TRAFFIC IMPACT STUDY

Proposed Mixed-Use Development
Township of South Orange Village
Essex County, New Jersey

Prepared For:
Hub Realty, LLC

Stonefield Engineering & Design, LLC
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INTRODUCTION

This Traffic Impact Study was prepared to investigate the potential impacts of the proposed mixed-use development on the adjacent roadway network. The subject property is bounded by Scotland Road to the east, Vose Avenue to the west, Taylor Place to the north, and South Orange Avenue to the south in the Township of South Orange Village, Essex County, New Jersey. The site location is shown on appended **Figure 1**.

The subject property is designated as Block 1006, Lots 1, 2, 3, 9, 10, 13, and 14 as depicted on the Township of South Orange Village Tax Map. The site has approximately 10 feet of frontage along Scotland Road, approximately 185 feet of frontage along Vose Avenue, approximately 250 feet of frontage along Taylor Place, and approximately 84 feet of frontage along South Orange Avenue. The existing site presently contains the Taylor Place municipal parking lot, one (1) two-story structure occupied by Little Stages Child Day Care and associated parking area, one (1) residential dwelling, one (1) two-story structure with multiple tenants, and two (2) one-story structures occupied by South Orange Village Center Alliance. Access is presently provided via two (2) full-movement driveways, one (1) ingress-only driveway, and one (1) egress-only driveway along Taylor Place, and one (1) full-movement driveway along Vose Avenue. Pedestrian walkways between the surrounding buildings are provided along South Orange Avenue and Scotland Road for access the municipal parking lot in the rear. Under the proposed development program, the existing structures would be razed and a five (5)-story mixed-use building consisting of 111 residential units, 4,585-square-foot fitness center, 9,910 square feet of office space, 12,185 square feet of retail space, and a two (2)-level parking garage would be constructed. Vehicular access is proposed via one (1) full-movement driveway along Taylor Place and one (1) full-movement driveway along Vose Avenue with the location of the pedestrian walkways to remain and provide access to the parking garage.

METHODOLOGY

Stonefield Engineering & Design, LLC has prepared this Traffic Impact Study in accordance with the recommended guidelines and practices outlined by the Institute of Transportation Engineers (ITE) within Transportation Impact Analyses for Site Development. A detailed field investigation was performed to assess the existing conditions of the adjacent roadway network. A data collection effort was completed to identify the existing traffic volumes at the study intersections to serve as a base for the traffic analyses. Capacity analysis, a procedure used to estimate the traffic-carrying ability of roadway facilities over a range of defined operating conditions, was performed using the Highway Capacity Manual, 6th Edition (HCM) and the Synchro 10 Software for all study conditions to assess the roadway operations.

For an unsignalized intersection, Level of Service (LOS) A indicates operations with delay of less than 10 seconds per vehicle, while LOS F describes operations with delay in excess of 50 seconds per vehicle. For a signalized intersection, LOS A indicates operations with delay of less than 10 seconds per vehicle, while LOS F describes operations with delay in excess of 80 seconds per vehicle. The Technical Appendix contains the Highway Capacity Analysis Detail Sheets for the study intersections analyzed in this assessment. The traffic signal timing utilized within the signalized analysis is based on timing directives provided by Essex County.

2020 EXISTING CONDITION

2020 EXISTING ROADWAY CONDITIONS

The proposed mixed-use development is bounded by Scotland Road to the east, Vose Avenue to the west, Taylor Place to the north, and South Orange Avenue to the south in the Township of South Orange Village, Essex County, New Jersey. The subject property is designated as Block 1006, Lots 1, 2, 3, 9, 10, 13, and 14 as depicted on the Township of South Orange Village Tax Map. The site has approximately 10 feet of frontage along Scotland Road, approximately 185 feet of frontage along Vose Avenue, approximately 250 feet of frontage along Taylor Place, and approximately 84 feet of frontage along South Orange Avenue. Land uses in the area are a mix of uses.

