of the Springfield Township Subdivision and Land Development Ordinance.

If there is a conflict between any provision of this Ordinance and any provision of the Springfield Township Subdivision and Land Development Ordinance, Zoning Ordinance, or the Pennsylvania Department of Transportation, the more restrictive provision will apply.

Applicability

From the effective date of this Ordinance, the provisions of this Ordinance apply to the general location and design of the public street network and access to property within the Access Management Area. Any access that was legally established, but is not in conformance with the standards of this Ordinance, is considered a non-conforming access. Any non-conforming access that is in place as of the date of adoption of this Ordinance will be allowed to continue as long as

the access or the land use it serves is not expanded, discontinued, or changed. Any development that requires Township land development approval and is served by a non-conforming access, the non-conforming access must either be eliminated or brought into conformance with the standards of this Ordinance.

SR 208 Design Standards

It is the intent of this Ordinance to limit the number of conflict points while simultaneously providing adequate access to parcels along SR 208. As such, provision of a two-way left-turn lane (TWLTL) along the SR 208 corridor within the Access Management Area is encouraged. All left turns from SR 208 should be made within the TWLTL or within an exclusive left turn lane.

At locations where a significant number of left turns from SR 208 into a driveway are anticipated, an exclusive left turn lane should be considered in place of the TWLTL. The need for such turn lanes shall be considered based on the criteria set forth in the Pennsylvania Department of Transportation's *Publication 46 Traffic Engineering Manua*l auxiliary turn lane guidelines.

Expansion of the existing TWLTL along SR 208 within the Access Management Area should be constructed including the following sections:

- Includes new TWLTL section from Old Ash Road to Oakley-Kelly Drive
- Includes new TWLTL section east of SR 258 to Pine Township line

Parallel Supporting Service Road

It is the intent of this Ordinance to limit the number of access connections to SR 208 while providing adequate access to parcels as well as improved access for adjacent parcels (or through subdivisions) that currently do not abut SR 208. As such, provision of a parallel supporting service road should be provided.

Due to the level of development along SR 208, a parallel access road is recommended south of SR 208 from Veterans Road to opposite the Wendell August driveway. Parcels located along the intended location of the parallel access road shall be designed to accommodate this future road according to this Ordinance and Township standards. The parallel access road shall be designed to Township standards.

Access Connection (Driveways) Standards

Access for a group of parcels having a single tax ID number or contiguous parcels under common ownership as of the effective date of this Ordinance are entitled to one (1) access connection to serve the parcels as a group. Additional access may be considered at the discretion of the Township if adequate road frontage exists that meets the spacing requirements set forth in this Ordinance. However, one (1) access is encouraged.

Subdivisions approved after the effective date of this Ordinance do not create the right to a new access connection for each resulting parcel unless approved by the Township as part of an access plan for the development. The number of access connections shall be the minimum number necessary to provide reasonable access to these properties, not the maximum permissible based on the frontage.

Parcels that do not meet the spacing requirements set forth in this Ordinance, shall be given access via connection to an alternate lower classification roadway or via a shared access with a parcel that has conforming access to SR 208 through adoption of a cross-access easement with

the property deed. The easement must include a joint operating and maintenance agreement defining the responsibilities of the property owners.

When a parcel abuts more than one road, access is encouraged to be made via the lower classification road except where such access is determined to be impractical.

Access connections must not be located within an exclusive turn lane, including taper sections, except where no other reasonable access is available.

Access Connection Spacing

Access connections shall be located to provide adequate spacing and offset between adjacent connections while considering both existing and potential future connections needed to adequately serve future developments. Wherever possible, access connections should be aligned opposite from each other to minimize conflict points.

Access connections located between signalized intersections must maintain the following minimum spacing standards as recommended by the PennDOT *Access Management Model Ordinances for Pennsylvania Municipalities Handbook*:

- Minimum access connection spacing of 400 feet along SR 208 (minor arterial)

Access Connection Design

Access driveways are recommended to operate as 3/4 or limited access driveways: left-in, right-in, right-out movements only to reduce the number of conflict points.

Access driveways shall be designed so as to provide for the safe and efficient movement of traffic between the SR 208 and the parcel, and to minimize the potential for queueing of vehicles along S.R. 208 due to congestion on or at the driveway.

Driveway throat length must maintain the following minimum standards as recommended by the PennDOT *Access Management Model Ordinances for Pennsylvania Municipalities Handbook*:

- Minimum use driveway – 25 feet
- Low volume driveway - 50 feet or as determined by a queuing analysis
- Medium volume driveway – 120 feet or as determined by a queuing analysis
- High volume driveway – 150 feet or as determined by a queuing analysis

Intersection Spacing Standards

It is the intent of this Ordinance to maintain a progressive movement of through traffic along SR 208 within the Access Management Area. As such, all future signalized intersections within the Access Management Area are to be considered based on the criteria set forth in the most recent edition of the Federal Highway Administrations (FHWA) *Manual of Uniform Traffic Control Devices* signal warrant criteria. Furthermore, all future signalized intersections shall maintain the following spacing standards as determined through the research published by the National Cooperative Highway Research Program in *Report 420, Impacts of Access Management Techniques* and the Pennsylvania Department of Transportation *Publication 46 Traffic Engineering Manual*.

- Minimum signalized intersection spacing of 1/4 mile

- Optimum signalized intersection spacing of 1/2 mile.

It is the intent of this Ordinance to limit all potential future signalized intersections at locations that have 4 approach legs through either the creation of new roadways and/or through the re-alignment of existing roadways.

All proposed intersections must be located to provide adequate intersection sight distance as defined in the most recent editions of the Pennsylvania Department of Transportation's *Publication 13M, Design Manual Part 2, Highway Design* and the American Association of State Highway Traffic and Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Streets*.

Public intersections and access driveways are measured from the centerline of the intersection/driveway to the centerline of the next intersection/driveway.

Sidewalks and Mutli-Use Trail

It is the intent of this Ordinance to provide adequate pedestrian and bicycle facilities within the Access Management Area. Future developments within the Access Management Area shall provide sidewalks and/or a multi-use trail along all adjacent roadways which coordinate with existing and proposed sidewalks and multi-use trails.

When developments have access to a parallel service road, sidewalks and/or multi-use trails should be provided on the parallel road.

Adequate visibility of pedestrians and bicyclists on the sidewalks and/or multi-use trails should be provided to the maximum extent possible with appropriate setback from the SR 208 traveled way. Provision of pedestrian safety treatments including painted pedestrian crosswalks, ADA compliant features, appropriate pedestrian crossing warning signage compliant with the most recent edition of the FHWA MUTCD, and pedestrian crossing equipment at signalized intersections shall be provided.

TABLES

TABLE 1
CRASH SUMMARY
SR 208 Access Management Study
Springfield Township, Mercer County, Pennsylvania

Date	Crash Type	Severity	Direction of Travel - Primary	Direction of Travel - Secondary	Direction of Travel - Tertiary	Comments
SR 208 and Old Ash Road						
5/12/2010	Angle	Minor Injury	SB	EB		Primary vehicle ran a stop sign striking secondary vehicle
4/29/2013	Hit Fixed Object	Property Damage	EB			Vehicle hit a utility pole, drive affected by physical condition
6/25/2013	Rear-End	Property Damage Only	EB	EB		Primary vehicle improperly entered highway and was struck by secondary vehicle
2/22/2014	Angle	Property Damage	NB	EB		Primary vehicle proceeded without clearance and struck secondary
8/21/2014	Rear-End	Minor Injury	WB	WB	WB	Primary vehicle failed to maintain proper speed and struck secondary vehicle which then struck the third vehicle.
Between Old Ash Road and Veterans Road						
1/3/2012	Hit Fixed Object	Property Damage	EB			Vehicle hit tree, road had icy/snow conditions
5/13/2012	Angle	Property Damage Only	SB	WB		Primary driver illegally stopped on the roadway and turned left and struck secondary vehicle.
8/31/2012	Rear-End	Minor Injury	EB	EB	EB	Primary vehicle was tailgating and struck the secondary vehicle that was slowing for the tertiary vehicle which was turning and was hit by the secondary vehicle.
5/20/2013	Angle	Unknown Severity	WB	EB		Primary vehicle hit a ditch and then struck the secondary vehicle, drive was affected by physical condition.
1/29/2014	Hit Fixed Object	Property Damage	EB			Driving too fast for conditions, hit utility pole.
3/16/2014	Hit Fixed Object	Minor Injury	WB			Improper driver actions caused primary vehicle to hit a utility pole.
SR 208 and Veterans Road						
11/14/2011	Angle	Minor Injury	NB	EB		Primary vehicle proceeded without clearance and struck secondary
4/21/2012	Angle	Moderate Injury	EB	WB		Primary vehicle driver was inexperienced and performed a careless turn and was struck by the secondary vehicle
12/2/2012	Angle	Unknown Severity	EB	WB		Primary vehicle improperly entered highway and was struck by secondary vehicle
5/9/2013	Angle	Property Damage	NB	EB		Primary vehicle proceeded without clearance and struck secondary

TABLE 1 (cont'd)
CRASH SUMMARY
SR 208 Access Management Study
Springfield Township, Mercer County, Pennsylvania

Date	Crash Type	Severity	Direction of Travel - Primary	Direction of Travel - Secondary	Direction of Travel - Tertiary	Comments
SR 208 and SR 258/Prime Outlets						
1/22/2010	Angle	Property Damage Only	EB	EB		Primary vehicle preformed a careless lane change and struck secondary vehicle.
4/24/2010	Rear-End	Minor Injury	NB	NB		Primary driver struck secondary vehicle that was stopped.
11/9/2010	Angle	Property Damage	SB	WB		Primary driver preformed a careless turn and struck secondary vehicle
4/8/2011	Angle	Property Damage	WB	SB		Primary drive ran a red light and struck secondary vehicle
7/2/2011	Angle	Property Damage Only	NB	WB	SB	Primary vehicle proceeded without clearance and struck secondary vehicle, which the primary vehicle struck a tertiary vehicle that was
5/25/2012	Rear-End	Property Damage	NB	EB		Primary driver was inexperienced and while merging struck secondary
6/8/2012	Rear-End	Minor Injury	WB	WB		Primary driver was tailgating and struck secondary vehicle.
6/9/2012	Hit Fixed Object	Moderate Injury	WB			Driver of a motorcycle was fleeing police and struck a curb.
7/16/2012	Hit Fixed Object	Major Injury	WB			Driver was speeding, driving on the wrong side of the road and failed to respond to a traffic control device hit a utility pole and rolled the vehicle.
12/2/2012	Angle	Minor Injury	WB	--		Primary vehicle struck secondary vehicle
1/12/2013	Angle	Fatal	EB	WB	EB	Primary vehicle was turning and was struck by secondary vehicle, the tertiary vehicle was stopped and was struck by the primary vehicle.
3/8/2013	Angle	Moderate Injury	NB	WB		Primary driver ran a red light and struck the secondary driver.
5/17/2014	Angle	Minor Injury	NB	EB		Primary vehicle proceeded without clearance and struck secondary
5/29/2014	Non-Collision	Minor Injury	WB			Driver of a motorcycle, that was inexperienced, failed to maintain a proper speed from a stop and dropped the bike.
SR 208 and I-79 Southbound Ramps						
8/30/2010	Rear-End	Minor Injury	EB	EB		Primary vehicle struck secondary vehicle
6/6/2011	Angle	Moderate Injury	EB	EB		Primary driver performed a careless turn and struck secondary vehicle
6/18/2011	Rear-End	Property Damage	SB	SB		Primary vehicle was distracted and struck secondary vehicle
9/11/2011	Non-Collision	Minor Injury	EB			Driver of a motorcycle, that was inexperienced, dropped the bike.
4/7/2012	Angle	Minor Injury	SB	WB		Primary vehicle failed to respond to a traffic control device and struck secondary vehicle.
10/26/2012	Angle	Minor Injury	WB	SB		Primary vehicle ran a red light and struck secondary vehicle
11/26/2012	Angle	Moderate Injury	WB	SB		Primary vehicle ran a red light and struck secondary vehicle
5/16/2013	Rear-End	Minor Injury	SB	SB		Primary vehicle was tailgating and struck secondary vehicle
10/11/2013	Rear-End	Property Damage Only	EB	EB		Primary vehicle hit a traffic island, a traffic sign and then struck secondary vehicle.
11/29/2013	Rear-End	Unknown	SB	SB		Primary vehicle was distracted and struck secondary vehicle
5/18/2014	Pedestrian	Moderate Injury	EB			Driver was distracted and traveling too fast for conditions struck two pedestrians
8/27/2014	Rear-End	Minor Injury	EB	EB		Primary vehicle driver distracted and struck secondary vehicle.
9/28/2014	Angle	Property Damage	EB	SB		Primary vehicle ran a red light and struck secondary vehicle
Between I-79 Southbound Ramps and I-79 Northbound Ramps						
10/19/2012	Rear-End	Minor Injury	EB	EB		Primary vehicle struck secondary vehicle
SR 208 and I-79 Northbound Ramps						
3/24/2010	Rear-End	Property Damage	NB	NB		Primary vehicle struck secondary vehicle
6/26/2010	Rear-End	Minor Injury	WB	WB		Primary vehicle struck secondary vehicle
11/16/2010	Angle	Minor Injury	EB	EB		Primary vehicle mad an illegal U-turn and struck secondary vehicle
11/28/2010	Rear-End	Property Damage	EB	EB		Primary vehicle struck secondary vehicle
7/27/2011	Angle	Unknown Severity	NB	EB		Primary vehicle improperly entered the highway and struck secondary vehicle
11/28/2011	Angle	Minor Injury	WB	WB		Primary vehicle performed an improper/careless turn and was struck by secondary vehicle
9/12/2012	Rear-End	Moderate Injury	NB	NB		Primary vehicle struck secondary vehicle
4/2/2014	Rear-End	Property Damage Only	EB	EB		Primary vehicle was tailgating and struck the secondary vehicle that was stopped.

TABLE 1 (cont'd)
CRASH SUMMARY
SR 208 Access Management Study
Springfield Township, Mercer County, Pennsylvania

Date	Crash Type	Severity	Direction of Travel - Primary	Direction of Travel - Secondary	Direction of Travel - Tertiary	Comments
Between I-79 Northbound Ramps and S.R. 208						
6/8/2011	Rear-End	Minor Injury	EB	EB		Primary vehicle driver was driving too fast for conditions and was affected by physical conditions and struck secondary vehicle.
6/30/2011	Angle	Property Damage Only	SB	WB		Primary vehicle improperly entered highway and was struck by secondary vehicle
7/10/2011	Angle	Minor Injury	NB	EB		Primary vehicle proceeded without clearance was struck by the secondary vehicle.
9/21/2011	Rear-End	Property Damage	WB	WB		Primary vehicle was tailgating and struck secondary vehicle
2/8/2012	Hit Fixed Object	Property Damage Only	EB	EB		Primary vehicle performed a careless lane change and forced secondary vehicle to hit a curb.
12/11/2012	Angle	Property Damage Only	SB	EB		Primary vehicle improperly entered the highway and was struck by the secondary vehicle
2/18/2013	Same Direction Side-Swipe	Minor Injury	EB	EB		Primary vehicle preformed a careless lane change and struck secondary vehicle.
1/22/2014	Same Direction Sideswipe	Property Damage Only	WB	WB		Primary vehicle improperly entered highway and struck secondary vehicle
SR 208 and Mercer Butler Pike (SR 258)						
11/12/2011	Unknown	Moderate Injury	WB	WB		Primary vehicle proceeded without clearance and was struck by secondary vehicle
6/27/2012	Angle	Property Damage	EB	NB		Primary vehicle ran a red light and struck secondary vehicle
9/4/2012	Rear-End	Property Damage Only	NB	NB	NB	Primary vehicle was traveling too fast for conditions and struck secondary vehicle which then struck the third vehicle
6/22/2013	Opposite Direction Sideswipe	Property Damage Only	NB	SB		Primary vehicle was driving intoxicated and struck secondary vehicle
9/21/2013	Rear-End	Property Damage Only	NB	NB	NB/NB	Primary vehicle and secondary vehicle were traveling too fast for conditions, and struck two tertiary vehicles
10/17/2013	Rear-End	Minor Injury	NB	NB		Primary vehicle was traveling too fast for conditions and struck secondary vehicle
10/29/2013	Angle	Minor Injury	EB	NB		Primary vehicle ran a red light and struck secondary vehicle
Between SR 258 and Springfield Township Line						
2/19/2010	Rear-End	Property Damage	WB	WB		Primary vehicle was distracted and struck secondary vehicle
5/12/2010	Angle	Minor Injury	EB	NB		Primary vehicle was traveling too fast for conditions and struck secondary vehicle
12/9/2010	Angle	Moderate Injury	WB	EB		Primary vehicle performed an improper/careless turn and struck secondary vehicle
9/30/2011	Rear-End	Minor Injury	EB	EB	EB	Primary vehicle was distracted and struck secondary vehicle which then struck the third vehicle
1/13/2012	Rear-End	Minor Injury	EB	EB		Primary vehicle was speeding and struck secondary vehicle
11/21/2013	Rear-End	Minor Injury	EB	EB	EB	Primary vehicle was tailgating and struck secondary vehicle which then struck the third vehicle
12/12/2013	Hit Fixed Object	Minor Injury	EB			Driving too fast for conditions, hit tree or shrubbery
5/5/2014	Angle	Minor Injury	WB	EB		Primary vehicle performed an improper/careless turn and struck secondary vehicle
9/19/2014	Rear-End	Property Damage Only	EB	EB	EB	Primary vehicle was tailgating and struck secondary vehicle which then struck the third vehicle
11/27/2014	Angle	Minor Injury	EB	WB		Primary vehicle was traveling too fast for conditions and struck secondary vehicle

Crash history data was obtained from the Pennsylvania Department of Transportation (PennDOT) Bureau of Highway Safety and Traffic Engineering for years 2010 to 2014.

TABLE 2
CAPACITY ANALYSIS SUMMARY
SR 208 Access Management Study
Springfield Township, Mercer County, Pennsylvania

Approach	Movement	Level of Service (Delay) [1]	
		Weekday PM Peak Hour	Saturday Peak Hour
SR 208 and Old Ash Road			
Eastbound *SR 208*	Approach	A (0.6)	A (0.3)
Westbound *SR 208*	Approach	A (0.4)	A (0.6)
Northbound *Old Ash Road*	Left Turn/Through/Right Turn	B (14.3)	B (12.3)
Southbound *Old Ash Road*	Left Turn/Through/Right Turn	C (19.7)	C (16.1)
Overall Intersection		**A (2.3)**	**A (1.5)**
SR 208 and Veterans Road/Campbell Boulevard			
Eastbound *SR 208*	Approach	A (0.1)	A (0.1)
Westbound *SR 208*	Left Turn	A (8.9)	A (9.0)
	Through/Right Turn	A (0.0)	A (0.0)
	Approach	A (0.7)	A (1.1)
Northbound *Veterans Road*	Left Turn/Through/Right Turn	C (21.6)	C (21.6)
Southbound *Campbell Blvd*	Left Turn/Through/Right Turn	E (44.2)	F (88.5)
Overall Intersection		**A (2.6)**	**A (7.1)**
SR 208 and Springfireld Commons / Hoss's Driveway			
Eastbound *SR 208*	Left Turn	B (10.2)	B (13.0)
	Through	B (16.0)	C (21.4)
	Right Turn	B (11.4)	B (15.2)
	Approach	B (15.1)	B (19.6)
Westbound *SR 208*	Left Turn	A (9.5)	B (15.6)
	Through	A (1.8)	A (1.6)
	Through/Right Turn	A (1.8)	A (1.6)
	Approach	A (3.9)	A (7.7)
Northbound *Springfield Commons Drive*	Left Turn/Through	C (32.4)	D (36.7)
	Right Turn	F (115.3)	C (32.5)
	Approach	F (89.2)	C (33.8)
Southbound *Hoss's Driveway*	Approach	C (32.1)	D (43.0)
Overall Intersection		**C (25.5)**	**B (18.9)**
SR 208 and Outlets Drive/SR 258			
Eastbound *SR 208*	Left Turn	D (46.3)	D (45.6)
	Through	C (32.9)	F (85.2)
	Through/Right Turn	C (32.9)	F (87.0)
	Approach	D (35.1)	E (79.0)
Westbound *SR 208*	Left Turn	D (37.8)	D (45.4)
	Through	B (17.4)	C (32.4)
	Through/Right Turn	B (17.2)	C (32.2)
	Approach	C (23.4)	D (38.6)
Northbound *Outlets Drive*	Left Turn	D (38.4)	D (36.8)
	Through	D (36.5)	C (32.9)
	Right Turn	A (0.0)	A (0.0)
	Approach	D (37.7)	D (35.4)
Southbound *SR 258*	Left Turn	C (28.8)	C (25.7)
	Through	C (22.0)	B (19.0)
	Through/Right Turn	C (24.1)	C (20.4)
	Approach	C (26.4)	C (22.6)
Overall Intersection		**C (29.0)**	**D (48.6)**

TABLE 2 (cont'd)
CAPACITY ANALYSIS SUMMARY
SR 208 Access Management Study
Springfield Township, Mercer County, Pennsylvania

Approach	Movement	Level of Service (Delay) [1]	
		Weekday PM Peak Hour	Saturday Peak Hour
SR 208 and I-79 Southbound On/Off Ramps			
Eastbound *SR 208*	Through	A (0.7)	A (0.3)
	Right Turn	A (0.0)	A (0.0)
	Approach	A (0.7)	A (0.3)
Westbound *SR 208*	Left Turn	D (42.4)	D (41.0)
	Through	A (0.3)	A (0.2)
	Approach	A (7.0)	A (5.7)
Southbound *I-79 SB Off-Ramp*	Left Turn/Through	D (41.3)	D (44.1)
	Right Turn	A (0.0)	A (0.0)
	Approach	D (41.3)	D (44.1)
Overall Intersection		**A (7.6)**	**A (6.0)**
SR 208 and I-79 Northbound On/Off Ramps			
Eastbound *SR 208*	Left Turn	E (55.3)	E (77.1)
	Through	A (7.3)	B (14.2)
	Approach	B (18.9)	C (32.9)
Westbound *SR 208*	Through	A (1.6)	A (2.6)
	Through/Right Turn	A (1.6)	A (2.7)
	Approach	A (1.6)	A (2.7)
Northbound *I-79 NB Off-Ramp*	Left Turn/Through	D (39.5)	D (38.5)
	Right Turn	A (0.0)	A (0.0)
	Approach	D (39.5)	D (38.5)
Overall Intersection		**B (11.9)**	**C (20.8)**
SR 208 and SR 258/Old Route 258			
Eastbound *SR 208*	Left Turn	D (37.2)	A (0.0)
	Through	C (23.0)	C (27.0)
	Through/Right Turn	C (23.1)	C (27.1)
	Approach	C (23.1)	C (27.0)
Westbound *SR 208*	Left Turn	B (18.4)	C (23.4)
	Through/Right Turn	B (17.7)	C (21.3)
	Approach	B (17.7)	C (21.4)
Northbound *SR 258*	Approach	C (34.1)	D (35.7)
Southbound *Old Route 258*	Approach	A (0.0)	B (19.1)
Overall Intersection		**C (23.0)**	**C (26.9)**

(1) Level of service calculates were performed using Synchro, Version 8 based on HMC 2010 methodologies.

Source: Analysis by Trans Associates.

TABLE 3
QUEUE ANALYSIS SUMMARY
SR 208 Access Management Study
Springfield Township, Mercer County, Pennsylvania

Approach	Movement	Existing Queue Capacity (Feet)[2]	95th Percentile Queue Length (Feet) [1]	
			Weekday PM Peak Hour	Saturday Peak Hour
SR 208 and Old Ash Road				
Eastbound *SR 208*	Left Turn/Through/Right Turn	>2,000	3	0
Westbound *SR 208*	Left Turn/Through/Right Turn	>2,000	3	3
Northbound *Old Ash Road*	Left Turn/Through/Right Turn	>2,000	5	3
Southbound *Old Ash Road*	Left Turn/Through/Right Turn	>2,000	23	13
SR 208 and Veterans Road/Campbell Boulevard				
Eastbound *SR 208*	Left Turn/Through/Right Turn	4,050	0	0
Westbound *SR 208*	Left Turn	200	5	8
	Through	275	0	0
	Through/Right Turn	1,100	0	0
Northbound *Veterans Road*	Left Turn/Through/Right Turn	>2,000	28	40
Southbound *Campbell Blvd*	Left Turn/Through/Right Turn	250	23	90
SR 208 and Springfield Commons Driveway				
Eastbound *SR 208*	Left Turn	20	9	20
	Through	275	287	345
	Right Turn	175	28	37
Westbound *SR 208*	Left Turn	350	190	281
	Through/Right Turn	760	221	170
Northbound *Springfield*	Left Turn/Through	n/a	123	184
	Right Turn	n/a	66	126
Southbound **Hoss's** *Driveway*	Left Turn/Through/Right Turn	n/a	0	15
SR 208 and Outlets Drive/SR 258				
Eastbound *SR 208*	Left Turn	175	138	144
	Through	760	317	340
Westbound *SR 208*	Left Turn	465	122	215
	Through/Right Turn	685	299	260
Northbound *Outlets Drive*	Left Turn	200	79	133
	Through	>200	47	65
	Right Turn	>300	61	62
Southbound *SR 258*	Left Turn	150	120	151
	Through/Right Turn	>500	24	40
	Right Turn	125	0	0

TABLE 3 (cont'd)
QUEUE ANALYSIS SUMMARY
SR 208 Access Management Study
Springfield Township, Mercer County, Pennsylvania

Approach	Movement	Existing Queue Capacity (Feet)[2]	95th Percentile Queue Length (Feet) [1]	
			Weekday PM Peak Hour	Saturday Peak Hour
SR 208 and I-79 Southbound On/Off Ramps				
Eastbound *SR 208*	Through	675	115	146
	Right Turn	430	7	17
Westbound *SR 208*	Left Turn	345	116	0
	Through	550	304	257
Southbound *I-79 SB Off-Ramp*	Left Turn/Through	>1,000	147	98
	Right Turn	250	129	249
SR 208 and I-79 Northbound On/Off Ramps				
Eastbound *SR 208*	Left Turn	420	247	295
	Through	550	3	4
Westbound *S.R. 208*	Through/Right Turn	>1,000	305	326
Northbound *I-79 NB Off-Ramp*	Left Turn	>500	120	189
	Left Turn/Through/Right Turn	>1,000	61	112
SR 208 and SR 258/Old Route 258				
Eastbound *SR 208*	Left Turn	135	2	0
	Through/Right Turn	>1,000	108	100
Westbound *SR 208*	Left Turn	150	23	22
	Through/Right Turn	>1,000	534	390
Northbound *SR 258*	Left Turn/Through/Right Turn	>1,000	313	401
Southbound *Old Route 258*	Left Turn/Through/Right Turn	>200	0	13

(1) The 95th percentile queue lenghts were determined using Synchro Version 8 Software.

Source: Analysis by Trans Associates.

FIGURES

PLOTTED: 7/15/2016

I-79

S.R. 258

Pine Road

Leesburg Grove City Road (S.R. 0208)

Oakley-Kelly Drive

Old Ash Road

Springfield Commons Development

Veterans Road

Outlets Drive

S.R. 258

- Proposed Multi-Modal Trail
- Study Area
- Study Intersection
- Signalized Intersection
- Signalized Intersection (signal not turned on)

N

0 400 800 FEET

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Pittsburgh, Pennsylvania 15205 /(412) 490-0630

PROJECT NO.	MCRPC00 - 16003
PROJECT:	S.R. 208 Access Management Study
TITLE:	Study Area
FIGURE	1
D.B.	KBZ
C.B.	XX
REV.	XX

FILE NAME: P:\mcrpc00\16003_SR 208 Access Management Study\plan_set\16003_Study Area Figure.dgn

PLOTTED: 6/29/2016

0 100 200 FEET

N

SCALE:

Trans Associates

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Pittsburgh, Pennsylvania 15205 /(412) 490-0630

PROJECT NO. MCRPC00 - 16003

PROJECT: S.R. 208 Access Management Study

TITLE: Access Spacing Detail

FIGURE 2A

D.B. MAP
C.B. CD
REV.

FILE NAME: P:\mcrpc00\16003_SR_208_Access_Management_Study\plan set\16003_pln_01.dgn

PLOTTED: 6/29/2016

MATCH LINE SEE PREVIOUS SHEET

MATCH LINE SEE NEXT SHEET

0 100 200 FEET

SCALE:

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Pittsburgh, Pennsylvania 15205 /(412) 490-0630

PROJECT NO.	MCRPC00 - 16003
PROJECT:	S.R. 208 Access Management Study
TITLE:	Access Spacing Detail
FIGURE	2B
D.B.	MAP
C.B.	CD
REV.	

FILE NAME: P:\mcrpc00\16003_SR_208_Access_Management_Study\plan set\16003_pln_02.dgn

PLOTTED: 6/29/2016

0 100 200 FEET

N

SCALE:

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PROJECT NO. MCRPC00 - 16003

PROJECT: S.R. 208 Access Management Study

TITLE: Access Spacing Detail

FIGURE 2C

D.B. MAP
C.B. CD
REV. ____

FILE NAME: P:\mcrpc00\16003_SR_208_Access_Management_Study\plan_set\16003_phase_03.dgn

PLOTTED: 6/29/2016

MATCH LINE SEE PREVIOUS SHEET

MATCH LINE SEE NEXT SHEET

0 100 200 FEET

SCALE:

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PROJECT NO. MCRPC00 - 16003

PROJECT: S.R. 208 Access Management Study

TITLE: Access Spacing Detail

FIGURE 2D

D.B. MAP
C.B. CD
REV.

FILE NAME: P:\mcrpc00\16003 SR 208 Access Management Study\plan set\16003_pln_04.dgn

PLOTTED: 6/29/2016

MATCH LINE SEE PREVIOUS SHEET

FILE NAME:P:\mcrpc00\16003_SR_208_Access_Management_Study\plan_set\16003_phase_05.dgn

SCALE:

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Pittsburgh, Pennsylvania 15205 / (412) 490-0630

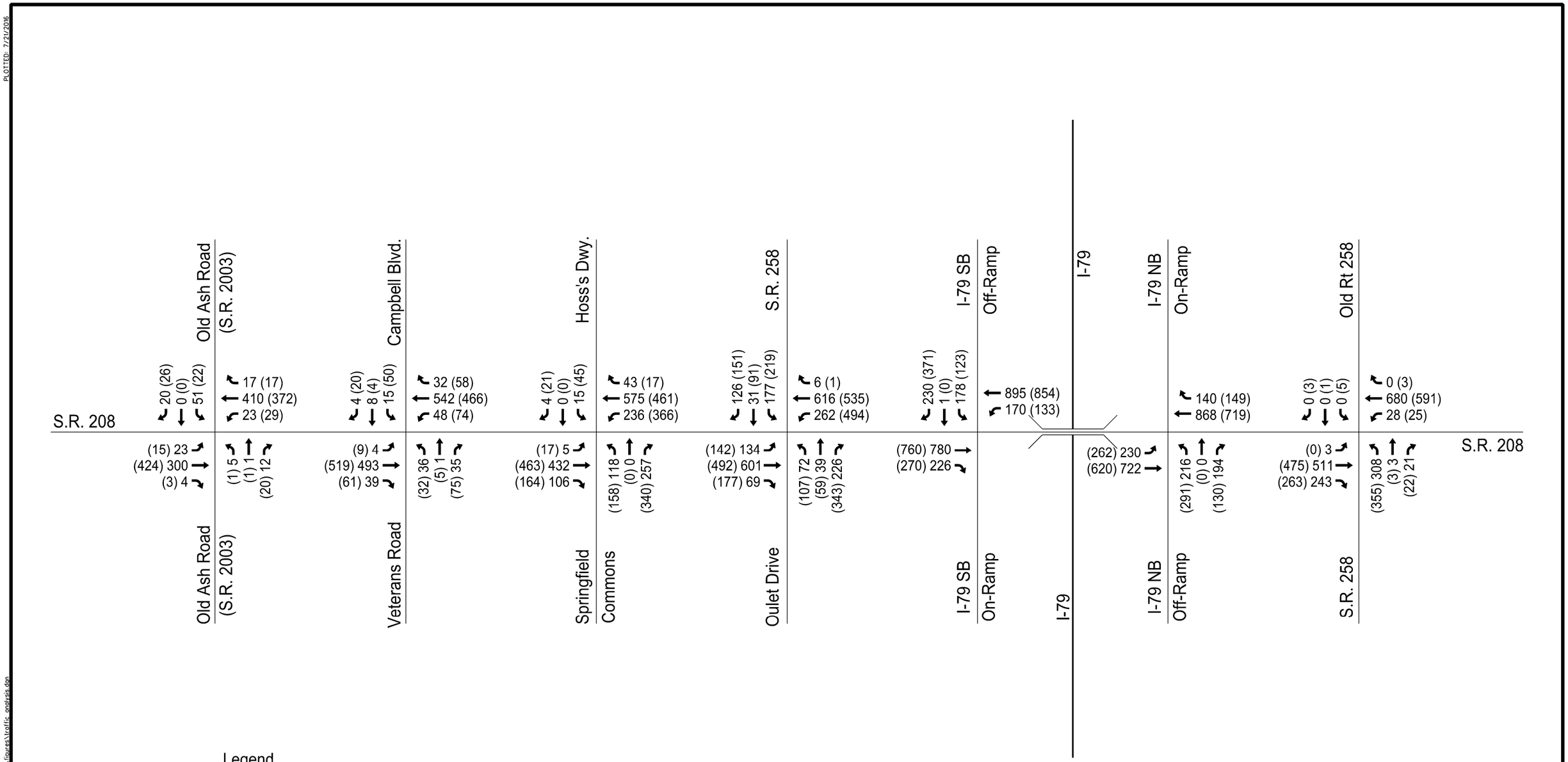
PROJECT NO. MCRPC00 - 16003

PROJECT: S.R. 208 Access Management Study

TITLE: Access Spacing Detail

FIGURE 2E

D.B. MAP
C.B. CD
REV.



Legend

123 - Weekday P.M. Peak Hour Traffic Volumes (4:30 P.M. to 5:30 P.M.)

(123) - Saturday Afternoon Peak Hour Traffic Volumes (12:45 P.M. to 1:45 P.M.)

SCALE: N.T.S.

Trans Associates

PROJECT NO. MCRPC00 - 16003

PROJECT: SR 208 Access Management Study

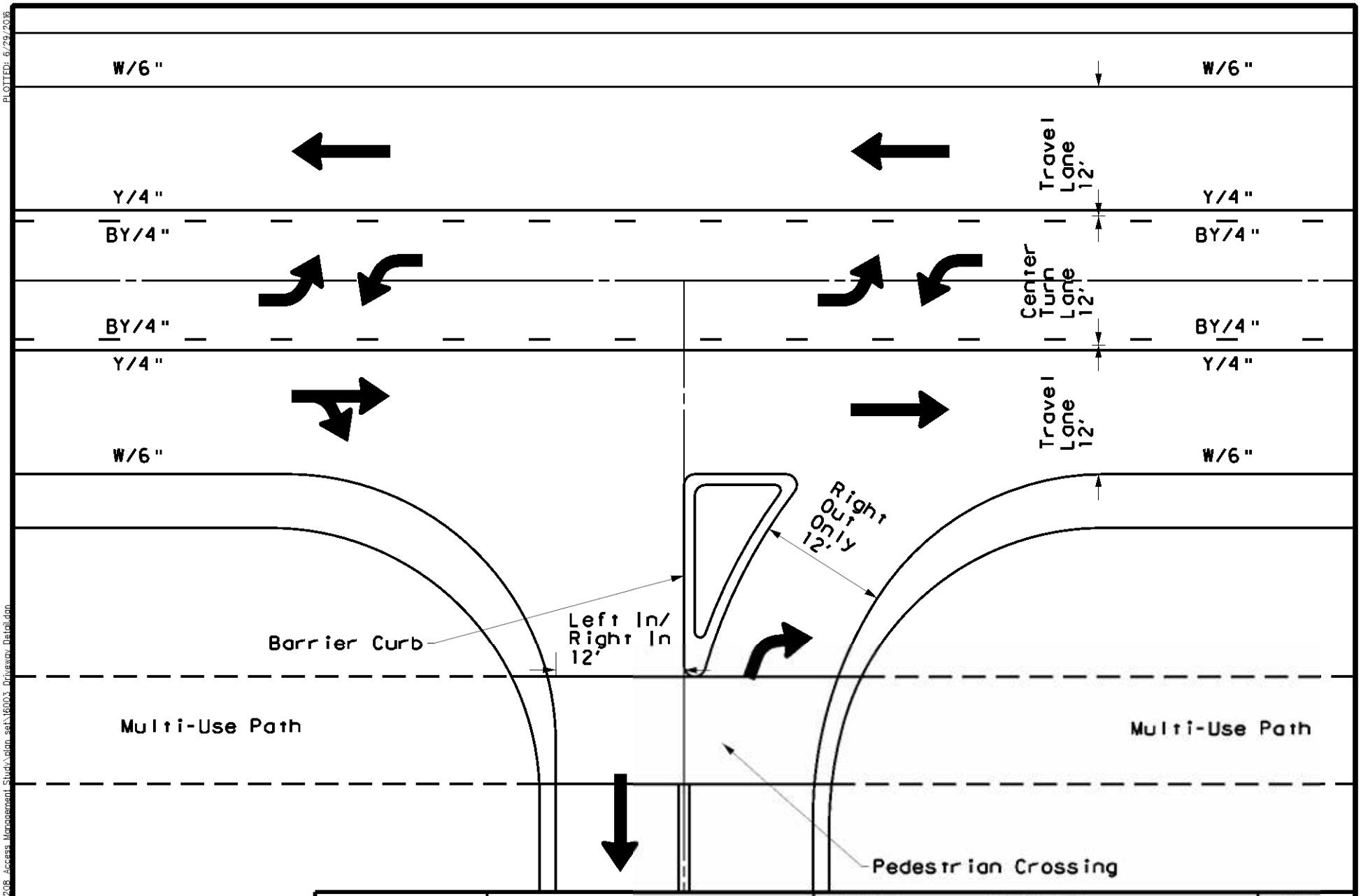
TITLE: Current Conditions with Approved Developments Peak Hour Traffic Volumes

FIGURE 3

D.B. MDS
C.B. CAD
REV.

PLOTTED: 7/21/2016

FILE NAME: P:\mcrpc00\16003_SR_208_Access_Management_Study\Figures\traffic_analysis.dgn



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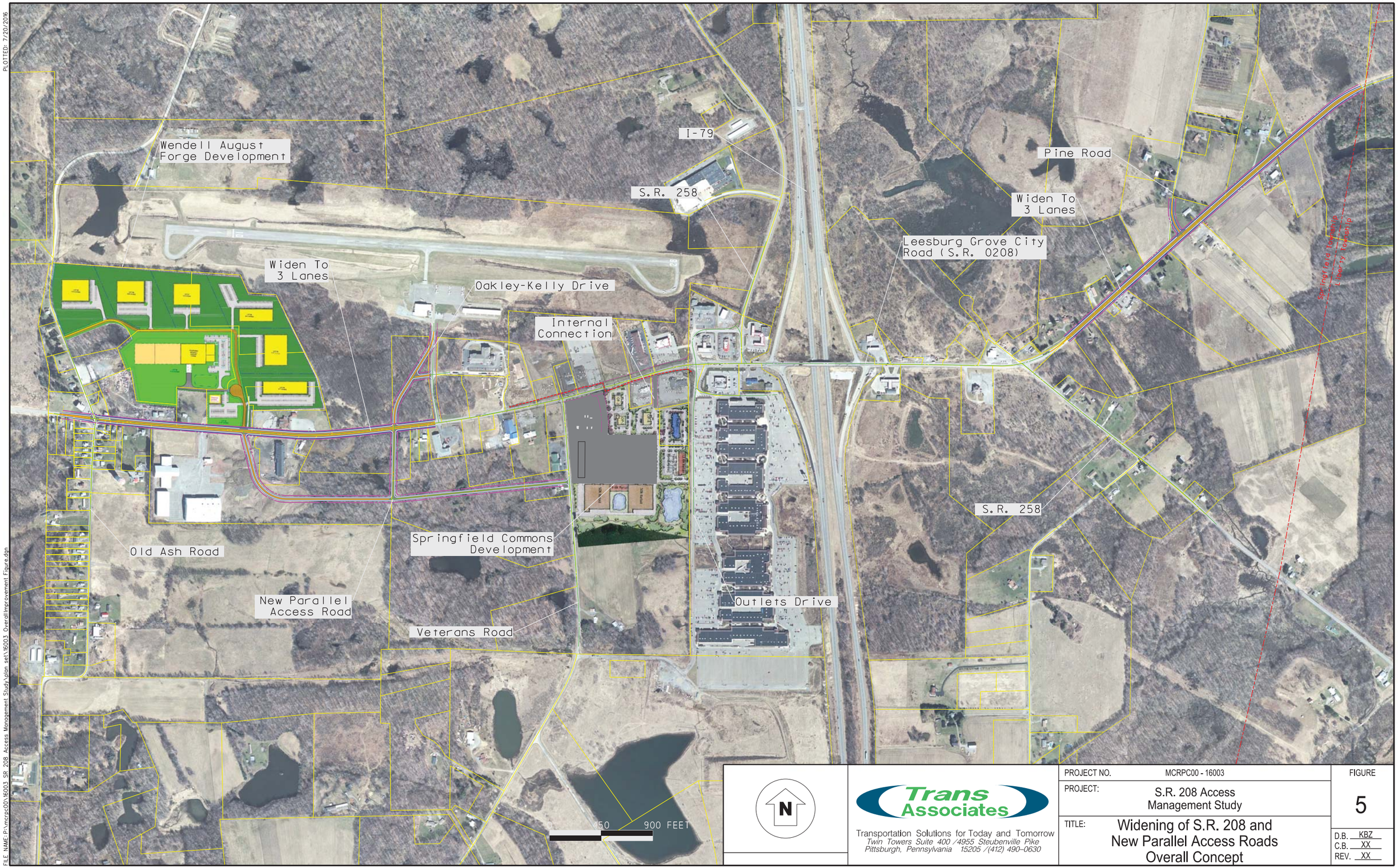
Pittsburgh, Pennsylvania 15205 /(412) 490-0630

PROJECT NO.	MCRPC00 - 16003
PROJECT:	S.R. 208 Access Management Study
TITLE:	Recommended 3/4 Access For Future Driveways
FIGURE	4
D.B.	KBZ
C.B.	XX
REV.	XX

PLOTTED: 6/29/2016

FILE NAME: P:\mcrpc00\16003_SR 208 Access Management Study\plan set\16003 Driveway Details.dgn

PLOTTED: 7/20/2016



N

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Pittsburgh, Pennsylvania 15205 / (412) 490-0630

PROJECT NO.	MCRPC00 - 16003
PROJECT:	S.R. 208 Access Management Study
TITLE:	Widening of S.R. 208 and New Parallel Access Roads Overall Concept
FIGURE	5
D.B.	KBZ
C.B.	XX
REV.	XX

FILE NAME: P:\mcrpc00\16003 SR 208 Access Management Study\plan set\16003 Overall Improvement Figure.dgn

PLOTTED: 7/26/2016

Pine Road

Leesburg Grove City Road (S.R. 0208)

Pine Road Realignment

Start Widening of Leesburg Grove City Road (S.R. 0208)

End Widening of Leesburg Grove City Road (S.R. 0208)

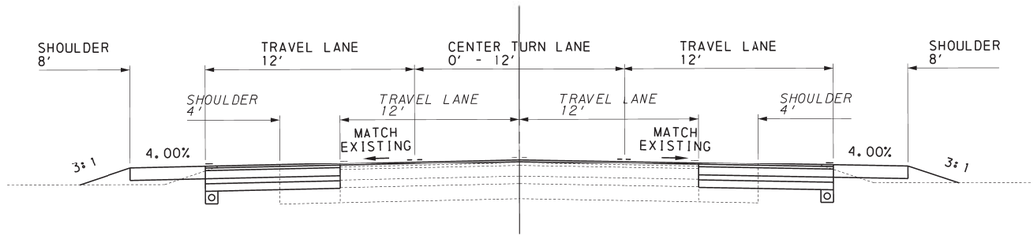
S.R. 258

Springfield Township

Liberty Township

0 300 600 FEET

LEESBURG GROVE CITY ROAD
(S.R. 0208) ℄



TYPICAL SECTION
LEESBURG GROVE CITY ROAD (S.R. 0208)
N.T.S.

N

Trans Associates

Transportation Solutions for Today and Tomorrow
Twin Towers Suite 400 /4955 Steubenville Pike
Pittsburgh, Pennsylvania 15205 /(412) 490-0630

PROJECT NO. MCRPC00 - 16003

PROJECT: S.R. 208 Access Management Study

TITLE: Widening of S.R. 208 East of Mercer Butler Pike Concept

FIGURE 6

D.B. KBZ
C.B. XX
REV. XX

FILE NAME: P:\mcrpc00\16003_SR_208_Access_Management_Study\plan_set\16003_Exist Figure.dgn

PLOTTED: 7/20/2016

Old Ash Road

Wendell August Forge Development

Oakley-Kelly Drive

End Widening of Leesburg Grove City Road (S.R. 0208)

Oakley-Kelly Road Realignment

Leesburg Grove City Road (S.R. 0208)

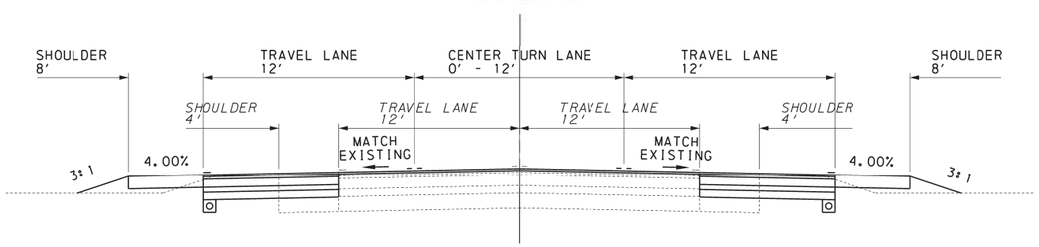
Start Widening of Leesburg Grove City Road (S.R. 0208)

Veterans Road

New Parallel Access Road

0 300 600 FEET

LEESBURG GROVE CITY ROAD
(S.R. 0208) ℄



TYPICAL SECTION
LEESBURG GROVE CITY ROAD (S.R. 0208)
N.T.S.

N

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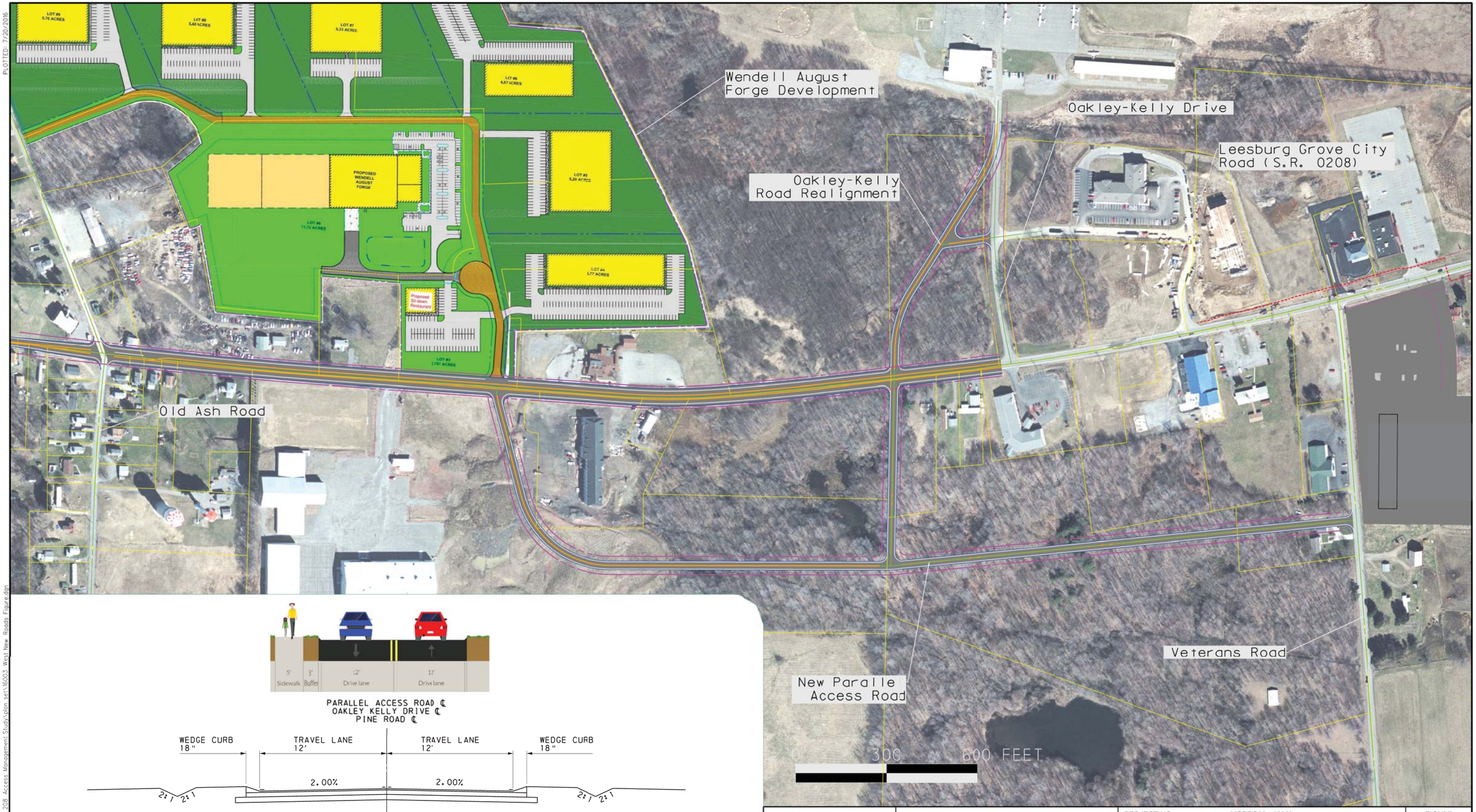
PROJECT NO.	MCRPC00 - 16003
PROJECT:	S.R. 208 Access Management Study
TITLE:	Widening of S.R. 208 West of Veterans Road Concept
FIGURE	7
D.B.	KBZ
C.B.	XX
REV.	XX

FILE NAME: P:\mcrpc00\16003_SR 208 Access Management Study\plan set\16003_West Figure.dgn

PLOTTED: 7/20/2016



PARALLEL ACCESS ROAD ℄
OAKLEY KELLY DRIVE ℄
PINE ROAD ℄

TYPICAL SECTION
PARALLEL ACCESS ROAD
OAKLEY-KELLY DRIVE
PINE ROAD
N.T.S.

N

Trans Associates

Transportation Sclutions for Today and Tomorrow
Twin Towers Suite 400 /4955 Steubenville Pike
Pittsburgh, Pennsylvania 15205 /(412) 490-0630

PROJECT NO. MCRPC00 - 16003

PROJECT: S.R. 208 Access Management Study

TITLE: New Parallel Access Roads West of Veterans Road Concept and Realignment of Oakley-Kelly Drive

FIGURE 8

D.B. KBZ
C.B. XX
REV. XX

FILE NAME: P:\mcrpc00\16003 SR 208 Access Management Study\plan set\16003 West New Roads Figure.dgn

TECHNICAL APPENDIX

APPENDIX A

MEETING MINUTES

Twin Towers, Suite 400, 4955 Steubenville Pike, Pittsburgh, PA 15205 T (412) 490-0630 F (412) 490-0631

MEETING MINUTES

Subject: SR 208 Access Management Study Kick-off Meeting

Meeting Date: March 2, 2016

Meeting Location: Springfield Township Municipal Building

Attendees:		
	John Trant	Springfield Township Administrator
	Rick Dillaman	Springfield Township Supervisor
	Tim Dumbroski	Springfield Township Planning Commission
	Matt Stewart	Mercer County Regional Planning Commission
	Kyle Riffle	PennDOT 1-0 Permit Unit
	Robert Goetz	Trans Associates
	Chris Droznek	Trans Associates

Purpose: To gather / request information to conduct the study and discuss the study approach, schedule and deliverables.

1. Bob Goetz gave a brief introduction of Trans Associates' (TA) background, experience and client base.
2. John Trant stated that the Township is currently in the process of establishing a Tax Increment Financing (TIF) district encompassing the area east of the I-79 interchange. The purpose of the TIF district is to extend water, sewer and provide some funding for roadway improvements.
3. A new Township Zoning Ordinance and map is anticipated to be adopted on April 5, 2016. TA will be provided copies of the updated ordinance and map.
4. Tim Dumbroski discussed issues and provided information within the corridor that should be considered in the study as follows:
    - There is a long, open access along SR 208 in front of the former Slovak Folk Crafts which is currently for sale. It would be desirable to control this access when / if the site is sold or redeveloped.
    - It would be desirable to limit access to SR 258 versus SR 208 for proposed development that may occur on corner parcels at this intersection east of the interchange.
    - Land development for a proposed Wal-Mart was approved along with a highway occupancy permit (HOP) some time ago for a site along the north side of SR 208 east of the interchange. Access was proposed opposite SR 258. Kyle Riffle stated that the HOP for the development has expired.
    - The location of wetlands limit the depth of developable parcels east of the interchange.
    - The two gas stations immediately east of the interchange pre-date the construction of I-79. Their driveways do not meet the current criteria for distance from an Interstate ramp

- An office building has been proposed on the southwest corner of SR 208 and Veterans Road with access along Veterans Road.
- There is a 14 acre parcel north of SR 208 adjacent the airport owned by Grove City Borough that could be developed.
- There is a proposal to extend the private road providing access to Wendell August to connect with Old Ash Road.
- Provided a general comment regarding the number and location of existing driveways (too many and not located in ideal locations).