South Orange Avenue (County Route 510) is classified as an Urban Principal Arterial roadway with a general east-west orientation and is under the jurisdiction of Essex County. Along the site frontage, the roadway generally provides one (1) lane of travel in each direction with additional lanes provided at key intersections to facilitate turning movements. South Orange Avenue has a posted speed limit of 30 mph. Curb and sidewalk are provided along both sides of the roadway, shoulders are not provided, and metered on-street parking is provided along both sides of the roadway. South Orange Avenue provides east-west mobility within the Township of South Orange Village and surrounding municipalities for access to a mix of retail and residential uses along its length.

Scotland Road (County Route 638) is classified as an Urban Minor Arterial roadway with a general north-south orientation and is under the jurisdiction of Essex County. Along the site frontage, the roadway provides one (1) lane of travel in each direction and has a posted speed limit of 25 mph. Curb and sidewalk are provided along both sides of the roadway, shoulders are not provided, and on-street parking is not permitted. Scotland Road becomes Valley Street south of its intersection with South Orange Avenue and provides north-south mobility within the Township of South Orange Village and surrounding municipalities for access to a mix of uses along its length.

Valley Street (County Route 638) is classified as an Urban Minor Arterial roadway with a general north-south orientation and is under the jurisdiction of Essex County. In the vicinity of the site, the roadway provides one (1) lane of travel in each direction and has a posted speed limit of 25 mph. Curb and sidewalk are provided along both sides of the roadway, shoulders are not provided, and on-street parking is not permitted within the immediate vicinity of the site. Valley Street becomes Scotland Road north of its intersection with South Orange Avenue and provides north-south mobility within the Township of South Orange Village and surrounding municipalities for access to predominately retail uses along its length.

Vose Avenue is a local roadway with a general north-south orientation and is under the jurisdiction of the Township of South Orange Village. Along the site frontage, the roadway provides one (1) lane of travel in each direction. Curb and sidewalk are provided along both sides of the roadway, shoulders are not provided, and on-street metered parking is provided along both sides of the roadway within the immediate vicinity of the site. Vose Avenue provides north-south mobility within the Township of South Orange Village for access to predominantly residential uses along its length.

Taylor Place is a local roadway with a general east-west orientation and is under the jurisdiction of the Township of South Orange Village. Along the site frontage, the roadway provides one (1) lane of travel in each direction. Curb and sidewalk are provided along both sides of the roadway, shoulders are not provided, and on-street parking is not permitted. Taylor Place connects Scotland Road at its easterly terminus to Vose Avenue at its westerly terminus for access to predominantly municipal uses.

South Orange Avenue, Scotland Road, and Valley Street intersect to form a four (4)-leg intersection controlled by a four (4)-phase traffic signal operating on a 90-second fixed background cycle length. The eastbound approach of South Orange Avenue provides one (1) exclusive left-turn lane, one (1) exclusive through lane, and one (1) shared through/right-turn lane and the westbound approach of South Orange Avenue provides one (1) exclusive left-turn lane, one (1) exclusive through lane, and one (1) exclusive right-turn lane. The northbound approach of Valley Street provides one (1) exclusive left-turn lane, one (1) exclusive through lane, and one (1) exclusive right-turn lane and the southbound approach of Scotland Road provides one (1) exclusive left-turn lane, one (1) exclusive through lane, and one (1) shared through/right-turn lane. Crosswalks and pedestrian signals are provided across all legs of the intersection.

South Orange Avenue and Vose Avenue intersect to form a T-intersection controlled by a two (2)-phase traffic signal operating on a 90-second fixed background cycle length. The eastbound approach of South Orange Avenue provides one (1) exclusive left-turn lane and one (1) excusive through lane and the westbound approach of South Orange Avenue provides one (1) exclusive through lane and one (1) exclusive right-turn lane. The southbound approach of Vose Avenue provides one (1) shared left-turn/right-turn lane. Crosswalks and pedestrian signals are provided across all legs of the intersection.

Taylor Place and Scotland Road intersect to form an unsignalized T-intersection with the eastbound approach of Taylor Place operating under stop control. The eastbound approach of Taylor Place provides one (1) shared left-turn/right-turn lane. The northbound approach of Scotland Road provides one (1) shared left-turn/through lane and the southbound approach of Scotland Road provides one (1) shared through/right-turn lane. Crosswalk is provided across the westerly leg of the intersection.