5. Rick Dillaman added the following:
    - PennDOT has a bridge replacement project along SR 208 east of SR 258 that provides wide shoulders to accommodate a trail that will go to construction in 2017.
    - There are potential outparcels for development along SR 208 in front of the Hovis Auto Parts facility.
    - A winery and Amish peddler store are proposed adjacent Wendell August.
6. John Trant stated that DCNR provided the funding for the study of the proposed trail along SR 208. The first phase is being funded through a Transportation Alternatives Program (TAP) grant.
7. Matt Stewart suggested the township consider adopting an “official map” to help guide future developments access and where roads would be preferred. This step could be considered after the completion of this access management study.
8. Matt Stewart suggested researching existing legal connections and cross easement agreements between existing land uses.
9. TA will review other municipal access management ordinances as part of the development of an ordinance for Springfield Township.
10. The project schedule was reviewed. Data collection is anticipated to be completed the week of March 14 at which point approximately two months will be needed to develop alternatives and costs. Once these are complete, TA anticipates a meeting with project stakeholders including property owners to discuss the study.
11. After the meeting concluded, TA obtained or will obtain traffic studies for Wendell August, Animal Treasures and Springfield Commons, the pending Zoning Ordinance and map, GIS mapping, traffic signal plans and site plans for Springfield Commons.

This concludes the meeting held for the subject project. If you have any comments or concerns, please do not hesitate to call.

Twin Towers, Suite 400, 4955 Steubenville Pike, Pittsburgh, PA 15205 T (412) 490-0630 F (412) 490-0631

MEETING MINUTES

Subject: SR 208 Access Management Study Public Meeting

Meeting Time/Date: 5:00 PM, June 7, 2016

Meeting Location: Springfield Township Municipal Building

Attendees: See attached sign-in sheet

Purpose: To present the findings and recommendations of the study to stakeholders and to gather comments

The following provides a description of the items discussed and next steps.

1. Rick Dillaman, Springfield Township Board of Supervisors Chairman, gave an introduction of the project, its purpose and the funding of it.
2. Bob Goetz and Chris Droznek of Trans Associates presented the findings and recommendations of the Access Management Study in a Power Point presentation. In addition, hard copies of the maps and plans were on display.
3. Public comment was opened up after the presentation. The following questions/comments were made:
    - Why is the study corridor limited from Old Ash Road to just beyond Pine Road? Why can't it extend into Pine Township?
    - How will people make left turns out of driveways with a 3/4 access driveway?
    - Will existing driveways be affected, or need to conform with the new ordinance?
    - The lands south of SR 208 are mostly wetlands. Is the proposed parallel access road feasible?
    - Would customers using the new parallel road be diverted away from 208 causing loss of business?
    - Will sidewalks be required?
    - Will there be future phases of the multi-use trail?
    - What improvements are proposed east of I-79? What about a parallel access road here?
    - Why is the multi-use trail crossing SR 208 as shown? It seems dangerous. Why not have the trail on one side only?
    - Will water lines be extended on the east side of I-79?
    - Will Pine Road be realigned with SR 208 to form a 90 degree angle? The angle of Pine Road makes it difficult to see traffic coming.
    - How will the trail fit in front of the developed properties like the Taco Bell sign?
    - Can you extend the two-way left-turn lane past Pine Road to TCI Park?

- Will existing driveway turns be restricted with the 3/4 access plan?
- Can you relocate the location of the new parallel access road on the Hovis Auto Supply property further east closer to the property line?
- What happens to access when one property wants to develop and its neighbor does not or is not ready to develop?
- Can the Township develop an impact fee program to pay for improvements?

Trans Associates will take into consideration the input received at the stakeholders meeting and draft a final report. The report will include suggested language for the access management ordinance. This report will be distributed to the Township prior to the next Board of Supervisors meeting on July 5. Trans Associates will present the findings and answer questions at the July 5 meeting.

This concludes the meeting held for the subject project. If you have any comments or concerns, please do not hesitate to call.

Attachment

cc: File: mcrpc00/16003/06-07-2016 Meeting Minutes and Sign In Sheet

SIGN IN SHEET

Springfield Township 208 Access Management

5:00 [redacted] PM

Springfield Township Building
406 Old Ash Road, Mercer PA 16137

PLEASE PRINT

	Name	Address or Group you Represent if Non Resident
1	Curt Hovis	Hovis Dev. Corp.
2	SANDRA MINOR	19 Pine Rd, G.C. Pa 16127
3	Patty Dillaman	125 Pinehd G.C
4	Richard Dillaman	
5	Patty Menke	" "
6	Ray Menke	" "
7	Glenn Estes	Buhl Community Water Company
8	MATT STEWART	Mercer Co. Regional Planning Comm
9	Tricia Carey	1716 S. Main St. Ext G.C.
10	Kyle Riffle	PennDOT
11	Dave & Anne Dayton	1605 S Center St. Ext, G.C.
12	Debbie Lynn	1924 Lesbury Road RW Growers
13	Hiren Patel	Best Western
14	MIKE JARA	COUNTRY FAIR INC., ERIE, PA.
15	Bryan Medos	Volant Wineries
16	DREW ORIENT	TriCounty Industries / VOGEL
17		
18		
19		
20		

APPENDIX B

BOARD OF SUPERVISORS

POWERPOINT PRESENTATION JULY 5, 2016

S.R. 208 Access Management Study

MCRPC, PennDOT District 1-0 & Springfield Township

Agenda

- **Access Management**
- **Study Area**
- **Existing Conditions**
- **Capacity Analyses**
- **Queuing Analyses**
- **Crash History**
- **Recommendations**

Access Management

- A means of controlling the ways in which vehicles can access major roadways
- Limit and consolidate access points along major roadways
- Promote supporting street system
- Preserve safety and efficiency of transportation system

Study Area

- Approximately 2.3 mile section
- PennDOT roadway classification: Minor Arterial
- Average daily traffic (ADT) varies from 12,000 vehicles near I-79 and 6,000 vehicles near Old Ash Road.
- 45 mph posted speed limit outside of commercial core
- 35 mph posted speed limit at commercial core
- Zoning classification along corridor: C-1 and C-2 Commercial (some Village near Old Ash Road)

Study Area

- S.R. 208 from Old Ash Road to Springfield Township Border

Existing Access

- 57 access points (25 access points per mile)
  - 33 commercial driveways
  - 14 residential driveways
  - 5 signalized intersections
  - 5 two-way stop controlled intersections

Capacity Analysis

- Turning movement counts performed in February and March 2016
  - PM (3:00 to 6:00 PM) and Saturday (11:00 AM to 2:00 PM)
- Traffic Volumes seasonally adjusted based on PennDOT iTMS data
- Site generated traffic from the following approved developments included:
  - Springfield Commons Development
  - The unbuilt portions of the Wendell August Forge Development
  - Living Treasures Animal Park (south on S.R. 258 in Liberty Township)
- Capacity calculations were performed using HCM 2010 methodologies and Synchro, Version 8 software.
- Overall intersections operate at LOS D or better

Queuing Analysis

- Queuing analyses performed using Synchro Version 8 software.
- All queues were determined to be contained within available turn bay storage lengths and do not extend beyond adjacent intersections, with the following exceptions:
  - S.R. 208 and Springfield Commons Driveway
    - The eastbound S.R. 208 through queue is calculated to extend beyond Veterans Drive by 1 to 3 vehicles during the PM and Saturday peak hours, respectively.

Crash History

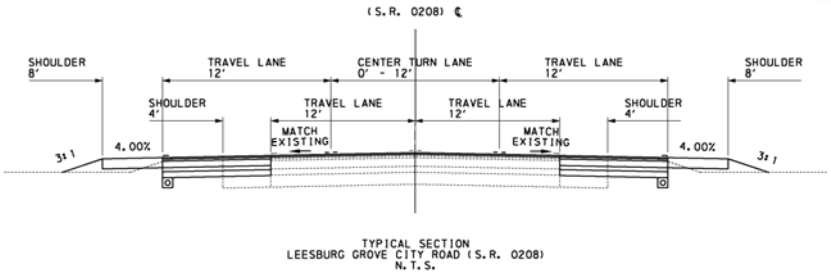
- Crash data was requested from the PennDOT for the five most recent years (2010 to 2014)
- A total of 76 reportable crashes were identified :
  - 33 angle
  - 28 rear-end
  - 8 hit fixed object
  - 2 non-collision
  - 2 side-swipe same direction
  - 1 side-swipe opposite direction
  - 1 pedestrian
  - 1 unknown
- 1 fatal crash (angle crash at S.R. 208 and S.R. 258/Prime Outlets)
- 1 crash had major injuries (hit fixed object crash at S.R. 208 and S.R. 258/Prime Outlets (driving on wrong side of road))
- **No locations with 5 or more crashes with similar causation and within a continuous 12 month period.**

Recommendations

- **Remove left turns from through movements**
  - Provide two-way left-turn lane (TWLTL) throughout corridor (reduce conflicts)
    - New TWLTL section from Old Ash Road to Oakley-Kelly Drive
    - New TWLTL section east of S.R. 258 to Pine Township

Recommendations

- **Remove left turns from through movements**
  - Typical Section for Two Way Left Turn Lane



TYPICAL SECTION
LEESBURG GROVE CITY ROAD (S.R. 0208)
N.T.S.

Recommendations

- **Locate signals to favor through movements**
  - Provide spacing of signals to favor movement of traffic on S.R. 208
    - Current signal spacing ranges from 675 feet to 1,435 feet
  - Create and/or re-align new 4 leg intersections that can be signalized in the future (if warranted).
  - Spacing of potential signals range from 1,350 feet to 1,725 feet
    - S.R. 208 & Old Ash Road
    - S.R. 208 & Wendell August Forge Development driveway (north side) and Re-aligned commercial driveway (south side)
    - S.R. 208 & new commercial driveway (south side) and realigned Oakley Kelley Drive (north side)

Recommendations

- **Locate signals to favor through movements**
  - Spacing of potential signals range from 1,350 feet to 1,725 feet

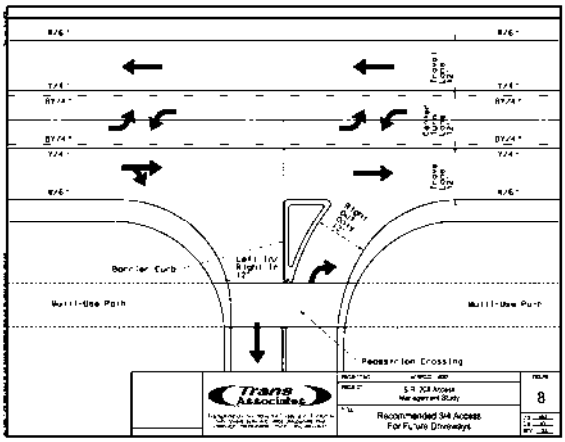
Potential Future Signals

Recommendations

- **Limit the Number of Conflict Points**
  - Current Ordinance permits a minimum access spacing of 150 feet (for non-conforming lots) to 300 feet.
  - Recommend minimum access spacing of 400 feet (PennDOT)
  - Driveways should be limited to a maximum of one access driveway per parcel along S.R. 208
  - Limit driveway access to side or rear roads wherever possible
  - Driveways for non-residential uses should be consolidated and share an access point. (Cross Access Easement)
  - New driveways are recommended to operate as ¾ or limited access driveways: (left-in, right-in, right-out movements only)
  - Driveways should be aligned opposite from each other or at a sufficient offset distance to reduce left turning conflicts.

Recommendations

- **Limit the Number of Conflict Points**
  - Typical ¾ or limited access driveways: (left-in, right-in, right-out movements only)
  - Multi-use trail should be included in future driveway designs

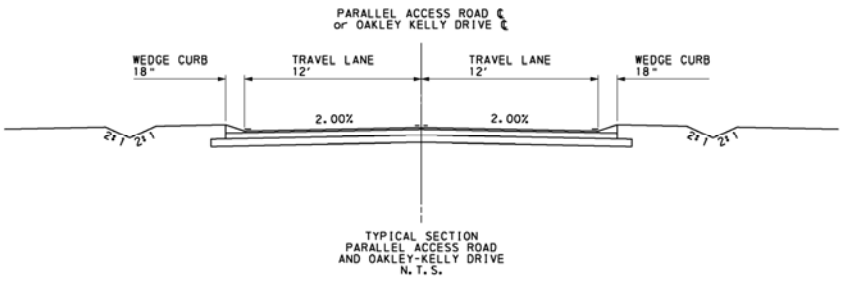


Recommendations

- **Provide a Supporting Street and Circulation System**
  - Provide parallel service roads to reduce access points on S.R. 208
  - A parallel access road is recommended south of S.R. 208 from Veterans Road to opposite the Wendell August driveway.

Recommendations

- **Provide a Supporting Street and Circulation System**
  - Typical Section for parallel service road.



Recommendations

- **Provide an Internal Connection between Springfield Commons and Elephant & Castle Inn / Wendy's**

Recommendations

- **Provide Sidewalk and/or Multi-Use Trail Connections**
  - Future developments along the S.R. 208 corridor should be required to provide sidewalks and/or a multi-use trail
  - Improved pedestrian and bicycle visibility with fewer driveways.

Questions and Comments

Trans Associates

APPENDIX C

TURNING MOVEMENT, PEDESTRIAN, AND BICYCLE COUNTS

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and Old Ash Road

File Name : mcrpc00_16003_#1_pm
Site Code : 16003001
Start Date : 2/25/2016
Page No : 1

Groups Printed- Vehicles - Heavy Duty Vehicles

	S. R. 208 Eastbound					S. R. 208 Westbound					Old Ash Road Northbound					Old Ash Road Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
03:00 PM	0	41	1	0	42	2	44	5	0	51	0	2	4	0	6	1	1	1	0	3	102
03:15 PM	1	24	0	0	25	4	58	2	0	64	0	1	2	0	3	3	1	1	0	5	97
03:30 PM	0	41	1	0	42	4	50	2	0	56	1	0	2	0	3	1	0	2	0	3	104
03:45 PM	0	49	3	0	52	2	49	0	0	51	2	0	1	0	3	2	0	0	0	2	108
Total	1	155	5	0	161	12	201	9	0	222	3	3	9	0	15	7	2	4	0	13	411
04:00 PM	0	41	1	0	42	7	47	5	0	59	2	1	3	0	6	0	3	2	0	5	112
04:15 PM	0	41	0	0	41	4	61	1	0	66	0	1	3	0	4	1	1	0	0	2	113
04:30 PM	1	56	2	0	59	3	44	3	0	50	0	1	2	0	3	0	0	1	0	1	113
04:45 PM	1	53	0	0	54	2	65	1	0	68	1	0	1	0	2	0	0	1	0	1	125
Total	2	191	3	0	196	16	217	10	0	243	3	3	9	0	15	1	4	4	0	9	463
05:00 PM	1	22	1	0	24	6	74	2	0	82	2	0	0	0	2	1	0	1	0	2	110
05:15 PM	0	50	0	0	50	2	51	2	0	55	1	0	2	0	3	1	0	0	0	1	109
05:30 PM	0	45	2	0	47	1	53	1	0	55	0	0	1	0	1	1	1	1	0	3	106
05:45 PM	1	42	1	0	44	2	42	2	0	46	1	1	2	0	4	2	0	1	0	3	97
Total	2	159	4	0	165	11	220	7	0	238	4	1	5	0	10	5	1	3	0	9	422
Grand Total	5	505	12	0	522	39	638	26	0	703	10	7	23	0	40	13	7	11	0	31	1296
Apprch %	1	96.7	2.3	0		5.5	90.8	3.7	0		25	17.5	57.5	0		41.9	22.6	35.5	0		
Total %	0.4	39	0.9	0	40.3	3	49.2	2	0	54.2	0.8	0.5	1.8	0	3.1	1	0.5	0.8	0	2.4	
Vehicles	5	496	12	0	513	36	627	24	0	687	9	7	23	0	39	13	7	11	0	31	1270
% Vehicles	100	98.2	100	0	98.3	92.3	98.3	92.3	0	97.7	90	100	100	0	97.5	100	100	100	0	100	98
Heavy Duty Vehicles	0	9	0	0	9	3	11	2	0	16	1	0	0	0	1	0	0	0	0	0	26
% Heavy Duty Vehicles	0	1.8	0	0	1.7	7.7	1.7	7.7	0	2.3	10	0	0	0	2.5	0	0	0	0	0	2

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and Old Ash Road

File Name : mcrpc00_16003_#1_pm
Site Code : 16003001
Start Date : 2/25/2016
Page No : 2

	S. R. 208 Eastbound					S. R. 208 Westbound					Old Ash Road Northbound					Old Ash Road Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	1	56	2	0	59	3	44	3	0	50	0	1	2	0	3	0	0	1	0	1	113
04:45 PM	1	53	0	0	54	2	65	1	0	68	1	0	1	0	2	0	0	1	0	1	125
05:00 PM	1	22	1	0	24	6	74	2	0	82	2	0	0	0	2	1	0	1	0	2	110
05:15 PM	0	50	0	0	50	2	51	2	0	55	1	0	2	0	3	1	0	0	0	1	109
Total Volume	3	181	3	0	187	13	234	8	0	255	4	1	5	0	10	2	0	3	0	5	457
% App. Total	1.6	96.8	1.6	0		5.1	91.8	3.1	0		40	10	50	0		40	0	60	0		
PHF	.750	.808	.375	.000	.792	.542	.791	.667	.000	.777	.500	.250	.625	.000	.833	.500	.000	.750	.000	.625	.914
Vehicles	3	180	3	0	186	12	233	8	0	253	4	1	5	0	10	2	0	3	0	5	454
% Vehicles	100	99.4	100	0	99.5	92.3	99.6	100	0	99.2	100	100	100	0	100	100	0	100	0	100	99.3
Heavy Duty Vehicles	0	1	0	0	1	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3
% Heavy Duty Vehicles	0	0.6	0	0	0.5	7.7	0.4	0	0	0.8	0	0	0	0	0	0	0	0	0	0	0.7

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and Veterans Road

File Name : mcrpc00_16003_#2_pm
Site Code : 16003002
Start Date : 2/25/2016
Page No : 1

Groups Printed- Vehicles - Heavy Duty Vehicles

	S. R. 208 Eastbound					S. R. 208 Westbound					Veterans Road Northbound					Commercial Drivway Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
03:00 PM	2	50	3	0	55	12	55	3	0	70	6	0	7	0	13	3	0	1	0	4	142
03:15 PM	0	42	1	0	43	9	70	0	0	79	1	0	7	0	8	4	1	0	0	5	135
03:30 PM	1	43	2	0	46	7	66	3	0	76	0	0	9	0	9	1	0	2	0	3	134
03:45 PM	1	66	0	0	67	8	71	1	0	80	1	0	4	0	5	2	0	0	0	2	154
Total	4	201	6	0	211	36	262	7	0	305	8	0	27	0	35	10	1	3	0	14	565
04:00 PM	1	51	2	0	54	13	66	0	0	79	1	0	4	0	5	2	0	0	0	2	140
04:15 PM	0	57	4	0	61	8	79	6	0	93	3	0	6	0	9	4	0	0	0	4	167
04:30 PM	1	69	1	0	71	10	62	6	0	78	2	0	6	0	8	4	2	1	0	7	164
04:45 PM	0	59	3	0	62	6	78	7	0	91	2	0	6	0	8	0	1	1	0	2	163
Total	2	236	10	0	248	37	285	19	0	341	8	0	22	0	30	10	3	2	0	15	634
05:00 PM	2	46	1	0	49	10	94	4	0	108	5	0	7	0	12	4	0	0	0	4	173
05:15 PM	0	52	4	0	56	12	91	8	0	111	5	1	9	0	15	4	3	1	0	8	190
05:30 PM	2	47	0	0	49	7	88	7	0	102	5	0	6	0	11	6	0	1	0	7	169
05:45 PM	1	46	1	0	48	4	54	8	0	66	4	0	5	0	9	10	0	1	0	11	134
Total	5	191	6	0	202	33	327	27	0	387	19	1	27	0	47	24	3	3	0	30	666
Grand Total	11	628	22	0	661	106	874	53	0	1033	35	1	76	0	112	44	7	8	0	59	1865
Apprch %	1.7	95	3.3	0		10.3	84.6	5.1	0		31.2	0.9	67.9	0		74.6	11.9	13.6	0		
Total %	0.6	33.7	1.2	0	35.4	5.7	46.9	2.8	0	55.4	1.9	0.1	4.1	0	6	2.4	0.4	0.4	0	3.2	
Vehicles	11	612	22	0	645	100	852	52	0	1004	31	1	72	0	104	44	7	7	0	58	1811
% Vehicles	100	97.5	100	0	97.6	94.3	97.5	98.1	0	97.2	88.6	100	94.7	0	92.9	100	100	87.5	0	98.3	97.1
Heavy Duty Vehicles	0	16	0	0	16	6	22	1	0	29	4	0	4	0	8	0	0	1	0	1	54
% Heavy Duty Vehicles	0	2.5	0	0	2.4	5.7	2.5	1.9	0	2.8	11.4	0	5.3	0	7.1	0	0	12.5	0	1.7	2.9

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and Veterans Road

File Name : mcrpc00_16003_#2_pm
Site Code : 16003002
Start Date : 2/25/2016
Page No : 2

	S. R. 208 Eastbound					S. R. 208 Westbound					Veterans Road Northbound					Commercial Drivway Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	1	69	1	0	71	10	62	6	0	78	2	0	6	0	8	4	2	1	0	7	164
04:45 PM	0	59	3	0	62	6	78	7	0	91	2	0	6	0	8	0	1	1	0	2	163
05:00 PM	2	46	1	0	49	10	94	4	0	108	5	0	7	0	12	4	0	0	0	4	173
05:15 PM	0	52	4	0	56	12	91	8	0	111	5	1	9	0	15	4	3	1	0	8	190
Total Volume	3	226	9	0	238	38	325	25	0	388	14	1	28	0	43	12	6	3	0	21	690
% App. Total	1.3	95	3.8	0		9.8	83.8	6.4	0		32.6	2.3	65.1	0		57.1	28.6	14.3	0		
PHF	.375	.819	.563	.000	.838	.792	.864	.781	.000	.874	.700	.250	.778	.000	.717	.750	.500	.750	.000	.656	.908
Vehicles	3	221	9	0	233	37	320	24	0	381	14	1	28	0	43	12	6	2	0	20	677
% Vehicles	100	97.8	100	0	97.9	97.4	98.5	96.0	0	98.2	100	100	100	0	100	100	100	66.7	0	95.2	98.1
Heavy Duty Vehicles	0	5	0	0	5	1	5	1	0	7	0	0	0	0	0	0	0	1	0	1	13
% Heavy Duty Vehicles	0	2.2	0	0	2.1	2.6	1.5	4.0	0	1.8	0	0	0	0	0	0	0	33.3	0	4.8	1.9

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and Prime Outlet Dr./S. R. 258

File Name : mcrpc00_16003_#3_pm
Site Code : 16003003
Start Date : 2/23/2016
Page No : 1

Groups Printed- Vehicles - Heavy Duty Vehicles

	S. R. 208 Eastbound					S. R. 208 Westbound					Prime Outlet Dr. Northbound					S. R. 258 Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
03:00 PM	10	47	5	4	66	30	57	0	0	87	21	9	16	36	82	33	8	5	6	52	287
03:15 PM	9	62	7	7	85	32	58	0	0	90	14	8	9	22	53	43	10	8	4	65	293
03:30 PM	9	56	12	1	78	44	65	2	0	111	12	11	9	27	59	35	8	10	6	59	307
03:45 PM	8	76	7	4	95	41	81	0	0	122	7	6	8	33	54	37	9	7	4	57	328
Total	36	241	31	16	324	147	261	2	0	410	54	34	42	118	248	148	35	30	20	233	1215
04:00 PM	11	77	4	6	98	45	83	0	0	128	14	10	9	38	71	41	6	8	6	61	358
04:15 PM	5	70	8	4	87	33	78	0	0	111	19	7	9	36	71	45	10	7	6	68	337
04:30 PM	3	87	15	6	111	66	101	0	0	167	10	8	14	37	69	39	4	4	4	51	398
04:45 PM	11	62	10	0	83	72	79	1	1	153	12	5	8	44	69	45	7	5	9	66	371
Total	30	296	37	16	379	216	341	1	1	559	55	30	40	155	280	170	27	24	25	246	1464
05:00 PM	11	72	8	2	93	37	100	0	1	138	20	9	15	38	82	40	2	9	7	58	371
05:15 PM	13	60	14	3	90	47	88	2	0	137	19	11	15	20	65	26	13	5	6	50	342
05:30 PM	8	61	12	6	87	38	82	0	0	120	17	8	13	45	83	35	7	9	7	58	348
05:45 PM	8	59	8	5	80	46	90	1	0	137	6	14	14	33	67	30	10	5	7	52	336
Total	40	252	42	16	350	168	360	3	1	532	62	42	57	136	297	131	32	28	27	218	1397
Grand Total	106	789	110	48	1053	531	962	6	2	1501	171	106	139	409	825	449	94	82	72	697	4076
Apprch %	10.1	74.9	10.4	4.6		35.4	64.1	0.4	0.1		20.7	12.8	16.8	49.6		64.4	13.5	11.8	10.3		
Total %	2.6	19.4	2.7	1.2	25.8	13	23.6	0.1	0	36.8	4.2	2.6	3.4	10	20.2	11	2.3	2	1.8	17.1	
Vehicles	104	769	107	48	1028	525	928	5	2	1460	170	104	136	406	816	432	92	79	68	671	3975
% Vehicles	98.1	97.5	97.3	100	97.6	98.9	96.5	83.3	100	97.3	99.4	98.1	97.8	99.3	98.9	96.2	97.9	96.3	94.4	96.3	97.5
Heavy Duty Vehicles	2	20	3	0	25	6	34	1	0	41	1	2	3	3	9	17	2	3	4	26	101
% Heavy Duty Vehicles	1.9	2.5	2.7	0	2.4	1.1	3.5	16.7	0	2.7	0.6	1.9	2.2	0.7	1.1	3.8	2.1	3.7	5.6	3.7	2.5

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and Prime Outlet Dr./S. R. 258

File Name : mcrpc00_16003_#3_pm
Site Code : 16003003
Start Date : 2/23/2016

	S. R. 208 Eastbound					S. R. 208 Westbound					Prime Outlet Dr. Northbound					S. R. 258 Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	3	87	15	6	111	66	101	0	0	167	10	8	14	37	69	39	4	4	4	51	398
04:45 PM	11	62	10	0	83	72	79	1	1	153	12	5	8	44	69	45	7	5	9	66	371
05:00 PM	11	72	8	2	93	37	100	0	1	138	20	9	15	38	82	40	2	9	7	58	371
05:15 PM	13	60	14	3	90	47	88	2	0	137	19	11	15	20	65	26	13	5	6	50	342
Total Volume	38	281	47	11	377	222	368	3	2	595	61	33	52	139	285	150	26	23	26	225	1482
% App. Total	10.1	74.5	12.5	2.9		37.3	61.8	0.5	0.3		21.4	11.6	18.2	48.8		66.7	11.6	10.2	11.6		
PHF	.731	.807	.783	.458	.849	.771	.911	.375	.500	.891	.763	.750	.867	.790	.869	.833	.500	.639	.722	.852	.931
Vehicles	38	277	45	11	371	219	354	2	2	577	61	33	51	137	282	146	25	23	26	220	1450
% Vehicles	100	98.6	95.7	100	98.4	98.6	96.2	66.7	100	97.0	100	100	98.1	98.6	98.9	97.3	96.2	100	100	97.8	97.8
Heavy Duty Vehicles	0	4	2	0	6	3	14	1	0	18	0	0	1	2	3	4	1	0	0	5	32
% Heavy Duty Vehicles	0	1.4	4.3	0	1.6	1.4	3.8	33.3	0	3.0	0	0	1.9	1.4	1.1	2.7	3.8	0	0	2.2	2.2

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and I-79 SB Ramps

File Name : mcrpc00_16003_#5_pm
Site Code : 16003005
Start Date : 2/23/2016
Page No : 1

Groups Printed- Vehicles - Heavy Duty Vehicles

	S. R. 208 Eastbound					S. R. 208 Westbound					I-79 SB On-ramp Northbound					I-79 SB Off-ramp Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
03:00 PM	0	112	18	12	142	31	100	0	0	131	0	0	0	0	0	19	0	6	17	42	315
03:15 PM	0	102	13	23	138	25	108	0	0	133	0	0	0	0	0	11	0	2	18	31	302
03:30 PM	0	98	17	15	130	20	145	0	0	165	0	0	0	0	0	18	0	8	16	42	337
03:45 PM	0	124	12	18	154	19	132	0	0	151	0	0	0	0	0	28	2	4	25	59	364
Total	0	436	60	68	564	95	485	0	0	580	0	0	0	0	0	76	2	20	76	174	1318
04:00 PM	0	131	8	23	162	22	146	0	0	168	0	0	0	0	0	17	0	9	28	54	384
04:15 PM	0	130	12	15	157	30	145	0	0	175	0	0	0	0	0	23	0	4	24	51	383
04:30 PM	0	137	16	21	174	27	177	0	0	204	0	0	0	0	0	25	0	6	31	62	440
04:45 PM	0	122	9	20	151	25	167	0	0	192	0	0	0	0	0	36	1	12	25	74	417
Total	0	520	45	79	644	104	635	0	0	739	0	0	0	0	0	101	1	31	108	241	1624
05:00 PM	0	125	25	17	167	32	145	0	0	177	0	0	0	0	0	35	0	6	26	67	411
05:15 PM	0	102	10	10	122	36	153	0	0	189	0	0	0	0	0	36	0	12	27	75	386
05:30 PM	0	126	14	13	153	21	129	0	0	150	0	0	0	0	0	37	0	8	21	66	369
05:45 PM	0	108	14	6	128	18	142	0	0	160	0	0	0	0	0	22	0	9	22	53	341
Total	0	461	63	46	570	107	569	0	0	676	0	0	0	0	0	130	0	35	96	261	1507
Grand Total	0	1417	168	193	1778	306	1689	0	0	1995	0	0	0	0	0	307	3	86	280	676	4449
Apprch %	0	79.7	9.4	10.9		15.3	84.7	0	0		0	0	0	0		45.4	0.4	12.7	41.4		
Total %	0	31.8	3.8	4.3	40	6.9	38	0	0	44.8	0	0	0	0	0	6.9	0.1	1.9	6.3	15.2	
Vehicles	0	1387	165	186	1738	295	1648	0	0	1943	0	0	0	0	0	292	1	80	265	638	4319
% Vehicles	0	97.9	98.2	96.4	97.8	96.4	97.6	0	0	97.4	0	0	0	0	0	95.1	33.3	93	94.6	94.4	97.1
Heavy Duty Vehicles	0	30	3	7	40	11	41	0	0	52	0	0	0	0	0	15	2	6	15	38	130
% Heavy Duty Vehicles	0	2.1	1.8	3.6	2.2	3.6	2.4	0	0	2.6	0	0	0	0	0	4.9	66.7	7	5.4	5.6	2.9

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and I-79 SB Ramps

File Name : mcrpc00_16003_#5_pm
Site Code : 16003005
Start Date : 2/23/2016

	S. R. 208 Eastbound					S. R. 208 Westbound					I-79 SB On-ramp Northbound					I-79 SB Off-ramp Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	137	16	21	174	27	177	0	0	204	0	0	0	0	0	25	0	6	31	62	440
04:45 PM	0	122	9	20	151	25	167	0	0	192	0	0	0	0	0	36	1	12	25	74	417
05:00 PM	0	125	25	17	167	32	145	0	0	177	0	0	0	0	0	35	0	6	26	67	411
05:15 PM	0	102	10	10	122	36	153	0	0	189	0	0	0	0	0	36	0	12	27	75	386
Total Volume	0	486	60	68	614	120	642	0	0	762	0	0	0	0	0	132	1	36	109	278	1654
% App. Total	0	79.2	9.8	11.1		15.7	84.3	0	0		0	0	0	0		47.5	0.4	12.9	39.2		
PHF	.000	.887	.600	.810	.882	.833	.907	.000	.000	.934	.000	.000	.000	.000	.000	.917	.250	.750	.879	.927	.940
Vehicles	0	481	58	68	607	114	630	0	0	744	0	0	0	0	0	128	0	34	105	267	1618
% Vehicles	0	99.0	96.7	100	98.9	95.0	98.1	0	0	97.6	0	0	0	0	0	97.0	0	94.4	96.3	96.0	97.8
Heavy Duty Vehicles	0	5	2	0	7	6	12	0	0	18	0	0	0	0	0	4	1	2	4	11	36
% Heavy Duty Vehicles	0	1.0	3.3	0	1.1	5.0	1.9	0	0	2.4	0	0	0	0	0	3.0	100	5.6	3.7	4.0	2.2

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and I-79 NB Ramps

File Name : mcrpc00_16003_#6_pm
Site Code : 16003006
Start Date : 2/23/2016
Page No : 1

Groups Printed- Vehicles - Heavy Duty Vehicles

	S. R. 208 Eastbound					S. R. 208 Westbound					I-79 NB Off-ramp Northbound					I-79 NB On-ramp Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
03:00 PM	30	96	0	0	126	0	121	18	1	140	21	0	31	0	52	0	0	0	0	0	318
03:15 PM	35	80	0	0	115	0	102	28	1	131	28	0	25	0	53	0	0	0	0	0	299
03:30 PM	21	99	0	0	120	0	133	22	1	156	35	0	35	0	70	0	0	0	0	0	346
03:45 PM	38	116	0	0	154	0	128	16	1	145	30	1	31	0	62	0	0	0	0	0	361
Total	124	391	0	0	515	0	484	84	4	572	114	1	122	0	237	0	0	0	0	0	1324
04:00 PM	29	112	0	0	141	0	128	24	2	154	42	0	25	0	67	0	0	0	0	0	362
04:15 PM	26	126	0	0	152	0	142	17	4	163	38	0	36	0	74	0	0	0	0	0	389
04:30 PM	50	113	0	0	163	0	169	27	1	197	37	0	34	0	71	0	0	0	0	0	431
04:45 PM	25	135	0	0	160	0	171	16	9	196	30	0	40	0	70	0	0	0	0	0	426
Total	130	486	0	0	616	0	610	84	16	710	147	0	135	0	282	0	0	0	0	0	1608
05:00 PM	34	121	0	0	155	0	152	21	3	176	37	0	34	0	71	0	0	0	0	0	402
05:15 PM	19	117	0	0	136	0	148	13	0	161	33	0	39	0	72	0	0	0	0	0	369
05:30 PM	25	137	0	0	162	0	110	22	2	134	34	0	30	0	64	0	0	0	0	0	360
05:45 PM	26	106	0	0	132	0	124	12	2	138	26	0	26	0	52	0	0	0	0	0	322
Total	104	481	0	0	585	0	534	68	7	609	130	0	129	0	259	0	0	0	0	0	1453
Grand Total	358	1358	0	0	1716	0	1628	236	27	1891	391	1	386	0	778	0	0	0	0	0	4385
Apprch %	20.9	79.1	0	0		0	86.1	12.5	1.4		50.3	0.1	49.6	0		0	0	0	0		
Total %	8.2	31	0	0	39.1	0	37.1	5.4	0.6	43.1	8.9	0	8.8	0	17.7	0	0	0	0	0	
Vehicles	350	1332	0	0	1682	0	1598	221	25	1844	378	0	367	0	745	0	0	0	0	0	4271
% Vehicles	97.8	98.1	0	0	98	0	98.2	93.6	92.6	97.5	96.7	0	95.1	0	95.8	0	0	0	0	0	97.4
Heavy Duty Vehicles	8	26	0	0	34	0	30	15	2	47	13	1	19	0	33	0	0	0	0	0	114
% Heavy Duty Vehicles	2.2	1.9	0	0	2	0	1.8	6.4	7.4	2.5	3.3	100	4.9	0	4.2	0	0	0	0	0	2.6

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and I-79 NB Ramps

File Name : mcrpc00_16003_#6_pm
Site Code : 16003006
Start Date : 2/23/2016

	S. R. 208 Eastbound					S. R. 208 Westbound					I-79 NB Off-ramp Northbound					I-79 NB On-ramp Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	50	113	0	0	163	0	169	27	1	197	37	0	34	0	71	0	0	0	0	0	431
04:45 PM	25	135	0	0	160	0	171	16	9	196	30	0	40	0	70	0	0	0	0	0	426
05:00 PM	34	121	0	0	155	0	152	21	3	176	37	0	34	0	71	0	0	0	0	0	402
05:15 PM	19	117	0	0	136	0	148	13	0	161	33	0	39	0	72	0	0	0	0	0	369
Total Volume	128	486	0	0	614	0	640	77	13	730	137	0	147	0	284	0	0	0	0	0	1628
% App. Total	20.8	79.2	0	0		0	87.7	10.5	1.8		48.2	0	51.8	0		0	0	0	0		
PHF	.640	.900	.000	.000	.942	.000	.936	.713	.361	.926	.926	.000	.919	.000	.986	.000	.000	.000	.000	.000	.944
Vehicles	127	480	0	0	607	0	629	74	13	716	133	0	141	0	274	0	0	0	0	0	1597
% Vehicles	99.2	98.8	0	0	98.9	0	98.3	96.1	100	98.1	97.1	0	95.9	0	96.5	0	0	0	0	0	98.1
Heavy Duty Vehicles	1	6	0	0	7	0	11	3	0	14	4	0	6	0	10	0	0	0	0	0	31
% Heavy Duty Vehicles	0.8	1.2	0	0	1.1	0	1.7	3.9	0	1.9	2.9	0	4.1	0	3.5	0	0	0	0	0	1.9

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and S. R. 258

File Name : mcrpc00_16003_#4_pm
Site Code : 16003004
Start Date : 2/25/2016
Page No : 1

Groups Printed- Vehicles - Heavy Duty Vehicles

	S. R. 208 Eastbound					S. R. 208 Westbound					S. R. 258 Northbound					S. R. 258 Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
03:00 PM	0	77	27	5	109	5	89	0	0	94	21	0	3	1	25	1	0	0	0	1	229
03:15 PM	0	68	21	5	94	7	96	0	0	103	16	0	4	3	23	0	0	0	0	0	220
03:30 PM	0	75	18	5	98	4	101	0	0	105	32	0	2	1	35	0	0	0	0	0	238
03:45 PM	0	83	22	6	111	7	82	0	0	89	64	0	3	0	67	0	0	0	0	0	267
Total	0	303	88	21	412	23	368	0	0	391	133	0	12	5	150	1	0	0	0	1	954
04:00 PM	0	84	29	6	119	9	111	0	0	120	35	0	4	3	42	0	0	0	0	0	281
04:15 PM	1	81	22	5	109	7	112	0	0	119	30	0	5	0	35	0	0	0	0	0	263
04:30 PM	0	97	26	9	132	5	138	0	0	143	36	1	5	1	43	0	0	0	0	0	318
04:45 PM	2	89	21	7	119	3	97	0	0	100	55	1	0	0	56	0	0	0	0	0	275
Total	3	351	98	27	479	24	458	0	0	482	156	2	14	4	176	0	0	0	0	0	1137
05:00 PM	0	73	28	8	109	7	130	0	0	137	53	0	4	1	58	0	0	0	0	0	304
05:15 PM	0	68	38	10	116	6	120	0	0	126	43	0	3	1	47	0	0	0	0	0	289
05:30 PM	0	83	15	4	102	1	84	0	0	85	38	0	4	1	43	0	0	0	0	0	230
05:45 PM	0	69	24	2	95	5	76	0	0	81	27	0	1	2	30	0	0	0	0	0	206
Total	0	293	105	24	422	19	410	0	0	429	161	0	12	5	178	0	0	0	0	0	1029
Grand Total	3	947	291	72	1313	66	1236	0	0	1302	450	2	38	14	504	1	0	0	0	1	3120
Apprch %	0.2	72.1	22.2	5.5		5.1	94.9	0	0		89.3	0.4	7.5	2.8		100	0	0	0		
Total %	0.1	30.4	9.3	2.3	42.1	2.1	39.6	0	0	41.7	14.4	0.1	1.2	0.4	16.2	0	0	0	0	0	
Vehicles	3	910	285	71	1269	65	1210	0	0	1275	447	2	38	14	501	1	0	0	0	1	3046
% Vehicles	100	96.1	97.9	98.6	96.6	98.5	97.9	0	0	97.9	99.3	100	100	100	99.4	100	0	0	0	100	97.6
Heavy Duty Vehicles	0	37	6	1	44	1	26	0	0	27	3	0	0	0	3	0	0	0	0	0	74
% Heavy Duty Vehicles	0	3.9	2.1	1.4	3.4	1.5	2.1	0	0	2.1	0.7	0	0	0	0.6	0	0	0	0	0	2.4

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and S. R. 258

File Name : mcrpc00_16003_#4_pm
Site Code : 16003004
Start Date : 2/25/2016

	S. R. 208 Eastbound					S. R. 208 Westbound					S. R. 258 Northbound					S. R. 258 Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	97	26	9	132	5	138	0	0	143	36	1	5	1	43	0	0	0	0	0	318
04:45 PM	2	89	21	7	119	3	97	0	0	100	55	1	0	0	56	0	0	0	0	0	275
05:00 PM	0	73	28	8	109	7	130	0	0	137	53	0	4	1	58	0	0	0	0	0	304
05:15 PM	0	68	38	10	116	6	120	0	0	126	43	0	3	1	47	0	0	0	0	0	289
Total Volume	2	327	113	34	476	21	485	0	0	506	187	2	12	3	204	0	0	0	0	0	1186
% App. Total	0.4	68.7	23.7	7.1		4.2	95.8	0	0		91.7	1	5.9	1.5		0	0	0	0		
PHF	.250	.843	.743	.850	.902	.750	.879	.000	.000	.885	.850	.500	.600	.750	.879	.000	.000	.000	.000	.000	.932
Vehicles	2	322	112	34	470	21	473	0	0	494	187	2	12	3	204	0	0	0	0	0	1168
% Vehicles	100	98.5	99.1	100	98.7	100	97.5	0	0	97.6	100	100	100	100	100	0	0	0	0	0	98.5
Heavy Duty Vehicles	0	5	1	0	6	0	12	0	0	12	0	0	0	0	0	0	0	0	0	0	18
% Heavy Duty Vehicles	0	1.5	0.9	0	1.3	0	2.5	0	0	2.4	0	0	0	0	0	0	0	0	0	0	1.5

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and Old Ash Road

File Name : mcrpc00_16003_#1_sat
Site Code : 16003001
Start Date : 2/27/2016
Page No : 1

Groups Printed- Vehicles - Heavy Duty Vehicles

	S. R. 208 Eastbound					S. R. 208 Westbound					Old Ash Road Northbound					Old Ash Road Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
11:00 AM	0	40	1	0	41	3	45	1	0	49	0	0	3	0	3	1	0	0	0	1	94
11:15 AM	0	60	0	0	60	3	43	2	0	48	1	0	2	0	3	1	1	0	0	2	113
11:30 AM	0	49	1	0	50	1	40	2	0	43	1	1	3	0	5	2	1	1	0	4	102
11:45 AM	2	62	1	0	65	3	49	1	0	53	2	0	3	0	5	2	0	2	0	4	127
Total	2	211	3	0	216	10	177	6	0	193	4	1	11	0	16	6	2	3	0	11	436
12:00 PM	0	63	1	0	64	3	41	1	0	45	1	0	2	0	3	0	2	0	0	2	114
12:15 PM	0	41	2	0	43	3	38	0	0	41	1	1	2	0	4	0	2	0	0	2	90
12:30 PM	0	69	0	0	69	1	53	1	0	55	2	0	3	0	5	2	0	1	0	3	132
12:45 PM	2	65	2	0	69	4	47	1	0	52	0	1	1	0	2	2	0	0	0	2	125
Total	2	238	5	0	245	11	179	3	0	193	4	2	8	0	14	4	4	1	0	9	461
01:00 PM	0	50	0	0	50	4	60	2	0	66	1	0	2	0	3	1	0	0	0	1	120
01:15 PM	0	64	0	0	64	5	49	1	0	55	0	0	4	0	4	4	0	4	0	8	131
01:30 PM	0	59	0	0	59	3	55	1	0	59	0	0	1	0	1	1	0	1	0	2	121
01:45 PM	0	67	1	0	68	3	59	1	0	63	2	0	2	0	4	1	0	2	0	3	138
Total	0	240	1	0	241	15	223	5	0	243	3	0	9	0	12	7	0	7	0	14	510
Grand Total	4	689	9	0	702	36	579	14	0	629	11	3	28	0	42	17	6	11	0	34	1407
Apprch %	0.6	98.1	1.3	0		5.7	92.1	2.2	0		26.2	7.1	66.7	0		50	17.6	32.4	0		
Total %	0.3	49	0.6	0	49.9	2.6	41.2	1	0	44.7	0.8	0.2	2	0	3	1.2	0.4	0.8	0	2.4	
Vehicles	4	683	9	0	696	36	561	14	0	611	11	3	27	0	41	17	6	11	0	34	1382
% Vehicles	100	99.1	100	0	99.1	100	96.9	100	0	97.1	100	100	96.4	0	97.6	100	100	100	0	100	98.2
Heavy Duty Vehicles	0	6	0	0	6	0	18	0	0	18	0	0	1	0	1	0	0	0	0	0	25
% Heavy Duty Vehicles	0	0.9	0	0	0.9	0	3.1	0	0	2.9	0	0	3.6	0	2.4	0	0	0	0	0	1.8

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and Old Ash Road

File Name : mcrpc00_16003_#1_sat
Site Code : 16003001
Start Date : 2/27/2016

	S. R. 208 Eastbound					S. R. 208 Westbound					Old Ash Road Northbound					Old Ash Road Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 01:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	2	65	2	0	69	4	47	1	0	52	0	1	1	0	2	2	0	0	0	2	125
01:00 PM	0	50	0	0	50	4	60	2	0	66	1	0	2	0	3	1	0	0	0	1	120
01:15 PM	0	64	0	0	64	5	49	1	0	55	0	0	4	0	4	4	0	4	0	8	131
01:30 PM	0	59	0	0	59	3	55	1	0	59	0	0	1	0	1	1	0	1	0	2	121
Total Volume	2	238	2	0	242	16	211	5	0	232	1	1	8	0	10	8	0	5	0	13	497
% App. Total	0.8	98.3	0.8	0		6.9	90.9	2.2	0		10	10	80	0		61.5	0	38.5	0		
PHF	.250	.915	.250	.000	.877	.800	.879	.625	.000	.879	.250	.250	.500	.000	.625	.500	.000	.313	.000	.406	.948
Vehicles	2	236	2	0	240	16	204	5	0	225	1	1	8	0	10	8	0	5	0	13	488
% Vehicles	100	99.2	100	0	99.2	100	96.7	100	0	97.0	100	100	100	0	100	100	0	100	0	100	98.2
Heavy Duty Vehicles	0	2	0	0	2	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	9
% Heavy Duty Vehicles	0	0.8	0	0	0.8	0	3.3	0	0	3.0	0	0	0	0	0	0	0	0	0	0	1.8

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and Veterans Road

File Name : mcrpc00_16003_#2_sat
Site Code : 16003002
Start Date : 2/27/2016
Page No : 1

Groups Printed- Vehicles - Heavy Duty Vehicles

	S. R. 208 Eastbound					S. R. 208 Westbound					Veterans Road Northbound					Commercial driveway Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
11:00 AM	1	48	1	0	50	9	53	9	0	71	2	0	7	0	9	6	2	2	0	10	140
11:15 AM	2	65	1	0	68	11	50	9	0	70	0	0	6	0	6	8	0	6	0	14	158
11:30 AM	2	56	4	0	62	11	58	14	0	83	5	2	13	0	20	9	2	4	0	15	180
11:45 AM	2	79	3	0	84	10	67	11	0	88	2	0	12	0	14	9	1	4	0	14	200
Total	7	248	9	0	264	41	228	43	0	312	9	2	38	0	49	32	5	16	0	53	678
12:00 PM	5	61	3	0	69	11	51	23	0	85	2	1	14	0	17	11	0	4	0	15	186
12:15 PM	1	47	1	0	49	10	55	8	0	73	1	0	14	0	15	11	3	4	0	18	155
12:30 PM	3	80	10	0	93	9	67	13	0	89	3	0	7	0	10	10	2	2	0	14	206
12:45 PM	2	77	7	1	87	16	71	14	0	101	1	1	11	0	13	10	1	5	0	16	217
Total	11	265	21	1	298	46	244	58	0	348	7	2	46	0	55	42	6	15	0	63	764
01:00 PM	1	61	3	0	65	12	73	5	0	90	4	0	19	0	23	10	0	4	0	14	192
01:15 PM	3	72	4	0	79	14	75	11	0	100	5	3	13	0	21	11	0	2	0	13	213
01:30 PM	1	74	3	0	78	14	68	14	0	96	1	0	14	0	15	7	2	4	0	13	202
01:45 PM	4	80	7	0	91	23	61	5	0	89	9	2	15	0	26	6	4	2	0	12	218
Total	9	287	17	0	313	63	277	35	0	375	19	5	61	0	85	34	6	12	0	52	825
Grand Total	27	800	47	1	875	150	749	136	0	1035	35	9	145	0	189	108	17	43	0	168	2267
Apprch %	3.1	91.4	5.4	0.1		14.5	72.4	13.1	0		18.5	4.8	76.7	0		64.3	10.1	25.6	0		
Total %	1.2	35.3	2.1	0	38.6	6.6	33	6	0	45.7	1.5	0.4	6.4	0	8.3	4.8	0.7	1.9	0	7.4	
Vehicles	27	793	47	1	868	147	732	136	0	1015	33	9	144	0	186	108	17	43	0	168	2237
% Vehicles	100	99.1	100	100	99.2	98	97.7	100	0	98.1	94.3	100	99.3	0	98.4	100	100	100	0	100	98.7
Heavy Duty Vehicles	0	7	0	0	7	3	17	0	0	20	2	0	1	0	3	0	0	0	0	0	30
% Heavy Duty Vehicles	0	0.9	0	0	0.8	2	2.3	0	0	1.9	5.7	0	0.7	0	1.6	0	0	0	0	0	1.3

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and Veterans Road

File Name : mcrpc00_16003_#2_sat
Site Code : 16003002
Start Date : 2/27/2016
Page No : 2

	S. R. 208 Eastbound					S. R. 208 Westbound					Veterans Road Northbound					Commercial driveway Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 01:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	2	77	7	1	87	16	71	14	0	101	1	1	11	0	13	10	1	5	0	16	217
01:00 PM	1	61	3	0	65	12	73	5	0	90	4	0	19	0	23	10	0	4	0	14	192
01:15 PM	3	72	4	0	79	14	75	11	0	100	5	3	13	0	21	11	0	2	0	13	213
01:30 PM	1	74	3	0	78	14	68	14	0	96	1	0	14	0	15	7	2	4	0	13	202
Total Volume	7	284	17	1	309	56	287	44	0	387	11	4	57	0	72	38	3	15	0	56	824
% App. Total	2.3	91.9	5.5	0.3		14.5	74.2	11.4	0		15.3	5.6	79.2	0		67.9	5.4	26.8	0		
PHF	.583	.922	.607	.250	.888	.875	.957	.786	.000	.958	.550	.333	.750	.000	.783	.864	.375	.750	.000	.875	.949
Vehicles	7	282	17	1	307	56	280	44	0	380	11	4	57	0	72	38	3	15	0	56	815
% Vehicles	100	99.3	100	100	99.4	100	97.6	100	0	98.2	100	100	100	0	100	100	100	100	0	100	98.9
Heavy Duty Vehicles	0	2	0	0	2	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	9
% Heavy Duty Vehicles	0	0.7	0	0	0.6	0	2.4	0	0	1.8	0	0	0	0	0	0	0	0	0	0	1.1

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and Prime Outlet Dr./S. R. 258

File Name : mcrpc00_16003_#3_sat
Site Code : 16003003
Start Date : 3/5/2016
Page No : 1

Groups Printed- Vehicles - Heavy Duty Vehicles

	S. R. 208 Eastbound					S. R. 208 Westbound					Prime Outlet Dr. Northbound					S. R. 258 Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
11:00 AM	12	38	12	1	63	103	62	2	0	167	10	6	12	22	50	37	22	15	8	82	362
11:15 AM	8	46	5	6	65	93	52	0	0	145	11	6	7	26	50	40	9	8	13	70	330
11:30 AM	13	56	11	7	87	88	66	0	0	154	9	7	10	34	60	42	12	8	6	68	369
11:45 AM	14	60	16	12	102	124	52	0	0	176	18	14	11	25	68	54	21	10	11	96	442
Total	47	200	44	26	317	408	232	2	0	642	48	33	40	107	228	173	64	41	38	316	1503
12:00 PM	3	54	16	7	80	105	67	0	1	173	17	9	14	41	81	43	13	3	11	70	404
12:15 PM	14	38	12	13	77	114	64	0	0	178	14	10	15	39	78	49	18	8	6	81	414
12:30 PM	7	58	12	9	86	109	80	0	0	189	16	9	12	38	75	40	18	3	6	67	417
12:45 PM	13	63	33	10	119	144	70	0	0	214	21	14	18	55	108	53	26	8	9	96	537
Total	37	213	73	39	362	472	281	0	1	754	68	42	59	173	342	185	75	22	32	314	1772
01:00 PM	6	50	30	11	97	78	68	1	0	147	20	10	20	49	99	38	14	5	4	61	404
01:15 PM	14	61	19	15	109	111	73	0	0	184	22	14	25	46	107	40	14	2	8	64	464
01:30 PM	8	47	24	6	85	81	65	0	0	146	27	11	23	51	112	52	22	7	7	88	431
01:45 PM	11	52	12	16	91	134	50	0	0	184	32	8	16	55	111	38	20	3	3	64	450
Total	39	210	85	48	382	404	256	1	0	661	101	43	84	201	429	168	70	17	22	277	1749
Grand Total	123	623	202	113	1061	1284	769	3	1	2057	217	118	183	481	999	526	209	80	92	907	5024
Apprch %	11.6	58.7	19	10.7		62.4	37.4	0.1	0		21.7	11.8	18.3	48.1		58	23	8.8	10.1		
Total %	2.4	12.4	4	2.2	21.1	25.6	15.3	0.1	0	40.9	4.3	2.3	3.6	9.6	19.9	10.5	4.2	1.6	1.8	18.1	
Vehicles	123	609	201	111	1044	1279	751	3	1	2034	215	118	182	480	995	520	209	80	91	900	4973
% Vehicles	100	97.8	99.5	98.2	98.4	99.6	97.7	100	100	98.9	99.1	100	99.5	99.8	99.6	98.9	100	100	98.9	99.2	99
Heavy Duty Vehicles	0	14	1	2	17	5	18	0	0	23	2	0	1	1	4	6	0	0	1	7	51
% Heavy Duty Vehicles	0	2.2	0.5	1.8	1.6	0.4	2.3	0	0	1.1	0.9	0	0.5	0.2	0.4	1.1	0	0	1.1	0.8	1

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and Prime Outlet Dr./S. R. 258

File Name : mcrpc00_16003_#3_sat
Site Code : 16003003
Start Date : 3/5/2016

	S. R. 208 Eastbound					S. R. 208 Westbound					Prime Outlet Dr. Northbound					S. R. 258 Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 01:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	13	63	33	10	119	144	70	0	0	214	21	14	18	55	108	53	26	8	9	96	537
01:00 PM	6	50	30	11	97	78	68	1	0	147	20	10	20	49	99	38	14	5	4	61	404
01:15 PM	14	61	19	15	109	111	73	0	0	184	22	14	25	46	107	40	14	2	8	64	464
01:30 PM	8	47	24	6	85	81	65	0	0	146	27	11	23	51	112	52	22	7	7	88	431
Total Volume	41	221	106	42	410	414	276	1	0	691	90	49	86	201	426	183	76	22	28	309	1836
% App. Total	10	53.9	25.9	10.2		59.9	39.9	0.1	0		21.1	11.5	20.2	47.2		59.2	24.6	7.1	9.1		
PHF	.732	.877	.803	.700	.861	.719	.945	.250	.000	.807	.833	.875	.860	.914	.951	.863	.731	.688	.778	.805	.855
Vehicles	41	214	105	42	402	411	270	1	0	682	89	49	85	200	423	180	76	22	28	306	1813
% Vehicles	100	96.8	99.1	100	98.0	99.3	97.8	100	0	98.7	98.9	100	98.8	99.5	99.3	98.4	100	100	100	99.0	98.7
Heavy Duty Vehicles	0	7	1	0	8	3	6	0	0	9	1	0	1	1	3	3	0	0	0	3	23
% Heavy Duty Vehicles	0	3.2	0.9	0	2.0	0.7	2.2	0	0	1.3	1.1	0	1.2	0.5	0.7	1.6	0	0	0	1.0	1.3

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and I-79 SB Ramps

File Name : mcrpc00_16003_#5_sat
Site Code : 16003005
Start Date : 3/5/2016
Page No : 1

Groups Printed- Vehicles - Heavy Duty Vehicles

	S. R. 208 Eastbound					S. R. 208 Westbound					I-79 SB On-ramp Northbound					I-79 SB Off-ramp Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
11:00 AM	0	80	29	4	113	15	150	0	0	165	0	0	0	0	0	10	0	20	51	81	359
11:15 AM	0	87	24	9	120	16	127	0	0	143	0	0	0	0	0	9	0	22	45	76	339
11:30 AM	0	111	32	10	153	25	135	0	0	160	0	0	0	0	0	13	0	24	47	84	397
11:45 AM	0	103	31	12	146	11	158	0	0	169	0	0	0	0	0	17	0	20	49	86	401
Total	0	381	116	35	532	67	570	0	0	637	0	0	0	0	0	49	0	86	192	327	1496
12:00 PM	0	101	42	11	154	24	153	0	0	177	0	0	0	0	0	14	0	11	60	85	416
12:15 PM	0	87	36	19	142	21	147	0	0	168	0	0	0	0	0	9	0	16	53	78	388
12:30 PM	0	103	30	12	145	12	170	0	0	182	0	0	0	0	0	10	0	8	67	85	412
12:45 PM	0	137	29	21	187	25	166	0	0	191	0	0	0	0	0	16	0	22	55	93	471
Total	0	428	137	63	628	82	636	0	0	718	0	0	0	0	0	49	0	57	235	341	1687
01:00 PM	0	111	33	11	155	16	124	0	0	140	0	0	0	0	0	16	0	14	47	77	372
01:15 PM	0	116	28	19	163	21	146	0	0	167	0	2	0	0	2	14	0	24	49	87	419
01:30 PM	0	126	22	24	172	22	150	0	0	172	0	0	0	0	0	16	0	17	48	81	425
01:45 PM	0	117	31	13	161	18	154	0	0	172	0	0	0	0	0	15	0	11	49	75	408
Total	0	470	114	67	651	77	574	0	0	651	0	2	0	0	2	61	0	66	193	320	1624
Grand Total	0	1279	367	165	1811	226	1780	0	0	2006	0	2	0	0	2	159	0	209	620	988	4807
Apprch %	0	70.6	20.3	9.1		11.3	88.7	0	0		0	100	0	0		16.1	0	21.2	62.8		
Total %	0	26.6	7.6	3.4	37.7	4.7	37	0	0	41.7	0	0	0	0	0	3.3	0	4.3	12.9	20.6	
Vehicles	0	1261	363	164	1788	221	1763	0	0	1984	0	2	0	0	2	154	0	199	616	969	4743
% Vehicles	0	98.6	98.9	99.4	98.7	97.8	99	0	0	98.9	0	100	0	0	100	96.9	0	95.2	99.4	98.1	98.7
Heavy Duty Vehicles	0	18	4	1	23	5	17	0	0	22	0	0	0	0	0	5	0	10	4	19	64
% Heavy Duty Vehicles	0	1.4	1.1	0.6	1.3	2.2	1	0	0	1.1	0	0	0	0	0	3.1	0	4.8	0.6	1.9	1.3

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and I-79 SB Ramps

File Name : mcrpc00_16003_#5_sat
Site Code : 16003005
Start Date : 3/5/2016

	S. R. 208 Eastbound					S. R. 208 Westbound					I-79 SB On-ramp Northbound					I-79 SB Off-ramp Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 01:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	0	137	29	21	187	25	166	0	0	191	0	0	0	0	0	16	0	22	55	93	471
01:00 PM	0	111	33	11	155	16	124	0	0	140	0	0	0	0	0	16	0	14	47	77	372
01:15 PM	0	116	28	19	163	21	146	0	0	167	0	2	0	0	2	14	0	24	49	87	419
01:30 PM	0	126	22	24	172	22	150	0	0	172	0	0	0	0	0	16	0	17	48	81	425
Total Volume	0	490	112	75	677	84	586	0	0	670	0	2	0	0	2	62	0	77	199	338	1687
% App. Total	0	72.4	16.5	11.1		12.5	87.5	0	0		0	100	0	0		18.3	0	22.8	58.9		
PHF	.000	.894	.848	.781	.905	.840	.883	.000	.000	.877	.000	.250	.000	.000	.250	.969	.000	.802	.905	.909	.895
Vehicles	0	479	111	75	665	83	578	0	0	661	0	2	0	0	2	60	0	72	198	330	1658
% Vehicles	0	97.8	99.1	100	98.2	98.8	98.6	0	0	98.7	0	100	0	0	100	96.8	0	93.5	99.5	97.6	98.3
Heavy Duty Vehicles	0	11	1	0	12	1	8	0	0	9	0	0	0	0	0	2	0	5	1	8	29
% Heavy Duty Vehicles	0	2.2	0.9	0	1.8	1.2	1.4	0	0	1.3	0	0	0	0	0	3.2	0	6.5	0.5	2.4	1.7

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and I-79 NB Ramps

File Name : mcrpc00_16003_#6_Sat
Site Code : 16003006
Start Date : 3/5/2016
Page No : 1

Groups Printed- Vehicles - Heavy Duty Vehicles

	S. R. 208 Eastbound					S. R. 208 Westbound					I-79 NB Off-ramp Northbound					I-79 NB On-ramp Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
11:00 AM	29	68	0	0	97	0	118	11	0	129	49	0	22	0	71	0	0	0	0	0	297
11:15 AM	27	70	0	0	97	0	95	19	0	114	46	0	21	0	67	0	0	0	0	0	278
11:30 AM	25	90	0	0	115	0	110	13	0	123	51	0	28	0	79	0	0	0	0	0	317
11:45 AM	27	98	0	0	125	0	114	12	0	126	59	0	20	0	79	0	0	0	0	0	330
Total	108	326	0	0	434	0	437	55	0	492	205	0	91	0	296	0	0	0	0	0	1222
12:00 PM	37	78	0	0	115	0	119	18	3	140	52	0	19	0	71	0	0	0	0	0	326
12:15 PM	29	67	0	0	96	0	122	21	0	143	44	0	18	0	62	0	0	0	0	0	301
12:30 PM	31	80	0	0	111	0	128	16	8	152	60	0	25	0	85	0	0	0	0	0	348
12:45 PM	46	107	0	0	153	0	138	23	2	163	57	0	20	0	77	0	0	0	0	0	393
Total	143	332	0	0	475	0	507	78	13	598	213	0	82	0	295	0	0	0	0	0	1368
01:00 PM	32	97	0	0	129	0	93	19	7	119	50	0	14	0	64	0	0	0	0	0	312
01:15 PM	43	86	0	0	129	0	126	7	4	137	44	0	24	0	68	0	0	0	0	0	334
01:30 PM	57	87	0	0	144	0	125	15	4	144	60	0	25	0	85	0	0	0	0	0	373
01:45 PM	45	88	0	0	133	0	118	13	2	133	50	0	16	0	66	0	0	0	0	0	332
Total	177	358	0	0	535	0	462	54	17	533	204	0	79	0	283	0	0	0	0	0	1351
Grand Total	428	1016	0	0	1444	0	1406	187	30	1623	622	0	252	0	874	0	0	0	0	0	3941
Apprch %	29.6	70.4	0	0		0	86.6	11.5	1.8		71.2	0	28.8	0		0	0	0	0		
Total %	10.9	25.8	0	0	36.6	0	35.7	4.7	0.8	41.2	15.8	0	6.4	0	22.2	0	0	0	0	0	
Vehicles	421	1005	0	0	1426	0	1393	183	29	1605	614	0	250	0	864	0	0	0	0	0	3895
% Vehicles	98.4	98.9	0	0	98.8	0	99.1	97.9	96.7	98.9	98.7	0	99.2	0	98.9	0	0	0	0	0	98.8
Heavy Duty Vehicles	7	11	0	0	18	0	13	4	1	18	8	0	2	0	10	0	0	0	0	0	46
% Heavy Duty Vehicles	1.6	1.1	0	0	1.2	0	0.9	2.1	3.3	1.1	1.3	0	0.8	0	1.1	0	0	0	0	0	1.2

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and I-79 NB Ramps

File Name : mcrpc00_16003_#6_Sat
Site Code : 16003006
Start Date : 3/5/2016

	S. R. 208 Eastbound					S. R. 208 Westbound					I-79 NB Off-ramp Northbound					I-79 NB On-ramp Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 01:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	46	107	0	0	153	0	138	23	2	163	57	0	20	0	77	0	0	0	0	0	393
01:00 PM	32	97	0	0	129	0	93	19	7	119	50	0	14	0	64	0	0	0	0	0	312
01:15 PM	43	86	0	0	129	0	126	7	4	137	44	0	24	0	68	0	0	0	0	0	334
01:30 PM	57	87	0	0	144	0	125	15	4	144	60	0	25	0	85	0	0	0	0	0	373
Total Volume	178	377	0	0	555	0	482	64	17	563	211	0	83	0	294	0	0	0	0	0	1412
% App. Total	32.1	67.9	0	0		0	85.6	11.4	3		71.8	0	28.2	0		0	0	0	0		
PHF	.781	.881	.000	.000	.907	.000	.873	.696	.607	.863	.879	.000	.830	.000	.865	.000	.000	.000	.000	.000	.898
Vehicles	173	371	0	0	544	0	477	63	17	557	208	0	83	0	291	0	0	0	0	0	1392
% Vehicles	97.2	98.4	0	0	98.0	0	99.0	98.4	100	98.9	98.6	0	100	0	99.0	0	0	0	0	0	98.6
Heavy Duty Vehicles	5	6	0	0	11	0	5	1	0	6	3	0	0	0	3	0	0	0	0	0	20
% Heavy Duty Vehicles	2.8	1.6	0	0	2.0	0	1.0	1.6	0	1.1	1.4	0	0	0	1.0	0	0	0	0	0	1.4

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and S. R. 258

File Name : mcrpc00_16003_#4_sat
Site Code : 16003004
Start Date : 2/27/2016
Page No : 1

Groups Printed- Vehicles - Heavy Duty Vehicles

	S. R. 208 Eastbound					S. R. 208 Westbound					S. R. 258 Northbound					S. R. 258 Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
11:00 AM	0	57	16	2	75	2	72	1	0	75	31	0	4	3	38	0	0	0	0	0	188
11:15 AM	0	84	12	2	98	6	88	1	0	95	35	2	3	2	42	0	0	0	0	0	235
11:30 AM	0	86	12	8	106	6	95	2	0	103	36	1	2	5	44	0	0	1	0	1	254
11:45 AM	1	109	20	4	134	7	117	0	0	124	52	0	1	1	54	1	1	0	1	3	315
Total	1	336	60	16	413	21	372	4	0	397	154	3	10	11	178	1	1	1	1	4	992
12:00 PM	0	80	26	5	111	4	90	0	0	94	39	0	4	2	45	0	0	0	0	0	250
12:15 PM	2	85	23	6	116	7	110	0	0	117	39	0	4	2	45	0	1	1	0	2	280
12:30 PM	0	68	17	7	92	1	94	2	0	97	48	0	4	2	54	1	0	0	0	1	244
12:45 PM	0	78	28	7	113	2	128	0	0	130	45	0	3	1	49	1	0	0	0	1	293
Total	2	311	94	25	432	14	422	2	0	438	171	0	15	7	193	2	1	1	0	4	1067
01:00 PM	0	69	20	4	93	6	79	1	0	86	48	1	2	0	51	2	1	2	0	5	235
01:15 PM	0	68	17	4	89	5	94	1	0	100	41	0	2	0	43	1	0	0	0	1	233
01:30 PM	0	83	22	5	110	2	91	0	0	93	41	1	4	0	46	0	0	0	0	0	249
01:45 PM	0	81	20	5	106	3	108	0	0	111	31	0	3	2	36	0	1	0	0	1	254
Total	0	301	79	18	398	16	372	2	0	390	161	2	11	2	176	3	2	2	0	7	971
Grand Total	3	948	233	59	1243	51	1166	8	0	1225	486	5	36	20	547	6	4	4	1	15	3030
Apprch %	0.2	76.3	18.7	4.7		4.2	95.2	0.7	0		88.8	0.9	6.6	3.7		40	26.7	26.7	6.7		
Total %	0.1	31.3	7.7	1.9	41	1.7	38.5	0.3	0	40.4	16	0.2	1.2	0.7	18.1	0.2	0.1	0.1	0	0.5	
Vehicles	3	939	226	59	1227	51	1149	8	0	1208	479	5	36	20	540	6	4	4	1	15	2990
% Vehicles	100	99.1	97	100	98.7	100	98.5	100	0	98.6	98.6	100	100	100	98.7	100	100	100	100	100	98.7
Heavy Duty Vehicles	0	9	7	0	16	0	17	0	0	17	7	0	0	0	7	0	0	0	0	0	40
% Heavy Duty Vehicles	0	0.9	3	0	1.3	0	1.5	0	0	1.4	1.4	0	0	0	1.3	0	0	0	0	0	1.3

Trans Associates

Twin Tower, Suite 400
4955 Steubenville Pike
Pittsburgh, PA, 15205

S. R. 208 and S. R. 258

File Name : mcrpc00_16003_#4_sat
Site Code : 16003004
Start Date : 2/27/2016

	S. R. 208 Eastbound					S. R. 208 Westbound					S. R. 258 Northbound					S. R. 258 Southbound					
Start Time	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Left	Thru	Right	Rt. on Red	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 01:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	0	78	28	7	113	2	128	0	0	130	45	0	3	1	49	1	0	0	0	1	293
01:00 PM	0	69	20	4	93	6	79	1	0	86	48	1	2	0	51	2	1	2	0	5	235
01:15 PM	0	68	17	4	89	5	94	1	0	100	41	0	2	0	43	1	0	0	0	1	233
01:30 PM	0	83	22	5	110	2	91	0	0	93	41	1	4	0	46	0	0	0	0	0	249
Total Volume	0	298	87	20	405	15	392	2	0	409	175	2	11	1	189	4	1	2	0	7	1010
% App. Total	0	73.6	21.5	4.9		3.7	95.8	0.5	0		92.6	1.1	5.8	0.5		57.1	14.3	28.6	0		
PHF	.000	.898	.777	.714	.896	.625	.766	.500	.000	.787	.911	.500	.688	.250	.926	.500	.250	.250	.000	.350	.862
Vehicles	0	297	82	20	399	15	389	2	0	406	173	2	11	1	187	4	1	2	0	7	999
% Vehicles	0	99.7	94.3	100	98.5	100	99.2	100	0	99.3	98.9	100	100	100	98.9	100	100	100	0	100	98.9
Heavy Duty Vehicles	0	1	5	0	6	0	3	0	0	3	2	0	0	0	2	0	0	0	0	0	11
% Heavy Duty Vehicles	0	0.3	5.7	0	1.5	0	0.8	0	0	0.7	1.1	0	0	0	1.1	0	0	0	0	0	1.1

Table 355
Average Day of Week by Month Factors Compiled for Total Vehicles

The following 12 tables show average day of week factors by month compiled for total vehicles for the year 2014. Current year permanent site traffic data is assembled and the data is placed in the respective TPG. Annual Average Daily Traffic (AADT) is tabulated individually for each of the 75 permanent site stations. A factor is calculated for each day from each station and a list is tabulated by month and day of the week. This data is assembled by day and TPG for each station. The result is a group factor, which can be applied to a 24-hour raw traffic count taken during any day of the year to develop an AADT volume.

January 2014										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	1.070	1.278	1.030	1.144	1.283	1.246	1.165	1.207	1.108	1.633
Tuesday	1.142	1.351	1.072	1.229	1.354	1.304	1.233	1.233	1.243	1.617
Wednesday	1.141	1.342	1.129	1.189	1.319	1.189	1.175	1.289	1.192	1.510
Thursday	1.018	1.259	0.961	1.082	1.207	1.173	1.076	1.175	1.061	1.534
Friday	1.028	1.145	0.953	1.022	1.088	1.099	1.095	1.150	1.067	1.467
Saturday	1.276	1.356	1.285	1.373	1.373	1.443	1.284	1.520	1.420	1.319
Sunday	1.447	1.390	1.546	1.465	1.595	1.730	1.394	1.715	1.582	1.844
DAY OF MONTH	1.160	1.303	1.139	1.215	1.317	1.312	1.203	1.327	1.239	1.561

February 2014										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	1.162	1.306	1.070	1.096	1.237	1.175	1.215	1.243	1.191	1.553
Tuesday	1.070	1.277	1.003	1.110	1.182	1.190	1.140	1.152	1.112	1.681
Wednesday	1.034	1.218	1.084	1.110	1.284	1.250	1.318	1.130	1.058	1.557
Thursday	1.064	1.215	1.039	1.060	1.265	1.138	1.095	1.276	1.126	1.638
Friday	0.997	1.050	0.963	0.960	1.076	1.024	1.127	1.139	1.052	1.483
Saturday	1.265	1.343	1.218	1.259	1.318	1.323	1.354	1.326	1.268	1.533
Sunday	1.352	1.409	1.509	1.446	1.470	1.584	1.604	1.473	1.442	1.718
DAY OF MONTH	1.135	1.260	1.127	1.149	1.262	1.241	1.265	1.248	1.178	1.595

Table 355
Average Day of Week by Month Factors Compiled for Total Vehicles (Continued)

March 2014										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	1.003	1.161	0.986	1.030	1.154	1.069	1.072	1.098	1.065	1.361
Tuesday	0.990	1.164	0.932	1.027	1.150	1.061	1.029	1.057	0.994	1.336
Wednesday	0.991	1.156	0.922	1.036	1.157	1.109	1.005	1.091	0.995	1.331
Thursday	0.936	1.086	0.903	1.004	1.148	1.075	1.007	1.067	0.986	1.367
Friday	0.861	0.931	0.867	0.889	1.019	0.946	0.903	0.987	0.915	1.131
Saturday	1.093	1.158	1.107	1.146	1.194	1.207	1.091	1.239	1.134	1.201
Sunday	1.233	1.133	1.318	1.300	1.462	1.406	1.245	1.395	1.351	1.614
DAY OF MONTH	1.015	1.113	1.005	1.062	1.184	1.125	1.050	1.133	1.063	1.334

April 2014										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	0.944	1.035	0.926	0.932	1.025	0.974	0.975	0.989	0.931	1.086
Tuesday	0.977	1.079	0.957	0.982	1.056	1.110	1.002	1.039	0.946	1.235
Wednesday	0.962	1.060	0.903	0.960	1.039	0.999	0.948	1.033	0.921	1.164
Thursday	0.889	0.981	0.869	0.904	0.986	0.943	0.915	0.975	0.882	1.065
Friday	0.887	0.902	0.881	0.850	0.953	0.905	0.917	0.937	0.888	0.903
Saturday	1.057	1.070	1.075	1.060	1.044	1.099	1.009	1.107	1.033	0.886
Sunday	1.108	1.056	1.263	1.132	1.177	1.113	1.147	1.211	1.143	0.957
DAY OF MONTH	0.975	1.026	0.982	0.974	1.040	1.020	0.988	1.042	0.963	1.042

May 2014										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	1.033	0.986	1.037	0.967	1.095	0.943	0.980	0.959	0.967	0.907
Tuesday	0.930	1.002	0.874	0.914	0.980	0.931	0.917	0.906	0.881	0.907
Wednesday	0.922	1.005	0.863	0.920	0.989	0.931	0.900	0.909	0.866	0.940
Thursday	0.888	0.936	0.858	0.877	0.928	0.901	0.905	0.890	0.863	0.899
Friday	0.833	0.862	0.838	0.805	0.882	0.822	0.832	0.853	0.835	0.753
Saturday	1.040	0.998	1.079	1.006	1.026	0.997	0.964	1.010	1.007	0.662
Sunday	1.081	1.012	1.270	1.069	1.209	1.059	1.097	1.032	1.190	0.671
DAY OF MONTH	0.961	0.972	0.974	0.937	1.016	0.941	0.942	0.937	0.944	0.820

Table 355
Average Day of Week by Month Factors Compiled for Total Vehicles (Continued)

June 2014										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	0.928	0.940	0.906	0.918	0.907	0.885	0.930	0.887	0.917	0.859
Tuesday	0.913	0.979	0.875	0.930	0.896	0.907	0.913	0.901	0.886	0.911
Wednesday	0.907	0.951	0.860	0.916	0.896	0.917	0.888	0.892	0.870	0.927
Thursday	0.881	0.887	0.857	0.881	0.894	0.886	0.891	0.870	0.869	0.894
Friday	0.811	0.779	0.840	0.831	0.845	0.820	0.832	0.805	0.847	0.733
Saturday	0.974	0.920	1.075	1.020	0.973	0.958	0.939	0.934	0.974	0.554
Sunday	1.047	0.933	1.234	1.060	1.061	0.976	0.956	1.020	1.082	0.670
DAY OF MONTH	0.923	0.913	0.950	0.937	0.925	0.907	0.907	0.901	0.921	0.793

July 2014										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	0.899	0.866	0.930	0.899	0.858	0.872	0.957	0.899	0.940	0.812
Tuesday	0.902	0.915	0.889	0.918	0.838	0.897	0.923	0.884	0.897	0.835
Wednesday	0.879	0.882	0.871	0.891	0.816	0.884	0.892	0.861	0.872	0.837
Thursday	0.838	0.801	0.863	0.846	0.794	0.840	0.862	0.828	0.861	0.753
Friday	0.890	0.759	0.987	0.857	0.732	0.845	0.887	0.829	0.954	0.631
Saturday	0.983	0.857	1.155	1.006	0.912	0.936	0.915	0.921	1.023	0.562
Sunday	1.007	0.825	1.310	1.018	0.957	0.954	1.010	0.947	1.053	0.636
DAY OF MONTH	0.914	0.844	1.001	0.919	0.844	0.890	0.921	0.881	0.943	0.724

August 2014										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	0.893	0.839	0.917	0.900	0.819	0.877	0.912	0.859	0.895	0.815
Tuesday	0.906	0.916	0.890	0.916	0.815	0.905	0.908	0.883	0.887	0.885
Wednesday	0.879	0.885	0.869	0.899	0.802	0.884	0.886	0.864	0.871	0.897
Thursday	0.844	0.815	0.961	0.859	0.785	0.842	0.859	0.823	0.853	0.809
Friday	0.811	0.702	0.931	0.799	0.769	0.782	0.811	0.789	0.827	0.666
Saturday	0.956	0.827	1.113	0.977	0.888	0.883	0.952	0.939	0.993	0.546
Sunday	1.021	0.856	1.325	1.020	1.014	0.925	1.011	1.028	1.132	0.597
DAY OF MONTH	0.901	0.834	1.001	0.910	0.842	0.871	0.906	0.884	0.923	0.745

Table 355
Average Day of Week by Month Factors Compiled for Total Vehicles (Continued)

September 2014										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	0.979	0.973	1.016	0.950	0.820	0.936	0.966	0.909	0.907	1.072
Tuesday	0.935	1.026	0.889	0.938	0.833	0.925	0.945	0.878	0.883	1.081
Wednesday	0.911	1.009	0.869	0.922	0.786	0.909	0.894	0.869	0.880	1.040
Thursday	0.883	0.956	0.862	0.896	0.790	0.885	0.903	0.832	0.856	1.045
Friday	0.840	0.825	0.838	0.821	0.763	0.814	0.847	0.800	0.814	0.854
Saturday	0.999	0.953	1.079	1.021	0.928	0.987	1.008	1.020	1.023	0.794
Sunday	1.087	0.949	1.264	1.110	1.012	1.033	1.137	1.077	1.138	0.874
DAY OF MONTH	0.948	0.956	0.974	0.951	0.847	0.927	0.957	0.912	0.929	0.966

October 2014										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	0.948	0.935	0.940	0.935	1.026	0.926	0.974	0.938	0.947	1.173
Tuesday	0.923	1.016	0.893	0.941	0.998	0.939	0.941	0.895	0.892	1.141
Wednesday	0.917	1.011	0.887	0.940	0.974	0.935	0.941	0.907	0.896	1.162
Thursday	0.883	0.934	0.869	0.895	0.957	0.900	0.905	0.871	0.880	1.126
Friday	0.836	0.796	0.851	0.828	0.912	0.835	0.844	0.842	0.833	0.957
Saturday	0.962	1.012	1.109	1.013	1.079	0.985	0.959	1.043	1.033	0.840
Sunday	1.056	0.940	1.264	1.115	1.231	0.999	1.065	1.146	1.136	0.931
DAY OF MONTH	0.932	0.949	0.973	0.952	1.025	0.931	0.947	0.949	0.945	1.047

Table 355
Average Day of Week by Month Factors Compiled for Total Vehicles (Continued)

November 2014										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	0.975	1.086	0.940	1.029	1.009	0.996	1.000	0.987	0.964	1.327
Tuesday	0.936	1.108	0.897	0.977	0.999	0.983	0.946	0.937	0.928	1.164
Wednesday	0.929	1.070	0.914	0.969	1.039	0.981	1.005	0.985	0.981	1.197
Thursday	0.933	1.025	0.952	0.992	1.077	0.974	0.970	0.963	0.916	1.248
Friday	0.898	1.004	0.939	0.944	1.036	0.955	0.956	0.953	0.943	1.380
Saturday	1.065	1.086	1.143	1.095	1.150	1.135	1.100	1.137	1.140	1.076
Sunday	1.166	1.132	1.366	1.207	1.287	1.211	1.261	1.246	1.302	1.373
DAY OF MONTH	0.986	1.073	1.022	1.030	1.085	1.034	1.034	1.030	1.025	1.252

December 2014										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	0.934	0.994	0.941	1.052	1.116	1.052	1.013	1.039	1.001	1.438
Tuesday	0.947	0.981	0.926	1.013	1.104	1.018	1.035	1.063	1.008	1.459
Wednesday	0.970	1.034	0.939	1.037	1.100	1.073	1.031	1.098	1.001	1.426
Thursday	0.927	1.023	1.087	1.090	1.240	1.198	1.020	1.053	0.970	1.413
Friday	0.908	0.958	0.920	0.970	1.123	1.046	0.971	1.022	0.968	1.273
Saturday	1.054	1.080	1.124	1.117	1.132	1.261	1.117	1.248	1.161	1.264
Sunday	1.195	1.167	1.379	1.288	1.267	1.401	1.291	1.327	1.284	1.580
DAY OF MONTH	0.991	1.034	1.045	1.081	1.155	1.150	1.068	1.121	1.056	1.408

APPENDIX D

LEVEL OF SERVICE DEFINITIONS

LEVELS OF SERVICE

Intersection levels of service (LOS) were determined through implementation of the methodology presented in the 2010 *Highway Capacity Manual*, published by the Transportation Research Board.

i. Signalized Intersections

An explanation of level of service at signalized intersections is as follows:

This subsection describes the LOS criteria for the automobile mode. The criteria for the automobile mode are different from those for the nonautomobile modes. Specifically, the automobile-mode criteria are based on performance measures that are field measurable and perceivable by travelers. The criteria for the nonautomobile modes are based on scores reported by travelers indicating their perception of service quality.

LOS can be characterized for the entire intersection, each intersection approach, and each lane group. Control delay alone is used to characterize LOS for the entire intersection of an approach. Control delay and volume-to-capacity ratio are used to characterize LOS for a lane group. Delay quantifies the increase in travel time due to traffic signal control. It is also a surrogate measure of driver discomfort and fuel consumption. The volume-to-capacity ratio quantifies the degree to which a phases's capacity is utilized by a lane group. The following paragraphs describe each LOS.

LOS A describes operations with a control delay of 10 s/veh or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.

LOS B describes operations with control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

LOS C describes operations with control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual *cycle* length is moderate. Individual *cycle failures* (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.

LOS D describes operations with control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.

LOS E describes operations with control delay between 55 and 80 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.

LOS F describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

A lane group can incur a delay less than 80 s/veh when the volume-to-capacity ratio exceeds 1.0. This condition typically occurs when the cycle length is short, the signal progression is favorable, or both. As a result, both the delay and volume-to-capacity ratio are considered when lane group LOS is established. A ratio of 1.0 or more indicates that cycle capacity is fully utilized and represents failure from a capacity prespective (just as delay in excess of 80 s/veh represents failure from a delay perspective).

Exhibit 18-4 lists the LOS thresholds established for the automobile mode at a signalized intersection.

Exhibit 18-4
LOS Criteria: Signalized Intersection

Control Delay (s/veh)	LOS by Volume-to-Capacity (v/c) Ratio[1]	
	v/c ≤ 1.0	**v/c > 1.0**
≤ 10	A	F
> 10 – 20	B	F
> 20 – 35	C	F
> 35 – 55	D	F
> 55 – 80	E	F
> 80	F	F

(1) For approach-based and intersectionwide assessments, LOS is defined solely by control delay.

ii. Unsignalized Intersections

The following level-of-service criteria for two-way stop-controlled and all-way stop-controlled intersections differ from the criteria for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from various kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Thus, a higher level of control delay is acceptable at a signalized intersection for the same level of service.

Level of service for two-way stop-controlled intersections and an all-way stop control intersections is determined by the computed or measured control delay, and is defined for each minor movement. Level of service for two-way stop control is not defined for the intersection as a whole, while level of service for all-way stop control is defined for the intersection as a whole. Level of service criteria are given in Exhibit 19-1 (two-way stop-controlled intersections) and Exhibit 20-2 (all-way stop controlled intersections).

Exhibit 19-1 and Exhibit 20-2
LOS Criteria: Two-Way and All-Way Stop Controlled Intersections

Control Delay (s/veh)	LOS by Volume-to-Capacity (v/c) Ratio [(1)(2)]	
	v/c ≤ 1.0	v/c > 1.0
0 – 10	A	F
> 10 – 15	B	F
> 15 – 25	C	F
> 25 – 35	D	F
> 35 – 50	E	F
> 50	F	F

(1) TWSC: The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.
(2) AWSC: For approaches and intersectionwide assessment, LOS is defined solely by control delay.

APPENDIX E

DESIGN YEAR CAPACITY AND QUEUING ANALYSIS

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	23	300	4	23	410	17	5	1	12	51	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	3	-	-	2	-	-	-2	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	1	0	8	1	0	0	0	0	0	0	0
Mvmt Flow	25	330	4	25	451	19	5	1	13	56	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	469	0	0	334	0	0	903	902	332	900	895	460
Stage 1	-	-	-	-	-	-	382	382	-	510	510	-
Stage 2	-	-	-	-	-	-	521	520	-	390	385	-
Critical Hdwy	4.1	-	-	4.18	-	-	7.5	6.9	6.4	6.7	6.1	6
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.9	-	5.7	5.1	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.9	-	5.7	5.1	-
Follow-up Hdwy	2.2	-	-	2.272	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1103	-	-	1192	-	-	236	253	701	289	312	621
Stage 1	-	-	-	-	-	-	618	591	-	582	572	-
Stage 2	-	-	-	-	-	-	512	505	-	666	641	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1103	-	-	1192	-	-	218	239	701	271	295	621
Mov Cap-2 Maneuver	-	-	-	-	-	-	218	239	-	271	295	-
Stage 1	-	-	-	-	-	-	601	574	-	566	556	-
Stage 2	-	-	-	-	-	-	480	491	-	634	623	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.4	14.3	19.7
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	407	1103	-	-	1192	-	-	322
HCM Lane V/C Ratio	0.049	0.023	-	-	0.021	-	-	0.242
HCM Control Delay (s)	14.3	8.3	0	-	8.1	0	-	19.7
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0.1	-	-	0.9

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	493	39	48	542	32	36	1	35	15	8	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	110	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	1	-	-	-1	-	-	2	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	3	0	3	2	4	0	0	0	0	0	34
Mvmt Flow	4	542	43	53	596	35	40	1	38	16	9	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	631	0	0	585	0	0	980	1308	563	1311	1312	315
Stage 1	-	-	-	-	-	-	572	572	-	719	719	-
Stage 2	-	-	-	-	-	-	408	736	-	592	593	-
Critical Hdwy	4.1	-	-	4.13	-	-	7.1	6.3	6.1	7.7	6.9	7.61
Critical Hdwy Stg 1	-	-	-	-	-	-	5.9	5.3	-	6.9	5.9	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.3	-	6.5	5.9	-
Follow-up Hdwy	2.2	-	-	2.227	-	-	3.5	4	3.3	3.5	4	3.623
Pot Cap-1 Maneuver	961	-	-	985	-	-	231	173	538	110	138	596
Stage 1	-	-	-	-	-	-	525	524	-	360	402	-
Stage 2	-	-	-	-	-	-	610	446	-	465	465	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	961	-	-	985	-	-	208	163	538	97	130	596
Mov Cap-2 Maneuver	-	-	-	-	-	-	208	163	-	97	130	-
Stage 1	-	-	-	-	-	-	522	521	-	358	380	-
Stage 2	-	-	-	-	-	-	560	422	-	428	462	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	21.6	44.2
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	295	961	-	-	985	-	-	121
HCM Lane V/C Ratio	0.268	0.005	-	-	0.054	-	-	0.245
HCM Control Delay (s)	21.6	8.8	0	-	8.9	-	-	44.2
HCM Lane LOS	C	A	A	-	A	-	-	E
HCM 95th %tile Q(veh)	1.1	0	-	-	0.2	-	-	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	432	106	236	575	43	118	0	257	15	0	4
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1774	1774	1774	1756	1756	1791	1791	1756	1756	1836	1800	1836
Adj Flow Rate, veh/h	6	480	118	262	639	48	131	0	286	17	0	4
Adj No. of Lanes	1	1	1	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	472	909	773	520	2147	161	338	0	263	167	8	23
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.51	0.51	0.51	0.13	0.91	0.91	0.18	0.00	0.18	0.18	0.00	0.18
Ln Grp Delay, s/veh	10.2	16.0	11.4	9.5	1.8	1.8	32.4	0.0	115.3	32.1	0.0	0.0
Ln Grp LOS	B	B	B	A	A	A	C		F	C		
Approach Vol, veh/h		604			949			417			21	
Approach Delay, s/veh		15.1			3.9			89.2			32.1	
Approach LOS		B			A			F			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Case No	1.2	5.0		8.0		4.0		7.0
Phs Duration (G+Y+Rc), s	14.4	49.6		21.0		64.0		21.0
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0
Max Green (Gmax), s	18.0	34.0		15.0		58.0		15.0
Max Allow Headway (MAH), s	3.8	8.0		4.6		8.0		4.6
Max Q Clear (g_c+I1), s	7.9	17.4		9.6		4.2		17.0
Green Ext Time (g_e), s	0.5	12.8		1.0		29.3		0.0
Prob of Phs Call (p_c)	1.00	1.00		1.00		1.00		1.00
Prob of Max Out (p_x)	0.01	0.00		0.73		0.00		1.00

Left-Turn Movement Data								
Assigned Mvmt	1	5		7				3
Mvmt Sat Flow, veh/h	1672	756		514				1433

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1774		44		3146		0

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1508		131		236		1492

Left Lane Group Data								
Assigned Mvmt	1	5	0	7	0	0	0	3
Lane Assignment	(Pr/Pm)			L+T+R				L+T
Lanes in Grp	1	1	0	1	0	0	0	1

Grp Vol (v), veh/h	262	6	0	21	0	0	0	131
Grp Sat Flow (s), veh/h/ln	1672	756	0	690	0	0	0	1433
Q Serve Time (g_s), s	5.9	0.3	0.0	0.7	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	5.9	0.3	0.0	7.6	0.0	0.0	0.0	6.9
Perm LT Sat Flow (s_l), veh/h/ln	813	756	0	1110	0	0	0	1435
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	1467
Perm LT Eff Green (g_p), s	45.6	43.6	0.0	15.0	0.0	0.0	0.0	15.0
Perm LT Serve Time (g_u), s	28.2	43.6	0.0	8.1	0.0	0.0	0.0	7.4
Perm LT Q Serve Time (g_ps), s	7.8	0.3	0.0	0.7	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	1.00	0.00	0.81	0.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	520	472	0	198	0	0	0	338
V/C Ratio (X)	0.50	0.01	0.00	0.11	0.00	0.00	0.00	0.39
Avail Cap (c_a), veh/h	708	472	0	198	0	0	0	338
Upstream Filter (I)	0.71	1.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	9.0	10.2	0.0	31.9	0.0	0.0	0.0	31.7
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.2	0.0	0.0	0.0	0.7
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	9.5	10.2	0.0	32.1	0.0	0.0	0.0	32.4
1st-Term Q (Q1), veh/ln	2.7	0.1	0.0	0.4	0.0	0.0	0.0	2.8
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	2.7	0.1	0.0	0.5	0.0	0.0	0.0	2.8
%ile Storage Ratio (RQ%)	0.20	0.09	0.00	0.06	0.00	0.00	0.00	0.33
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	480	0	0	0	338	0	0
Grp Sat Flow (s), veh/h/ln	0	1774	0	0	0	1668	0	0
Q Serve Time (g_s), s	0.0	15.4	0.0	0.0	0.0	2.2	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	15.4	0.0	0.0	0.0	2.2	0.0	0.0
Lane Grp Cap (c), veh/h	0	909	0	0	0	1138	0	0
V/C Ratio (X)	0.00	0.53	0.00	0.00	0.00	0.30	0.00	0.00
Avail Cap (c_a), veh/h	0	909	0	0	0	1138	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.71	0.00	0.00
Uniform Delay (d1), s/veh	0.0	13.8	0.0	0.0	0.0	1.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.2	0.0	0.0	0.0	0.5	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	16.0	0.0	0.0	0.0	1.8	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	7.5	0.0	0.0	0.0	0.9	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.0	0.0	0.2	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	8.0	0.0	0.0	0.0	1.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.89	0.00	0.00	0.00	0.03	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R				T+R		R
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	118	0	0	0	349	0	286
Grp Sat Flow (s), veh/h/ln	0	1508	0	0	0	1714	0	1492
Q Serve Time (g_s), s	0.0	3.5	0.0	0.0	0.0	2.2	0.0	15.0
Cycle Q Clear Time (g_c), s	0.0	3.5	0.0	0.0	0.0	2.2	0.0	15.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	0.19	0.00	0.14	0.00	1.00
Lane Grp Cap (c), veh/h	0	773	0	0	0	1170	0	263
V/C Ratio (X)	0.00	0.15	0.00	0.00	0.00	0.30	0.00	1.09
Avail Cap (c_a), veh/h	0	773	0	0	0	1170	0	263
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.71	0.00	1.00
Uniform Delay (d1), s/veh	0.0	11.0	0.0	0.0	0.0	1.3	0.0	35.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.0	0.5	0.0	80.3
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	11.4	0.0	0.0	0.0	1.8	0.0	115.3
1st-Term Q (Q1), veh/ln	0.0	1.4	0.0	0.0	0.0	0.9	0.0	6.1
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.2	0.0	5.9
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	1.5	0.0	0.0	0.0	1.0	0.0	12.0
%ile Storage Ratio (RQ%)	0.00	0.22	0.00	0.00	0.00	0.03	0.00	1.41
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	25.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	134	601	69	262	616	6	72	39	226	177	31	126
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1809	1768	1809	1756	1718	1791	1809	1809	1774	1704	1741	1755
Adj Flow Rate, veh/h	144	646	74	282	662	6	77	42	0	190	33	135
Adj No. of Lanes	1	2	0	2	2	0	1	1	1	1	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	2	2	4	4	0	0	2	3	4	4
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	182	1172	134	371	1307	12	202	170	142	381	477	427
HCM Platoon Ratio	0.33	0.33	0.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.03	0.13	0.13	0.15	0.52	0.52	0.09	0.09	0.00	0.12	0.29	0.29
Ln Grp Delay, s/veh	46.3	32.9	32.9	37.8	17.4	17.2	38.4	36.5	0.0	28.8	22.0	24.1
Ln Grp LOS	D	C	C	D	B	B	D	D		C	C	C
Approach Vol, veh/h		864			950			119			358	
Approach Delay, s/veh		35.1			23.4			37.7			26.4	
Approach LOS		D			C			D			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6	7	8
Case No	2.0	4.0		4.0	2.0	4.0	1.2	5.0
Phs Duration (G+Y+Rc), s	15.7	38.8		30.5	15.0	39.5	16.5	14.0
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0
Max Green (Gmax), s	18.0	16.0		33.0	18.0	16.0	12.0	15.0
Max Allow Headway (MAH), s	3.8	8.1		5.2	3.8	8.1	3.9	5.2
Max Q Clear (g_c+I1), s	9.1	19.0		8.1	9.1	13.0	10.6	7.1
Green Ext Time (g_e), s	0.6	0.0		1.6	0.2	2.7	0.1	0.9
Prob of Phs Call (p_c)	1.00	1.00		1.00	0.97	1.00	0.99	1.00
Prob of Max Out (p_x)	0.02	1.00		0.00	0.01	1.00	1.00	0.34

Left-Turn Movement Data								
Assigned Mvmt	1				5		7	3
Mvmt Sat Flow, veh/h	3244				1723		1623	1243

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		3039		1654		3314		1809

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		348		1480		30		1508

Left Lane Group Data								
Assigned Mvmt	1	0	0	0	5	0	7	3
Lane Assignment	(Prot)				(Prot)		(Pr/Pm)	
Lanes in Grp	2	0	0	0	1	0	1	1

Grp Vol (v), veh/h	282	0	0	0	144	0	190	77
Grp Sat Flow (s), veh/h/ln	1622	0	0	0	1723	0	1623	1243
Q Serve Time (g_s), s	7.1	0.0	0.0	0.0	7.1	0.0	8.6	5.1
Cycle Q Clear Time (g_c), s	7.1	0.0	0.0	0.0	7.1	0.0	8.6	5.1
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	1312	1243
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	10.0	8.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	6.2	8.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.6	5.1
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00
Lane Grp Cap (c), veh/h	371	0	0	0	182	0	381	202
V/C Ratio (X)	0.76	0.00	0.00	0.00	0.79	0.00	0.50	0.38
Avail Cap (c_a), veh/h	687	0	0	0	365	0	409	304
Upstream Filter (I)	0.88	0.00	0.00	0.00	0.81	0.00	1.00	1.00
Uniform Delay (d1), s/veh	34.9	0.0	0.0	0.0	40.1	0.0	27.8	37.2
Incr Delay (d2), s/veh	2.9	0.0	0.0	0.0	6.2	0.0	1.0	1.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	37.8	0.0	0.0	0.0	46.3	0.0	28.8	38.4
1st-Term Q (Q1), veh/ln	3.2	0.0	0.0	0.0	3.4	0.0	3.7	1.8
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.0	0.0	0.3	0.0	0.1	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00
%ile Back of Q (50%), veh/ln	3.3	0.0	0.0	0.0	3.7	0.0	3.9	1.8
%ile Storage Ratio (RQ%)	0.18	0.00	0.00	0.00	0.53	0.00	0.79	0.17
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	357	0	33	0	326	0	42
Grp Sat Flow (s), veh/h/ln	0	1680	0	1654	0	1632	0	1809
Q Serve Time (g_s), s	0.0	16.9	0.0	1.2	0.0	11.0	0.0	1.8
Cycle Q Clear Time (g_c), s	0.0	16.9	0.0	1.2	0.0	11.0	0.0	1.8
Lane Grp Cap (c), veh/h	0	648	0	477	0	644	0	170
V/C Ratio (X)	0.00	0.55	0.00	0.07	0.00	0.51	0.00	0.25
Avail Cap (c_a), veh/h	0	648	0	642	0	644	0	319
Upstream Filter (I)	0.00	0.81	0.00	1.00	0.00	0.88	0.00	1.00
Uniform Delay (d1), s/veh	0.0	30.2	0.0	22.0	0.0	14.8	0.0	35.7
Incr Delay (d2), s/veh	0.0	2.7	0.0	0.1	0.0	2.5	0.0	0.7
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	32.9	0.0	22.0	0.0	17.4	0.0	36.5
1st-Term Q (Q1), veh/ln	0.0	7.9	0.0	0.6	0.0	4.9	0.0	0.9
2nd-Term Q (Q2), veh/ln	0.0	0.5	0.0	0.0	0.0	0.4	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	8.4	0.0	0.6	0.0	5.4	0.0	0.9
%ile Storage Ratio (RQ%)	0.00	0.27	0.00	0.03	0.00	0.20	0.00	0.09
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	363	0	135	0	342	0	0
Grp Sat Flow (s), veh/h/ln	0	1707	0	1480	0	1712	0	1508
Q Serve Time (g_s), s	0.0	17.0	0.0	6.1	0.0	11.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	17.0	0.0	6.1	0.0	11.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.20	0.00	1.00	0.00	0.02	0.00	1.00
Lane Grp Cap (c), veh/h	0	658	0	427	0	675	0	142
V/C Ratio (X)	0.00	0.55	0.00	0.32	0.00	0.51	0.00	0.00
Avail Cap (c_a), veh/h	0	658	0	575	0	675	0	266
Upstream Filter (I)	0.00	0.81	0.00	1.00	0.00	0.88	0.00	0.00
Uniform Delay (d1), s/veh	0.0	30.2	0.0	23.7	0.0	14.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.7	0.0	0.4	0.0	2.4	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	32.9	0.0	24.1	0.0	17.2	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	8.1	0.0	2.5	0.0	5.2	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.5	0.0	0.0	0.0	0.4	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	8.5	0.0	2.5	0.0	5.6	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.28	0.00	0.13	0.00	0.21	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	29.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	780	226	170	895	0	0	0	0	178	1	230
Number	5	2	12	1	6	16				7	4	14
Initial Q, veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1764	1713	1731	1782	0				1835	1772	1747
Adj Flow Rate, veh/h	0	830	0	181	952	0				189	1	0
Adj No. of Lanes	0	2	1	1	2	0				0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	1	4	5	2	0				5	100	5
Opposing Right Turn Influence	No			Yes						Yes		
Cap, veh/h	0	1739	755	212	2430	0				237	1	210
HCM Platoon Ratio	1.00	2.00	2.00	2.00	2.00	1.00				1.00	1.00	1.00
Prop Arrive On Green	0.00	1.00	0.00	0.26	1.00	0.00				0.14	0.14	0.00
Ln Grp Delay, s/veh	0.0	0.7	0.0	42.4	0.3	0.0				41.3	0.0	0.0
Ln Grp LOS		A		D	A					D		
Approach Vol, veh/h		830			1133						190	
Approach Delay, s/veh		0.7			7.0						41.3	
Approach LOS		A			A						D	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Case No	2.0	7.0		11.0		4.0		
Phs Duration (G+Y+Rc), s	16.9	50.1		18.0		67.0		
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		
Max Green (Gmax), s	15.0	25.0		27.0		46.0		
Max Allow Headway (MAH), s	3.8	8.1		5.3		8.1		
Max Q Clear (g_c+I1), s	10.9	2.0		11.3		2.0		
Green Ext Time (g_e), s	0.2	20.6		0.9		36.4		
Prob of Phs Call (p_c)	0.99	1.00		0.99		1.00		
Prob of Max Out (p_x)	0.76	0.89		0.01		0.76		

Left-Turn Movement Data								
Assigned Mvmt	1	5		7				
Mvmt Sat Flow, veh/h	1649	0		1679				

Through Movement Data								
Assigned Mvmt		2		4		6		
Mvmt Sat Flow, veh/h		3440		9		3476		

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		
Mvmt Sat Flow, veh/h		1456		1485		0		

Left Lane Group Data								
Assigned Mvmt	1	5	0	7	0	0	0	0
Lane Assignment	(Prot)			L+T				
Lanes in Grp	1	0	0	1	0	0	0	0

Grp Vol (v), veh/h	181	0	0	190	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1649	0	0	1688	0	0	0	0
Q Serve Time (g_s), s	8.9	0.0	0.0	9.3	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	8.9	0.0	0.0	9.3	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	44.1	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	0.99	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	212	0	0	238	0	0	0	0
V/C Ratio (X)	0.86	0.00	0.00	0.80	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	291	0	0	536	0	0	0	0
Upstream Filter (I)	0.67	0.00	0.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	30.8	0.0	0.0	35.3	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	11.6	0.0	0.0	6.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	42.4	0.0	0.0	41.3	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	4.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.7	0.0	0.0	0.4	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	4.7	0.0	0.0	4.7	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.35	0.00	0.00	0.15	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	0
Lane Assignment		T				T		
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	830	0	0	0	952	0	0
Grp Sat Flow (s), veh/h/ln	0	1676	0	0	0	1693	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1739	0	0	0	2430	0	0
V/C Ratio (X)	0.00	0.48	0.00	0.00	0.00	0.39	0.00	0.00
Avail Cap (c_a), veh/h	0	1739	0	0	0	2430	0	0
Upstream Filter (I)	0.00	0.71	0.00	0.00	0.00	0.67	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.7	0.0	0.0	0.0	0.3	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	0
Lane Assignment		R		R				
Lanes in Grp	0	1	0	1	0	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1456	0	1485	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	755	0	210	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	755	0	472	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	7.6
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	230	722	0	0	868	140	137	0	147	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q, veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1809	1791	0	0	1725	1764	1730	1700	1853			
Adj Flow Rate, veh/h	245	768	0	0	923	149	146	0	0			
Adj No. of Lanes	1	2	0	0	2	0	2	1	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	1	2	0	0	2	2	3	0	3			
Opposing Right Turn Influence	Yes			No			Yes					
Cap, veh/h	282	2651	0	0	1539	248	263	136	0			
HCM Platoon Ratio	0.67	0.67	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Prop Arrive On Green	0.11	0.52	0.00	0.00	1.00	1.00	0.08	0.00	0.00			
Ln Grp Delay, s/veh	55.3	7.3	0.0	0.0	1.6	1.6	39.5	0.0	0.0			
Ln Grp LOS	E	A			A	A	D					
Approach Vol, veh/h		1013			1072			146				Timer:
Approach Delay, s/veh		18.9			1.6			39.5				Assigned Phs
Approach LOS		B			A			D				Case No
Phs Duration (G+Y+Rc), s			72.2	12.8		19.9	52.3					
Change Period (Y+Rc), s			6.0	6.0		6.0	6.0					
Max Green (Gmax), s			48.0	25.0		15.0	27.0					
Max Allow Headway (MAH), s			8.1	3.7		3.8	8.1					
Max Q Clear (g_c+I1), s			12.8	5.6		13.9	2.0					
Green Ext Time (g_e), s			30.5	0.4		0.1	22.4					
Prob of Phs Call (p_c)			1.00	0.97		1.00	1.00					
Prob of Max Out (p_x)			0.85	0.00		1.00	0.90					
Left-Turn Movement Data												
Assigned Mvmt				3		5	1					
Mvmt Sat Flow, veh/h				3295		1723	0					
Through Movement Data												
Assigned Mvmt			2	8			6					
Mvmt Sat Flow, veh/h			3493	1700			2913					
Right-Turn Movement Data												
Assigned Mvmt			12	18			16					
Mvmt Sat Flow, veh/h			0	0			456					
Left Lane Group Data												
Assigned Mvmt		0	0	3	0	5	1	0	0			
Lane Assignment						(Prot)						
Lanes in Grp		0	0	2	0	1	0	0	0			
Grp Vol (v), veh/h		0	0	146	0	245	0	0	0			
Grp Sat Flow (s), veh/h/ln		0	0	1648	0	1723	0	0	0			
Q Serve Time (g_s), s		0.0	0.0	3.6	0.0	11.9	0.0	0.0	0.0			

Cycle Q Clear Time (g_c), s	0.0	0.0	3.6	0.0	11.9	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1648	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	46.3	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	263	0	282	0	0	0
V/C Ratio (X)	0.00	0.00	0.56	0.00	0.87	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	969	0	304	0	0	0
Upstream Filter (I)	0.00	0.00	1.00	0.00	0.83	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	37.7	0.0	36.9	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.8	0.0	18.4	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	39.5	0.0	55.3	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	1.6	0.0	5.6	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.1	0.0	1.4	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	1.7	0.0	7.1	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.07	0.00	0.43	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment		T	T			T		
Lanes in Grp	0	2	1	0	0	1	0	0
Grp Vol (v), veh/h	0	768	0	0	0	535	0	0
Grp Sat Flow (s), veh/h/ln	0	1702	1700	0	0	1638	0	0
Q Serve Time (g_s), s	0.0	10.8	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	10.8	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	2651	136	0	0	892	0	0
V/C Ratio (X)	0.00	0.29	0.00	0.00	0.00	0.60	0.00	0.00
Avail Cap (c_a), veh/h	0	2651	500	0	0	892	0	0
Upstream Filter (I)	0.00	0.83	0.00	0.00	0.00	0.54	0.00	0.00
Uniform Delay (d1), s/veh	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.0	1.6	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	7.3	0.0	0.0	0.0	1.6	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.4	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	5.2	0.0	0.0	0.0	0.4	0.0	0.0

%ile Storage Ratio (RQ%)	0.00	0.21	0.00	0.00	0.00	0.01	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment						T+R		
Lanes in Grp	0	0	0	0	0	1	0	0
Grp Vol (v), veh/h	0	0	0	0	0	537	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	1644	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	0	0	0	895	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	895	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.54	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.9
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	511	243	28	680	0	308	3	21	0	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1788	1818	1764	1713	1764	1782	1782	1782	1827	1827	1827
Adj Flow Rate, veh/h	3	549	261	30	731	0	331	3	23	0	0	0
Adj No. of Lanes	1	2	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	2	0	3	3	0	0	0	0	0	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	287	1303	618	330	998	0	449	3	26	0	505	0
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.19	0.19	0.19	0.58	0.58	0.00	0.28	0.28	0.28	0.00	0.00	0.00
Ln Grp Delay, s/veh	37.2	23.0	23.1	18.4	17.7	0.0	34.1	0.0	0.0	0.0	0.0	0.0
Ln Grp LOS	D	C	C	B	B		C					
Approach Vol, veh/h		813			761			357			0	
Approach Delay, s/veh		23.1			17.7			34.1			0.0	
Approach LOS		C			B			C				

Timer:	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Case No		6.0		8.0		6.0		8.0
Phs Duration (G+Y+Rc), s		55.5		29.5		55.5		29.5
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green (Gmax), s		44.0		29.0		44.0		29.0
Max Allow Headway (MAH), s		8.1		0.0		8.1		5.1
Max Q Clear (g_c+I1), s		28.7		0.0		28.4		22.4
Green Ext Time (g_e), s		13.5		0.0		13.7		1.1
Prob of Phs Call (p_c)		1.00		0.00		1.00		1.00
Prob of Max Out (p_x)		0.93		0.00		0.93		0.60

Left-Turn Movement Data								
Assigned Mvmt		5		7		1		3
Mvmt Sat Flow, veh/h		744		0		670		1329

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		2238		1827		1713		12

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1061		0		0		92

Left Lane Group Data								
Assigned Mvmt	0	5	0	7	0	1	0	3
Lane Assignment								L+T+R
Lanes in Grp	0	1	0	0	0	1	0	1

Grp Vol (v), veh/h	0	3	0	0	0	30	0	357
Grp Sat Flow (s), veh/h/ln	0	744	0	0	0	670	0	1433
Q Serve Time (g_s), s	0.0	0.3	0.0	0.0	0.0	2.5	0.0	20.4
Cycle Q Clear Time (g_c), s	0.0	26.7	0.0	0.0	0.0	20.9	0.0	20.4
Perm LT Sat Flow (s_l), veh/h/ln	0	744	0	0	0	670	0	1440
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	49.5	0.0	0.0	0.0	49.5	0.0	23.5
Perm LT Serve Time (g_u), s	0.0	23.1	0.0	0.0	0.0	31.1	0.0	23.5
Perm LT Q Serve Time (g_ps), s	0.0	0.3	0.0	0.0	0.0	2.5	0.0	20.4
Time to First Blk (g_f), s	0.0	0.0	0.0	23.5	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.93
Lane Grp Cap (c), veh/h	0	287	0	0	0	330	0	478
V/C Ratio (X)	0.00	0.01	0.00	0.00	0.00	0.09	0.00	0.75
Avail Cap (c_a), veh/h	0	287	0	0	0	330	0	571
Upstream Filter (I)	0.00	0.96	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	37.2	0.0	0.0	0.0	17.9	0.0	29.6
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.5	0.0	4.4
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	37.2	0.0	0.0	0.0	18.4	0.0	34.1
1st-Term Q (Q1), veh/ln	0.0	0.1	0.0	0.0	0.0	0.5	0.0	8.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	0.0	0.0	0.5	0.0	8.6
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.00	0.00	0.09	0.00	0.14
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		
Lanes in Grp	0	1	0	1	0	1	0	0
Grp Vol (v), veh/h	0	416	0	0	0	731	0	0
Grp Sat Flow (s), veh/h/ln	0	1699	0	1827	0	1713	0	0
Q Serve Time (g_s), s	0.0	18.3	0.0	0.0	0.0	26.4	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	18.3	0.0	0.0	0.0	26.4	0.0	0.0
Lane Grp Cap (c), veh/h	0	989	0	505	0	998	0	0
V/C Ratio (X)	0.00	0.42	0.00	0.00	0.00	0.73	0.00	0.00
Avail Cap (c_a), veh/h	0	989	0	623	0	998	0	0
Upstream Filter (I)	0.00	0.96	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	21.7	0.0	0.0	0.0	12.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.3	0.0	0.0	0.0	4.8	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	23.0	0.0	0.0	0.0	17.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	8.6	0.0	0.0	0.0	12.4	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	1.3	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	9.0	0.0	0.0	0.0	13.7	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.17	0.00	0.00	0.00	1.37	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R						
Lanes in Grp	0	1	0	0	0	0	0	0
Grp Vol (v), veh/h	0	394	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1601	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	18.4	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	18.4	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.66	0.00	0.00	0.00	0.00	0.00	0.06
Lane Grp Cap (c), veh/h	0	932	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	932	0	0	0	0	0	0
Upstream Filter (I)	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	21.8	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	23.1	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	8.1	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	8.5	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	23.0
HCM 2010 LOS	C

Queues
3: Springfield Commons Dwy/Driveway & SR 208

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	6	480	118	262	687	131	286	21
v/c Ratio	0.02	0.52	0.14	0.47	0.29	0.68	0.62	0.07
Control Delay	12.6	17.4	3.2	17.5	12.3	51.9	10.5	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.6	17.4	3.2	17.5	12.3	51.9	10.5	0.5
Queue Length 50th (ft)	2	164	0	87	90	66	0	0
Queue Length 95th (ft)	9	287	28	190	221	123	66	0
Internal Link Dist (ft)		214			796	186		163
Turn Bay Length (ft)	20		175	350				
Base Capacity (vph)	358	920	838	654	2355	230	498	319
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.52	0.14	0.40	0.29	0.57	0.57	0.07

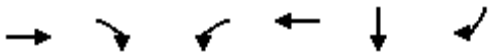
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	144	720	282	668	77	42	243	190	168
v/c Ratio	0.58	0.71	0.59	0.67	0.50	0.18	0.60	0.50	0.16
Control Delay	53.8	26.8	54.8	21.8	45.0	33.1	11.1	25.2	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.8	26.8	54.8	21.8	45.0	33.1	11.1	25.2	5.4
Queue Length 50th (ft)	80	121	81	77	39	20	0	75	6
Queue Length 95th (ft)	138	#317	122	#299	79	47	61	120	24
Internal Link Dist (ft)		796		690		244			490
Turn Bay Length (ft)	175		465					125	
Base Capacity (vph)	364	1013	685	1000	206	319	466	386	1211
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.71	0.41	0.67	0.37	0.13	0.52	0.49	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
5: I-79 SB Off Ramp/I-79 SB On-Ramp & SR 208



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	830	240	181	952	190	245
v/c Ratio	0.54	0.30	0.71	0.41	0.62	0.67
Control Delay	11.7	1.8	34.5	11.4	40.7	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	1.8	34.5	11.4	40.7	25.6
Queue Length 50th (ft)	79	2	89	191	95	63
Queue Length 95th (ft)	115	m7	m116	304	147	129
Internal Link Dist (ft)	690			590	1346	
Turn Bay Length (ft)		430	345			250
Base Capacity (vph)	1547	801	290	2324	567	578
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.30	0.62	0.41	0.34	0.42

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	245	768	1072	131	171
v/c Ratio	0.84	0.32	0.70	0.57	0.51
Control Delay	62.9	0.7	20.6	43.1	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	62.9	0.7	20.6	43.1	12.4
Queue Length 50th (ft)	107	0	217	69	7
Queue Length 95th (ft)	#247	3	305	120	61
Internal Link Dist (ft)		590	1371		1744
Turn Bay Length (ft)	420			625	
Base Capacity (vph)	303	2424	1527	459	518
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	0.32	0.70	0.29	0.33

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBT
Lane Group Flow (vph)	3	810	30	731	357
v/c Ratio	0.01	0.44	0.11	0.78	0.88
Control Delay	10.0	8.0	11.7	23.4	51.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	8.0	11.7	23.4	51.1
Queue Length 50th (ft)	0	47	8	308	169
Queue Length 95th (ft)	m2	108	23	#534	#313
Internal Link Dist (ft)		1371		252	1534
Turn Bay Length (ft)	135		150		
Base Capacity (vph)	221	1843	284	943	449
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.01	0.44	0.11	0.78	0.80

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	424	3	29	372	17	1	1	20	22	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	3	-	-	2	-	-	-2	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	16	446	3	31	392	18	1	1	21	23	0	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	409	0	0	449	0	0	954	950	448	953	943	401
Stage 1	-	-	-	-	-	-	479	479	-	462	462	-
Stage 2	-	-	-	-	-	-	475	471	-	491	481	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.9	6.4	6.7	6.1	6
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.9	-	5.7	5.1	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.9	-	5.7	5.1	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1161	-	-	1122	-	-	216	236	600	268	294	668
Stage 1	-	-	-	-	-	-	542	529	-	614	598	-
Stage 2	-	-	-	-	-	-	545	534	-	594	588	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1161	-	-	1122	-	-	199	223	600	247	278	668
Mov Cap-2 Maneuver	-	-	-	-	-	-	199	223	-	247	278	-
Stage 1	-	-	-	-	-	-	532	519	-	603	576	-
Stage 2	-	-	-	-	-	-	504	515	-	562	577	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.6	12.3	16.1
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	514	1161	-	-	1122	-	-	375
HCM Lane V/C Ratio	0.045	0.014	-	-	0.027	-	-	0.135
HCM Control Delay (s)	12.3	8.1	0	-	8.3	0	-	16.1
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.5

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	9	519	61	74	466	58	32	5	75	50	4	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	110	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	1	-	-	-1	-	-	2	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	9	546	64	78	491	61	34	5	79	53	4	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	552	0	0	611	0	0	1000	1304	578	1316	1306	276
Stage 1	-	-	-	-	-	-	597	597	-	677	677	-
Stage 2	-	-	-	-	-	-	403	707	-	639	629	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.3	6.1	7.7	6.9	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	5.9	5.3	-	6.9	5.9	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.3	-	6.5	5.9	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1028	-	-	978	-	-	224	174	528	109	140	716
Stage 1	-	-	-	-	-	-	510	511	-	384	422	-
Stage 2	-	-	-	-	-	-	614	459	-	436	446	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1028	-	-	978	-	-	197	158	528	84	127	716
Mov Cap-2 Maneuver	-	-	-	-	-	-	197	158	-	84	127	-
Stage 1	-	-	-	-	-	-	503	504	-	379	388	-
Stage 2	-	-	-	-	-	-	542	422	-	362	440	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.1	21.6	88.5
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	333	1028	-	-	978	-	-	113
HCM Lane V/C Ratio	0.354	0.009	-	-	0.08	-	-	0.689
HCM Control Delay (s)	21.6	8.5	0	-	9	-	-	88.5
HCM Lane LOS	C	A	A	-	A	-	-	F
HCM 95th %tile Q(veh)	1.6	0	-	-	0.3	-	-	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	17	463	164	366	461	17	158	0	340	45	0	21
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1774	1774	1774	1756	1756	1791	1791	1756	1756	1836	1800	1836
Adj Flow Rate, veh/h	19	514	182	407	512	19	176	0	378	50	0	23
Adj No. of Lanes	1	1	1	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	484	811	689	518	2239	83	299	0	494	100	13	19
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.46	0.46	0.46	0.21	0.91	0.91	0.18	0.00	0.18	0.18	0.00	0.18
Ln Grp Delay, s/veh	13.0	21.4	15.2	15.6	1.6	1.6	36.7	0.0	32.5	43.0	0.0	0.0
Ln Grp LOS	B	C	B	B	A	A	D		C	D		
Approach Vol, veh/h		715			938			554			73	
Approach Delay, s/veh		19.6			7.7			33.8			43.0	
Approach LOS		B			A			C			D	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Case No	1.2	5.0		8.0		4.0		7.0
Phs Duration (G+Y+Rc), s	19.1	44.9		21.0		64.0		21.0
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0
Max Green (Gmax), s	18.0	34.0		15.0		58.0		15.0
Max Allow Headway (MAH), s	3.8	8.0		4.7		8.0		4.7
Max Q Clear (g_c+I1), s	12.5	20.8		17.0		3.6		17.0
Green Ext Time (g_e), s	0.7	10.2		0.0		27.7		0.0
Prob of Phs Call (p_c)	1.00	1.00		1.00		1.00		1.00
Prob of Max Out (p_x)	0.41	0.00		1.00		0.00		1.00

Left-Turn Movement Data								
Assigned Mvmt	1	5		7				3
Mvmt Sat Flow, veh/h	1672	874		162				1213

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1774		72		3281		0

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1508		108		122		1492

Left Lane Group Data								
Assigned Mvmt	1	5	0	7	0	0	0	3
Lane Assignment	(Pr/Pm)			L+T+R				L+T
Lanes in Grp	1	1	0	1	0	0	0	1

Grp Vol (v), veh/h	407	19	0	73	0	0	0	176
Grp Sat Flow (s), veh/h/ln	1672	874	0	341	0	0	0	1213
Q Serve Time (g_s), s	10.5	1.0	0.0	3.1	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	10.5	1.0	0.0	15.0	0.0	0.0	0.0	11.9
Perm LT Sat Flow (s_l), veh/h/ln	742	874	0	1021	0	0	0	1410
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	1213
Perm LT Eff Green (g_p), s	40.9	38.9	0.0	15.0	0.0	0.0	0.0	15.0
Perm LT Serve Time (g_u), s	20.0	38.9	0.0	3.1	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	20.0	1.0	0.0	3.1	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	1.00	0.00	0.68	0.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	518	484	0	132	0	0	0	299
V/C Ratio (X)	0.79	0.04	0.00	0.55	0.00	0.00	0.00	0.59
Avail Cap (c_a), veh/h	614	484	0	132	0	0	0	299
Upstream Filter (I)	0.61	1.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	12.0	12.8	0.0	37.9	0.0	0.0	0.0	33.7
Incr Delay (d2), s/veh	3.5	0.2	0.0	5.0	0.0	0.0	0.0	3.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	15.6	13.0	0.0	43.0	0.0	0.0	0.0	36.7
1st-Term Q (Q1), veh/ln	4.7	0.2	0.0	1.7	0.0	0.0	0.0	4.0
2nd-Term Q (Q2), veh/ln	0.5	0.0	0.0	0.2	0.0	0.0	0.0	0.3
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	5.2	0.3	0.0	1.9	0.0	0.0	0.0	4.2
%ile Storage Ratio (RQ%)	0.37	0.34	0.00	0.18	0.00	0.00	0.00	0.63
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	514	0	0	0	260	0	0
Grp Sat Flow (s), veh/h/ln	0	1774	0	0	0	1668	0	0
Q Serve Time (g_s), s	0.0	18.8	0.0	0.0	0.0	1.5	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	18.8	0.0	0.0	0.0	1.5	0.0	0.0
Lane Grp Cap (c), veh/h	0	811	0	0	0	1138	0	0
V/C Ratio (X)	0.00	0.63	0.00	0.00	0.00	0.23	0.00	0.00
Avail Cap (c_a), veh/h	0	811	0	0	0	1138	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.61	0.00	0.00
Uniform Delay (d1), s/veh	0.0	17.6	0.0	0.0	0.0	1.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.8	0.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	21.4	0.0	0.0	0.0	1.6	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	9.1	0.0	0.0	0.0	0.7	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.8	0.0	0.0	0.0	0.1	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	10.0	0.0	0.0	0.0	0.8	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	1.10	0.00	0.00	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R				T+R		R
Lanes in Grp	0	1	0	0	0	1	0	1
Grp Vol (v), veh/h	0	182	0	0	0	271	0	378
Grp Sat Flow (s), veh/h/ln	0	1508	0	0	0	1734	0	1492
Q Serve Time (g_s), s	0.0	6.3	0.0	0.0	0.0	1.6	0.0	15.0
Cycle Q Clear Time (g_c), s	0.0	6.3	0.0	0.0	0.0	1.6	0.0	15.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1492.5
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.1
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	0.32	0.00	0.07	0.00	1.00
Lane Grp Cap (c), veh/h	0	689	0	0	0	1183	0	494
V/C Ratio (X)	0.00	0.26	0.00	0.00	0.00	0.23	0.00	0.76
Avail Cap (c_a), veh/h	0	689	0	0	0	1183	0	494
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.61	0.00	1.00
Uniform Delay (d1), s/veh	0.0	14.2	0.0	0.0	0.0	1.3	0.0	25.5
Incr Delay (d2), s/veh	0.0	0.9	0.0	0.0	0.0	0.3	0.0	7.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	15.2	0.0	0.0	0.0	1.6	0.0	32.5
1st-Term Q (Q1), veh/ln	0.0	2.6	0.0	0.0	0.0	0.7	0.0	7.9
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.1	0.0	1.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	2.8	0.0	0.0	0.0	0.8	0.0	8.8
%ile Storage Ratio (RQ%)	0.00	0.41	0.00	0.00	0.00	0.03	0.00	1.32
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	142	492	177	494	535	1	107	59	343	219	91	151
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1809	1753	1809	1773	1739	1791	1774	1809	1774	1721	1755	1755
Adj Flow Rate, veh/h	165	572	206	574	622	1	124	69	0	255	106	176
Adj No. of Lanes	1	2	0	2	2	0	1	1	1	1	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	4	4	1	3	3	2	0	2	2	0	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	205	559	201	654	1061	2	243	260	217	458	593	531
HCM Platoon Ratio	0.33	0.33	0.33	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.04	0.08	0.08	0.13	0.21	0.21	0.14	0.14	0.00	0.14	0.36	0.36
Ln Grp Delay, s/veh	45.6	85.2	87.0	45.4	32.4	32.2	36.8	32.9	0.0	25.7	19.0	20.4
Ln Grp LOS	D	F	F	D	C	C	D	C		C	B	C
Approach Vol, veh/h		943			1197			193			537	
Approach Delay, s/veh		79.0			38.6			35.4			22.6	
Approach LOS		E			D			D			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6	7	8
Case No	2.0	4.0		4.0	2.0	4.0	1.2	5.0
Phs Duration (G+Y+Rc), s	23.0	25.8		36.2	16.1	32.7	18.0	18.2
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0
Max Green (Gmax), s	18.0	16.0		33.0	18.0	16.0	12.0	15.0
Max Allow Headway (MAH), s	3.8	8.2		5.3	3.8	8.2	3.9	5.3
Max Q Clear (g_c+I1), s	16.6	21.8		9.3	10.1	16.1	12.8	11.3
Green Ext Time (g_e), s	0.4	0.0		2.8	0.2	0.0	0.0	1.0
Prob of Phs Call (p_c)	1.00	1.00		1.00	0.98	1.00	1.00	1.00
Prob of Max Out (p_x)	1.00	1.00		0.01	0.03	1.00	1.00	1.00

Left-Turn Movement Data								
Assigned Mvmt	1				5		7	3
Mvmt Sat Flow, veh/h	3276				1723		1639	1098

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		2403		1667		3384		1809

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		863		1492		5		1508

Left Lane Group Data								
Assigned Mvmt	1	0	0	0	5	0	7	3
Lane Assignment	(Prot)				(Prot)		(Pr/Pm)	
Lanes in Grp	2	0	0	0	1	0	1	1

Grp Vol (v), veh/h	574	0	0	0	165	0	255	124
Grp Sat Flow (s), veh/h/ln	1638	0	0	0	1723	0	1639	1098
Q Serve Time (g_s), s	14.6	0.0	0.0	0.0	8.1	0.0	10.8	9.3
Cycle Q Clear Time (g_c), s	14.6	0.0	0.0	0.0	8.1	0.0	10.8	9.3
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	1293	1098
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	14.2	12.2
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	9.3	12.2
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	1.2	9.3
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00
Lane Grp Cap (c), veh/h	654	0	0	0	205	0	458	243
V/C Ratio (X)	0.88	0.00	0.00	0.00	0.80	0.00	0.56	0.51
Avail Cap (c_a), veh/h	694	0	0	0	365	0	458	279
Upstream Filter (I)	0.78	0.00	0.00	0.00	0.78	0.00	1.00	1.00
Uniform Delay (d1), s/veh	35.8	0.0	0.0	0.0	39.9	0.0	24.2	35.1
Incr Delay (d2), s/veh	9.6	0.0	0.0	0.0	5.7	0.0	1.5	1.7
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	45.4	0.0	0.0	0.0	45.6	0.0	25.7	36.8
1st-Term Q (Q1), veh/ln	6.6	0.0	0.0	0.0	3.9	0.0	4.8	2.8
2nd-Term Q (Q2), veh/ln	0.9	0.0	0.0	0.0	0.3	0.0	0.2	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00
%ile Back of Q (50%), veh/ln	7.5	0.0	0.0	0.0	4.2	0.0	5.0	2.9
%ile Storage Ratio (RQ%)	0.41	0.00	0.00	0.00	0.60	0.00	1.02	0.28
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	396	0	106	0	304	0	69
Grp Sat Flow (s), veh/h/ln	0	1665	0	1667	0	1652	0	1809
Q Serve Time (g_s), s	0.0	19.8	0.0	3.7	0.0	14.1	0.0	2.9
Cycle Q Clear Time (g_c), s	0.0	19.8	0.0	3.7	0.0	14.1	0.0	2.9
Lane Grp Cap (c), veh/h	0	388	0	593	0	518	0	260
V/C Ratio (X)	0.00	1.02	0.00	0.18	0.00	0.59	0.00	0.26
Avail Cap (c_a), veh/h	0	388	0	647	0	518	0	319
Upstream Filter (I)	0.00	0.78	0.00	1.00	0.00	0.78	0.00	1.00
Uniform Delay (d1), s/veh	0.0	39.2	0.0	18.8	0.0	28.6	0.0	32.4
Incr Delay (d2), s/veh	0.0	45.9	0.0	0.1	0.0	3.8	0.0	0.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	85.2	0.0	19.0	0.0	32.4	0.0	32.9
1st-Term Q (Q1), veh/ln	0.0	9.1	0.0	1.7	0.0	6.4	0.0	1.4
2nd-Term Q (Q2), veh/ln	0.0	4.9	0.0	0.0	0.0	0.5	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	14.1	0.0	1.7	0.0	7.0	0.0	1.5
%ile Storage Ratio (RQ%)	0.00	0.46	0.00	0.08	0.00	0.26	0.00	0.14
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	382	0	176	0	319	0	0
Grp Sat Flow (s), veh/h/ln	0	1600	0	1492	0	1738	0	1508
Q Serve Time (g_s), s	0.0	19.8	0.0	7.3	0.0	14.1	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	19.8	0.0	7.3	0.0	14.1	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.54	0.00	1.00	0.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	373	0	531	0	545	0	217
V/C Ratio (X)	0.00	1.03	0.00	0.33	0.00	0.59	0.00	0.00
Avail Cap (c_a), veh/h	0	373	0	579	0	545	0	266
Upstream Filter (I)	0.00	0.78	0.00	1.00	0.00	0.78	0.00	0.00
Uniform Delay (d1), s/veh	0.0	39.2	0.0	20.0	0.0	28.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	47.7	0.0	0.4	0.0	3.6	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	87.0	0.0	20.4	0.0	32.2	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	8.8	0.0	3.0	0.0	6.8	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	4.9	0.0	0.1	0.0	0.5	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	13.7	0.0	3.0	0.0	7.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.45	0.00	0.15	0.00	0.27	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	48.6
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	760	270	133	854	0	0	0	0	123	0	371
Number	5	2	12	1	6	16				7	4	14
Initial Q, veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1730	1764	1782	1782	0				1835	1764	1715
Adj Flow Rate, veh/h	0	844	0	148	949	0				137	0	0
Adj No. of Lanes	0	2	1	1	2	0				0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	3	1	2	2	0				7	0	7
Opposing Right Turn Influence	No			Yes						Yes		
Cap, veh/h	0	1894	864	181	2552	0				177	0	153
HCM Platoon Ratio	1.00	2.00	2.00	1.33	1.33	1.00				1.00	1.00	1.00
Prop Arrive On Green	0.00	1.00	0.00	0.14	1.00	0.00				0.11	0.00	0.00
Ln Grp Delay, s/veh	0.0	0.3	0.0	41.0	0.2	0.0				44.1	0.0	0.0
Ln Grp LOS		A		D	A					D		
Approach Vol, veh/h		844			1097						137	
Approach Delay, s/veh		0.3			5.7						44.1	
Approach LOS		A			A						D	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Case No	2.0	7.0		11.0		4.0		
Phs Duration (G+Y+Rc), s	15.1	55.0		14.9		70.1		
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		
Max Green (Gmax), s	15.0	25.0		27.0		46.0		
Max Allow Headway (MAH), s	3.8	8.1		5.0		8.1		
Max Q Clear (g_c+I1), s	9.2	2.0		8.8		2.0		
Green Ext Time (g_e), s	0.2	20.6		0.6		36.6		
Prob of Phs Call (p_c)	0.97	1.00		0.96		1.00		
Prob of Max Out (p_x)	0.16	0.89		0.00		0.77		

Left-Turn Movement Data								
Assigned Mvmt	1	5		7				
Mvmt Sat Flow, veh/h	1697	0		1680				

Through Movement Data								
Assigned Mvmt		2		4		6		
Mvmt Sat Flow, veh/h		3374		0		3476		

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		
Mvmt Sat Flow, veh/h		1500		1457		0		

Left Lane Group Data								
Assigned Mvmt	1	5	0	7	0	0	0	0
Lane Assignment	(Prot)			L+T				
Lanes in Grp	1	0	0	1	0	0	0	0

Grp Vol (v), veh/h	148	0	0	137	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1697	0	0	1680	0	0	0	0
Q Serve Time (g_s), s	7.2	0.0	0.0	6.8	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	7.2	0.0	0.0	6.8	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	49.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	181	0	0	177	0	0	0	0
V/C Ratio (X)	0.82	0.00	0.00	0.78	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	300	0	0	534	0	0	0	0
Upstream Filter (I)	0.60	0.00	0.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	35.7	0.0	0.0	37.1	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	5.3	0.0	0.0	7.1	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	41.0	0.0	0.0	44.1	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	3.4	0.0	0.0	3.1	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	3.7	0.0	0.0	3.5	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.27	0.00	0.00	0.06	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	0
Lane Assignment		T				T		
Lanes in Grp	0	2	0	0	0	2	0	0
Grp Vol (v), veh/h	0	844	0	0	0	949	0	0
Grp Sat Flow (s), veh/h/ln	0	1644	0	0	0	1693	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1894	0	0	0	2552	0	0
V/C Ratio (X)	0.00	0.45	0.00	0.00	0.00	0.37	0.00	0.00
Avail Cap (c_a), veh/h	0	1894	0	0	0	2552	0	0
Upstream Filter (I)	0.00	0.34	0.00	0.00	0.00	0.60	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	0
Lane Assignment		R		R				
Lanes in Grp	0	1	0	1	0	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1500	0	1457	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	864	0	153	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	864	0	463	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	6.0
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	262	620	0	0	719	149	291	0	130	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q, veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1774	1791	0	0	1744	1764	1747	1769	1853			
Adj Flow Rate, veh/h	291	689	0	0	799	166	323	0	0			
Adj No. of Lanes	1	2	0	0	2	0	2	1	0			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	3	2	0	0	1	1	2	0	2			
Opposing Right Turn Influence	Yes			No			Yes					
Cap, veh/h	298	2487	0	0	1321	274	427	227	0			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Prop Arrive On Green	0.06	0.24	0.00	0.00	0.97	0.97	0.13	0.00	0.00			
Ln Grp Delay, s/veh	77.1	14.2	0.0	0.0	2.6	2.7	38.5	0.0	0.0			
Ln Grp LOS	E	B			A	A	D					
Approach Vol, veh/h		980			965			323				Timer:
Approach Delay, s/veh		32.9			2.7			38.5				Assigned Phs
Approach LOS		C			A			D				Case No
Phs Duration (G+Y+Rc), s			68.1	16.9		21.0	47.1					
Change Period (Y+Rc), s			6.0	6.0		6.0	6.0					
Max Green (Gmax), s			48.0	25.0		15.0	27.0					
Max Allow Headway (MAH), s			8.1	3.7		3.8	8.1					
Max Q Clear (g_c+I1), s			16.0	10.0		16.6	4.0					
Green Ext Time (g_e), s			26.4	0.9		0.0	19.8					
Prob of Phs Call (p_c)			1.00	1.00		1.00	1.00					
Prob of Max Out (p_x)			0.80	0.00		1.00	0.87					
Left-Turn Movement Data												
Assigned Mvmt				3		5	1					
Mvmt Sat Flow, veh/h				3328		1689	0					
Through Movement Data												
Assigned Mvmt			2	8			6					
Mvmt Sat Flow, veh/h			3493	1769			2819					
Right-Turn Movement Data												
Assigned Mvmt			12	18			16					
Mvmt Sat Flow, veh/h			0	0			568					
Left Lane Group Data												
Assigned Mvmt		0	0	3	0	5	1	0	0			
Lane Assignment						(Prot)						
Lanes in Grp		0	0	2	0	1	0	0	0			
Grp Vol (v), veh/h		0	0	323	0	291	0	0	0			
Grp Sat Flow (s), veh/h/ln		0	0	1664	0	1689	0	0	0			
Q Serve Time (g_s), s		0.0	0.0	8.0	0.0	14.6	0.0	0.0	0.0			

Cycle Q Clear Time (g_c), s	0.0	0.0	8.0	0.0	14.6	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1664	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	41.1	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	427	0	298	0	0	0
V/C Ratio (X)	0.00	0.00	0.76	0.00	0.98	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	979	0	298	0	0	0
Upstream Filter (I)	0.00	0.00	1.00	0.00	0.70	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	35.8	0.0	39.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.8	0.0	37.3	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	38.5	0.0	77.1	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	3.7	0.0	6.8	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.2	0.0	3.1	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	3.8	0.0	9.9	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.16	0.00	0.61	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment		T	T			T		
Lanes in Grp	0	2	1	0	0	1	0	0
Grp Vol (v), veh/h	0	689	0	0	0	484	0	0
Grp Sat Flow (s), veh/h/ln	0	1702	1769	0	0	1656	0	0
Q Serve Time (g_s), s	0.0	14.0	0.0	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	14.0	0.0	0.0	0.0	2.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	2487	227	0	0	801	0	0
V/C Ratio (X)	0.00	0.28	0.00	0.00	0.00	0.60	0.00	0.00
Avail Cap (c_a), veh/h	0	2487	520	0	0	801	0	0
Upstream Filter (I)	0.00	0.70	0.00	0.00	0.00	0.56	0.00	0.00
Uniform Delay (d1), s/veh	0.0	14.0	0.0	0.0	0.0	0.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.0	1.9	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	14.2	0.0	0.0	0.0	2.6	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	6.6	0.0	0.0	0.0	0.4	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.4	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	6.7	0.0	0.0	0.0	0.8	0.0	0.0

%ile Storage Ratio (RQ%)	0.00	0.28	0.00	0.00	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment						T+R		
Lanes in Grp	0	0	0	0	0	1	0	0
Grp Vol (v), veh/h	0	0	0	0	0	481	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	1643	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	0	0	0	795	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	795	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.56	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.8
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	475	263	25	591	3	355	3	21	5	1	3
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1769	1818	1764	1747	1764	1782	1749	1782	1827	1827	1827
Adj Flow Rate, veh/h	0	552	306	29	687	3	413	3	24	6	1	3
Adj No. of Lanes	1	2	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	1	1	0	1	1	0	0	0	0	0	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	85	1100	609	269	915	4	520	3	25	397	74	173
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.00	0.17	0.17	0.53	0.53	0.53	0.33	0.33	0.33	0.33	0.33	0.33
Ln Grp Delay, s/veh	0.0	27.0	27.1	23.4	0.0	21.3	35.7	0.0	0.0	19.1	0.0	0.0
Ln Grp LOS		C	C	C		C	D			B		
Approach Vol, veh/h		858			719			440			10	
Approach Delay, s/veh		27.0			21.4			35.7			19.1	
Approach LOS		C			C			D			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Case No		6.0		8.0		6.0		8.0
Phs Duration (G+Y+Rc), s		50.8		34.2		50.8		34.2
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green (Gmax), s		44.0		29.0		44.0		29.0
Max Allow Headway (MAH), s		8.1		5.1		8.1		5.1
Max Q Clear (g_c+I1), s		22.4		2.3		28.3		27.9
Green Ext Time (g_e), s		18.5		2.8		13.8		0.3
Prob of Phs Call (p_c)		1.00		1.00		1.00		1.00
Prob of Max Out (p_x)		0.88		0.00		0.93		1.00

Left-Turn Movement Data								
Assigned Mvmt		5		7		1		3
Mvmt Sat Flow, veh/h		773		992		641		1318

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		2089		223		1738		10

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1156		521		8		77

Left Lane Group Data								
Assigned Mvmt	0	5	0	7	0	1	0	3
Lane Assignment				L+T+R				L+T+R
Lanes in Grp	0	1	0	1	0	1	0	1

Grp Vol (v), veh/h	0	0	0	10	0	29	0	440
Grp Sat Flow (s), veh/h/ln	0	773	0	1735	0	641	0	1404
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	2.9	0.0	25.6
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.3	0.0	23.2	0.0	25.9
Perm LT Sat Flow (s_l), veh/h/ln	0	773	0	1405	0	641	0	1435
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	1758	0	0	0	1671
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	28.2	0.0	44.8	0.0	28.2
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	2.3	0.0	24.4	0.0	27.9
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	2.9	0.0	25.6
Time to First Blk (g_f), s	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	0.60	0.00	1.00	0.00	0.94
Lane Grp Cap (c), veh/h	0	85	0	644	0	269	0	548
V/C Ratio (X)	0.00	0.00	0.00	0.02	0.00	0.11	0.00	0.80
Avail Cap (c_a), veh/h	0	85	0	658	0	269	0	561
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	19.1	0.0	22.6	0.0	27.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.8	0.0	8.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	19.1	0.0	23.4	0.0	35.7
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.2	0.0	0.5	0.0	10.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.2	0.0	0.6	0.0	11.3
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.01	0.00	0.09	0.00	0.18
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T						
Lanes in Grp	0	1	0	0	0	0	0	0
Grp Vol (v), veh/h	0	444	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1680	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	20.3	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	20.3	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	885	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	885	0	0	0	0	0	0
Upstream Filter (I)	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	27.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	9.5	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R				T+R		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	414	0	0	0	690	0	0
Grp Sat Flow (s), veh/h/ln	0	1565	0	0	0	1745	0	0
Q Serve Time (g_s), s	0.0	20.4	0.0	0.0	0.0	26.3	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	20.4	0.0	0.0	0.0	26.3	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.74	0.00	0.30	0.00	0.00	0.00	0.05
Lane Grp Cap (c), veh/h	0	824	0	0	0	919	0	0
V/C Ratio (X)	0.00	0.50	0.00	0.00	0.00	0.75	0.00	0.00
Avail Cap (c_a), veh/h	0	824	0	0	0	919	0	0
Upstream Filter (I)	0.00	0.96	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	25.0	0.0	0.0	0.0	15.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.1	0.0	0.0	0.0	5.6	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	27.1	0.0	0.0	0.0	21.3	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	8.8	0.0	0.0	0.0	12.5	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.5	0.0	0.0	0.0	1.4	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	9.3	0.0	0.0	0.0	13.9	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.18	0.00	0.00	0.00	1.36	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	26.9
HCM 2010 LOS	C

Queues
3: Springfield Commons Dwy/Driveway & SR 208

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	19	514	182	407	531	176	378	73
v/c Ratio	0.05	0.64	0.23	0.75	0.23	0.79	0.52	0.27
Control Delay	16.0	23.9	3.6	28.6	13.2	58.8	10.2	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	23.9	3.6	28.6	13.2	58.8	10.2	4.8
Queue Length 50th (ft)	6	215	0	176	100	90	58	0
Queue Length 95th (ft)	20	345	37	281	170	#184	126	15
Internal Link Dist (ft)		214			796	140		227
Turn Bay Length (ft)	20		175	350				
Base Capacity (vph)	365	802	781	587	2315	244	775	279
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.64	0.23	0.69	0.23	0.72	0.49	0.26

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	165	778	574	623	124	69	399	255	282
v/c Ratio	0.62	1.08	0.85	0.72	0.76	0.24	0.69	0.60	0.23
Control Delay	49.6	85.0	55.5	30.5	63.1	32.6	10.7	26.3	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	85.0	55.5	30.5	63.1	32.6	10.7	26.3	7.2
Queue Length 50th (ft)	91	~245	170	92	63	32	0	97	18
Queue Length 95th (ft)	m144	#340	#215	#260	#133	65	62	151	40
Internal Link Dist (ft)		796		690		244			490
Turn Bay Length (ft)	175		465					125	
Base Capacity (vph)	364	720	692	864	181	319	594	425	1280
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	1.08	0.83	0.72	0.69	0.22	0.67	0.60	0.22

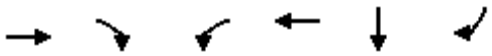
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
5: I-79 SB Off Ramp/I-79 SB On-Ramp & SR 208



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	844	300	148	949	137	412
v/c Ratio	0.66	0.39	0.61	0.47	0.30	0.86
Control Delay	20.2	3.0	34.8	11.7	25.7	38.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.2	3.0	34.8	11.7	25.7	38.5
Queue Length 50th (ft)	119	6	73	202	58	151
Queue Length 95th (ft)	m146	m17	m0	257	98	249
Internal Link Dist (ft)	690			590	1346	
Turn Bay Length (ft)		430	345			250
Base Capacity (vph)	1278	766	298	2038	562	568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.39	0.50	0.47	0.24	0.73

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

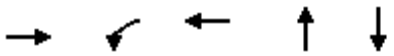
Queues
6: I-79 NB Off-Ramp/I-79 NB On-Ramp & SR 208

Lane Group	EBL	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	291	689	965	242	225
v/c Ratio	0.98	0.32	0.75	0.71	0.54
Control Delay	81.7	1.0	23.2	41.8	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	81.7	1.0	23.2	41.8	18.4
Queue Length 50th (ft)	115	2	167	126	52
Queue Length 95th (ft)	#295	4	m#326	189	112
Internal Link Dist (ft)		590	1371		1744
Turn Bay Length (ft)	420			625	
Base Capacity (vph)	297	2185	1293	463	520
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.98	0.32	0.75	0.52	0.43

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	858	29	690	440	10
v/c Ratio	0.49	0.12	0.76	1.01	0.02
Control Delay	12.6	12.2	23.3	75.7	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.6	12.2	23.3	75.7	16.3
Queue Length 50th (ft)	88	8	278	~235	2
Queue Length 95th (ft)	100	22	390	#401	13
Internal Link Dist (ft)	1371		252	1534	770
Turn Bay Length (ft)		150			
Base Capacity (vph)	1736	240	903	436	477
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.12	0.76	1.01	0.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX F

PRELIMINARY OPINION OF PROBABLE COST

PRELIMINARY OPINION OF PROBABLE COST
S.R. 208 Access Management Study
Widening of S.R. 208, New Parallel Access Roads, Realignment of Oakley-Kelly Drive, Realignment of Pine Road
Springfield Township, Mercer County, Pennsylvania
MCRPC00 - 16003

Item No.	Description	Qty.	Unit	Unit Cost	Price
9000-0001	Widening of S.R. 208 East of Mercer Butler Pike (S.R. 258)	3,396	LF	$520.00	$1,766,000.00
9000-0002	Widening of S.R. 208 West of Oakley-Kelly Drive	3,296	LF	$550.00	$1,813,000.00
9000-0003	New Parallel Access Roads West of Veterans Road	3,860	LF	$610.00	$2,355,000.00
9000-0004	Realignment of Oakley-Kelly Drive	1,111	LF	$600.00	$667,000.00
9000-0005	Realignment of Pine Road	310	LF	$570.00	$177,000.00

Construction Sub-total	$6,778,000.00
15% CONTINGENCY	$1,017,000.00
TOTAL COST	**$7,795,000.00**

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PRELIMINARY OPINION OF PROBABLE COST
S.R. 208 Access Management Study
Widening of S.R. 208 East of Mercer Butler Pike (S.R. 258)
Springfield Township, Mercer County, Pennsylvania
MCRPC00 - 16003

Item No.	Description	Qty.	Unit	Unit Cost	Price
0201-0001	CLEARING AND GRUBBING	1	LS	$5,000.00	$5,000.00
0203-0001	CLASS 1 EXCAVATION	6,130	CY	$17.50	$107,300.00
0212-0014	GEOTEXTILE, CLASS 4, TYPE A	11,028	SY	$1.50	$16,600.00
0309-0512	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BASE COURSE, PG 64-22, 3 TO < 10 MILLION ESALs, 37.5 MM MIX, 10 " DEPTH	5,122	SY	$38.00	$194,700.00
0350-0106	SUBBASE 6" DEPTH (NO. 2A)	11,028	SY	$10.00	$110,300.00
0409-0581	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA WEARING COURSE, PG 64-22, 3 TO < 10 MILLION ESALS, 9.5 MM MIX, 1 1/2" DEPTH, SRL-E	13,609	SY	$7.25	$98,700.00
0409-6550	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BINDER COURSE, PG 64-22, 3 TO < 10 MILLION ESALS, 19.0 MM MIX, 2 1/2" DEPTH	5,122	SY	$9.00	$46,100.00
0460-0001	BITUMINOUS TACK COAT	18,731	SY	$0.25	$4,700.00
0491-0012	MILLING OF BITUMINOUS PAVEMENT SURFACE, 1 1/2" DEPTH, MILLED MATERIAL RETAINED BY CONTRACTOR	8,487	SY	$3.00	$25,500.00
0608-0001	MOBILIZATION (5%)	1	LS	$45,305.00	$45,400.00
0651-0104	PAVED SHOULDERS, TYPE 1-SP	5,907	SY	$45.00	$265,800.00
0686-0020	CONSTRUCTION SURVEYING, TYPE B (1%)	1	LS	$9,061.00	$9,100.00
0901-0001	MAINTENANCE AND PROTECTION OF TRAFFIC DURING CONSTRUCTION (15%)	1	LS	$135,915.00	$136,000.00

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PRELIMINARY OPINION OF PROBABLE COST
S.R. 208 Access Management Study
Widening of S.R. 208 East of Mercer Butler Pike (S.R. 258)
Springfield Township, Mercer County, Pennsylvania
MCRPC00 - 16003

Item No.	Description	Qty.	Unit	Unit Cost	Price
9000-0001	SEEDING, TOPSOIL, MULCHING	1	LS	$10,000.00	$10,000.00
9000-0002	SAWCUT	3,200	LF	$2.00	$6,400.00
9000-0003	RIGHT-OF-WAY (ASSUME 72' R/W FROM AVG. 50' EXISTING R/W)	1	LS	$210,000.00	$210,000.00
9000-0004	UTILITY POLE RELOCATION	23	EA	$10,000.00	$230,000.00
9000-0005	ENGINEERING/DESIGN (25%)	1	LS	$226,525.00	$227,000.00
9000-0006	SIGNING AND PAVEMENT MARKINGS	1	LS	$15,000.00	$15,000.00

Construction Sub-total	$1,763,600.00
15% CONTINGENCY	$264,000.00
TOTAL COST	**$2,028,000.00**

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PRELIMINARY OPINION OF PROBABLE COST
S.R. 208 Access Management Study
Widening of S.R. 208 West of Oakley-Kelly Drive
Springfield Township, Mercer County, Pennsylvania
MCRPC00 - 16003

Item No.	Description	Qty.	Unit	Unit Cost	Price
0201-0001	CLEARING AND GRUBBING	1	LS	$5,000.00	$5,000.00
0203-0001	CLASS 1 EXCAVATION	6,747	CY	$17.50	$118,100.00
0212-0014	GEOTEXTILE, CLASS 4, TYPE A	12,144	SY	$1.50	$18,300.00
0309-0512	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BASE COURSE, PG 64-22, 3 TO < 10 MILLION ESALs, 37.5 MM MIX, 10 " DEPTH	7,108	SY	$38.00	$270,200.00
0350-0106	SUBBASE 6" DEPTH (NO. 2A)	12,144	SY	$10.00	$121,500.00
0409-0581	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA WEARING COURSE, PG 64-22, 3 TO < 10 MILLION ESALS, 9.5 MM MIX, 1 1/2" DEPTH, SRL-E	15,866	SY	$7.25	$115,100.00
0409-6550	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BINDER COURSE, PG 64-22, 3 TO < 10 MILLION ESALS, 19.0 MM MIX, 2 1/2" DEPTH	7,108	SY	$9.00	$64,000.00
0460-0001	BITUMINOUS TACK COAT	22,975	SY	$0.25	$5,800.00
0491-0012	MILLING OF BITUMINOUS PAVEMENT SURFACE, 1 1/2" DEPTH, MILLED MATERIAL RETAINED BY CONTRACTOR	8,758	SY	$3.00	$26,300.00
0608-0001	MOBILIZATION (5%)	1	LS	$50,220.00	$50,300.00
0651-0104	PAVED SHOULDERS, TYPE 1-SP	5,036	SY	$45.00	$226,700.00
0686-0020	CONSTRUCTION SURVEYING, TYPE B (1%)	1	LS	$10,044.00	$10,100.00
0901-0001	MAINTENANCE AND PROTECTION OF TRAFFIC DURING CONSTRUCTION (10%)	1	LS	$100,440.00	$100,500.00

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PRELIMINARY OPINION OF PROBABLE COST
S.R. 208 Access Management Study
Widening of S.R. 208 West of Oakley-Kelly Drive
Springfield Township, Mercer County, Pennsylvania
MCRPC00 - 16003

Item No.	Description	Qty.	Unit	Unit Cost	Price
9000-0001	SEEDING, TOPSOIL, MULCHING	1	LS	$5,000.00	$5,000.00
9000-0002	SAWCUT	6,700	LF	$2.00	$13,400.00
9000-0003	RIGHT-OF-WAY (ASSUME 72' R/W FROM AVG. 50' EXISTING R/W)	1	LS	$197,800.00	$197,800.00
9000-0004	UTILITY POLE RELOCATION	17	EA	$10,000.00	$170,000.00
9000-0005	ENGINEERING/DESIGN (25%)	1	LS	$251,100.00	$252,000.00
9000-0007	SIGNING AND PAVEMENT MARKING	1	LS	$15,000.00	$15,000.00

Construction Sub-total	$1,785,100.00
15% CONTINGENCY	$268,500.00
TOTAL COST	**$2,054,000.00**

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PRELIMINARY OPINION OF PROBABLE COST
S.R. 208 Access Management Study
New Parallel Access Roads West of Veterans Road
Springfield Township, Mercer County, Pennsylvania
MCRPC00 - 16003

Item No.	Description	Qty.	Unit	Unit Cost	Price
0201-0001	CLEARING AND GRUBBING	1	LS	$25,000.00	$25,000.00
0203-0001	CLASS 1 EXCAVATION	4,421	CY	$20.00	$88,500.00
0212-0014	GEOTEXTILE, CLASS 4, TYPE A	11,918	SY	$1.50	$17,900.00
0301-0001	PLAIN CEMENT CONCRETE BASE COURSE, 5" DEPTH	11,918	SY	$42.00	$500,600.00
0350-0106	SUBBASE 6" DEPTH (NO. 2A)	11,918	SY	$10.00	$119,200.00
0409-0581	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA WEARING COURSE, PG 64-22, 3 TO < 10 MILLION ESALS, 9.5 MM MIX, 1 1/2" DEPTH, SRL-E	11,918	SY	$7.25	$86,500.00
0460-0001	BITUMINOUS TACK COAT	11,918	SY	$0.25	$3,000.00
0608-0001	MOBILIZATION (5%)	1	LS	$43,665.00	$43,700.00
0636-0001	BITUMINOUS CONCRETE CURB	7,460	LF	$3.00	$22,400.00
0686-0020	CONSTRUCTION SURVEYING, TYPE B (1%)	1	LS	$8,733.00	$8,800.00
0901-0001	MAINTENANCE AND PROTECTION OF TRAFFIC DURING CONSTRUCTION (5%)	1	LS	$43,665.00	$43,700.00
9000-0001	SEEDING, TOPSOIL, MULCHING	1	LS	$5,000.00	$5,000.00
9000-0002	SAWCUT	80	LF	$2.00	$200.00
9000-0003	RIGHT-OF-WAY	1	ls	$1,160,000.00	$1,160,000.00
9000-0004	ENGINEERING/DESIGN (25%)	1	LS	$218,325.00	$219,000.00

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PRELIMINARY OPINION OF PROBABLE COST
S.R. 208 Access Management Study
New Parallel Access Roads West of Veterans Road
Springfield Township, Mercer County, Pennsylvania
MCRPC00 - 16003

Item No.	Description	Qty.	Unit	Unit Cost	Price
9000-0005	SIGNING AND PAVEMENT MARKING	1	LS	$5,000.00	$5,000.00

Construction Sub-total	$2,343,500.00
15% CONTINGENCY	$351,000.00
TOTAL COST	**$2,695,000.00**

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PRELIMINARY OPINION OF PROBABLE COST
S.R. 208 Access Management Study
Realignment of Oakley-Kelly Drive
Springfield Township, Mercer County, Pennsylvania
MCRPC00 - 16003

Item No.	Description	Qty.	Unit	Unit Cost	Price
0201-0001	CLEARING AND GRUBBING	1	LS	$25,000.00	$25,000.00
0203-0001	CLASS 1 EXCAVATION	600	CY	$20.00	$12,000.00
0212-0014	GEOTEXTILE, CLASS 4, TYPE A	3,100	SY	$1.50	$4,700.00
0301-0001	PLAIN CEMENT CONCRETE BASE COURSE, 5" DEPTH	3,100	SY	$42.00	$130,200.00
0350-0106	SUBBASE 6" DEPTH (NO. 2A)	3,100	SY	$10.00	$31,000.00
0409-0581	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA WEARING COURSE, PG 64-22, 3 TO < 10 MILLION ESALS, 9.5 MM MIX, 1 1/2" DEPTH, SRL-E	3,100	SY	$7.25	$22,500.00
0460-0001	BITUMINOUS TACK COAT	3,100	SY	$0.25	$800.00
0608-0001	MOBILIZATION (5%)	1	LS	$12,170.00	$12,200.00
0636-0001	BITUMINOUS CONCRETE CURB	2,230	LF	$3.00	$6,700.00
0686-0020	CONSTRUCTION SURVEYING, TYPE B (1%)	1	LS	$2,434.00	$2,500.00
0901-0001	MAINTENANCE AND PROTECTION OF TRAFFIC DURING CONSTRUCTION (5%)	1	LS	$12,170.00	$12,200.00
9000-0001	SEEDING, TOPSOIL, MULCHING	1	LS	$5,000.00	$5,000.00
9000-0002	SAWCUT	230	LF	$2.00	$500.00
9000-0003	RIGHT-OF-WAY	1	LS	$340,000.00	$340,000.00
9000-0004	ENGINEERING/DESIGN (25%)	1	LS	$60,850.00	$61,000.00

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PRELIMINARY OPINION OF PROBABLE COST
S.R. 208 Access Management Study
Realignment of Oakley-Kelly Drive
Springfield Township, Mercer County, Pennsylvania
MCRPC00 - 16003

Item No.	Description	Qty.	Unit	Unit Cost	Price
9000-0005	SIGNING AND PAVEMENT MARKING	1	LS	$5,000.00	$5,000.00

Construction Sub-total	$666,300.00
15% CONTINGENCY	$100,500.00
TOTAL COST	**$767,000.00**

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PRELIMINARY OPINION OF PROBABLE COST
S.R. 208 Access Management Study
Realignment of Pine Road
Springfield Township, Mercer County, Pennsylvania
MCRPC00 - 16003

Item No.	Description	Qty.	Unit	Unit Cost	Price
0201-0001	CLEARING AND GRUBBING	1	LS	$2,500.00	$2,500.00
0203-0001	CLASS 1 EXCAVATION	520	CY	$20.00	$10,400.00
0212-0014	GEOTEXTILE, CLASS 4, TYPE A	1,096	SY	$1.50	$1,700.00
0301-0001	PLAIN CEMENT CONCRETE BASE COURSE, 5" DEPTH	1,096	SY	$42.00	$46,100.00
0350-0106	SUBBASE 6" DEPTH (NO. 2A)	1,096	SY	$10.00	$11,000.00
0409-0581	SUPERPAVE ASPHALT MIXTURE DESIGN, HMA WEARING COURSE, PG 64-22, 3 TO < 10 MILLION ESALS, 9.5 MM MIX, 1 1/2" DEPTH, SRL-E	1,096	SY	$7.25	$8,000.00
0460-0001	BITUMINOUS TACK COAT	1,096	SY	$0.25	$300.00
0608-0001	MOBILIZATION (5%)	1	LS	$4,310.00	$4,400.00
0636-0001	BITUMINOUS CONCRETE CURB	688	LF	$3.00	$2,100.00
0686-0020	CONSTRUCTION SURVEYING, TYPE B (1%)	1	LS	$862.00	$900.00
0901-0001	MAINTENANCE AND PROTECTION OF TRAFFIC DURING CONSTRUCTION (5%)	1	LS	$4,310.00	$4,400.00
9000-0001	SEEDING, TOPSOIL, MULCHING	1	LS	$2,500.00	$2,500.00
9000-0002	SAWCUT	20	LF	$2.00	$100.00
9000-0003	RIGHT-OF-WAY	1	LS	$60,000.00	$60,000.00
9000-0004	ENGINEERING/DESIGN (25%)	1	LS	$21,550.00	$22,000.00

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PRELIMINARY OPINION OF PROBABLE COST
S.R. 208 Access Management Study
Realignment of Pine Road
Springfield Township, Mercer County, Pennsylvania
MCRPC00 - 16003

Item No.	Description	Qty.	Unit	Unit Cost	Price
9000-0005	SIGNING AND PAVEMENT MARKING	1	LS	$1,500.00	$1,500.00

Construction Sub-total	$176,400.00
15% CONTINGENCY	$27,000.00
TOTAL COST	**$204,000.00**

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APPENDIX G

PROPOSED SR 208 MULTI-MODAL TRAIL

(prepared by: HRG)

ROUTE 208 MULTI-MODAL TRAIL

TRAIL LAYOUT EXHIBIT

SPRINGFIELD TOWNSHIP
MERCER COUNTY, PENNSYLVANIA

SCALE: 1" = 25'
JOB#: 5403.0430
DATE: SEPTEMBER 1, 2015

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