Taylor Place and Vose Avenue intersect to form an unsignalized T-intersection with the westbound approach of Taylor Place operating under stop control. The westbound approach of Taylor Place provides one (1) shared left-turn/right-turn lane. The northbound approach of Vose Avenue provides one (1) shared through/right-turn lane and the southbound approach of Scotland Road provides one (1) shared left-turn/through lane. Crosswalks are provided across the easterly and northerly legs of the intersection.

2020 EXISTING TRANSIT SERVICE

The subject site is located within 350 feet (1-minute walk) from South Orange Train Station which serves NJ Transit's Hackettstown and Gladstone Lines and provides direct service to Newark Broad Street Station, Secaucus Junction, New York Penn Station, and Hoboken Terminal as well as transfer service to Newark Penn Station and other lines on the NJ Transit system. At Hoboken Terminal, transfers are available to the Port Authority Trans-Hudson (PATH) trains and NY Waterway ferries. Further, the proposed development is located within 800 feet (3-minute walk) from bus stops that service two (2) NJ Transit bus routes, a Coach USA bus route, each of the South Orange Jitney Routes, and the Livingston Express Shuttle, with the nearest stop located at the intersection of Valley Street and 1st Street. NJ Transit Bus Route 107 provides service to New York Port Authority and Coach USA Bus Route 31 provides service to Newark Penn Station with both NJ Transit bus routes and the Coach USA bus route providing service to various points of interest throughout Essex County. The Livingston Express Shuttle provides direct service between the Livingston Mall and the South Orange Train Station during peak commute hours and the South Orange Jitney Routes provide service between local stops throughout the Village and the South Orange Train Station. The non-vehicular transportation modes available in the general vicinity of the subject site are summarized on **Table 1**.

TABLE 1: PUBLIC TRANSPORTATION OPTIONS – FOR COMMUTING

Travel Mode	Proximity to Site	Peak Commuter Period Headways	Destination(s)	Time Travel to Major Destination
South Orange Train Station	350 feet	Inbound: 10 minutes Outbound: 15 minutes	Newark Broad Street Station, Secaucus Junction, New York Penn Station, Hoboken Terminal	To New York Penn Station: 30 minutes
NJ Transit Bus Route 92	400 feet	Inbound: 20 minutes Outbound: 20 minutes	Orange, Bloomfield, Newark Light Rail at Branch Brook Park	Newark Light Rail at Branch Brook Park: 40 minutes
NJ Transit Bus Route 107	400 feet	Inbound: 20 minutes Outbound: 30 minutes	Irvington Bus Terminal, Newark Liberty International Airport, New York Porth Authority	To New York Port Authority: 65 minutes
Coach USA Route 31	800 feet	Inbound: 30 minutes Outbound: 60 minutes	Grove Street, Broad Street & Market Street, Newark Penn Station	To Newark Penn Station: 35 minutes
Livingston Express Shuttle	500 feet	Inbound: 30 minutes Outbound: 35 minutes	Livingston Mall, South Orange Train Station	Round Trip: 20 minutes
South Orange Jitney Routes	500 feet	Inbound: 30 minutes Outbound: 35 minutes	Local stops throughout the Village	Round Trip: 12 minutes

2020 EXISTING TRAFFIC VOLUMES

Manual turning movement counts were collected during the typical weekday morning, weekday evening, and Saturday midday time periods to evaluate existing traffic conditions and identify the specific hours when traffic activity on the adjacent roadways is at a maximum and could be potentially impacted by the development of the site. Turning movement counts were collected at the following intersections:

- South Orange Avenue, Scotland Road & Valley Street
- South Orange Avenue & Vose Avenue
- Taylor Place & Scotland Road
- Taylor Place & Vose Avenue

Specifically, manual turning movement counts were conducted on the following dates and during the following times:

- Tuesday, March 3, 2020 from 7:00 a.m. to 9:00 a.m.
- Wednesday, March 4, 2020 from 4:00 p.m. to 7:00 p.m.
- Saturday, February 29, 2020, from 11:00 a.m. to 2:00 p.m.

The study time periods were chosen as they are representative of the peak periods of both the adjacent roadway network and the proposed development. The traffic volume data was collected and analyzed to identify the design peak hour in accordance with HCM and ITE guidelines. Based on the review of the count data the weekday morning peak hour occurred from 8:00 a.m. to 9:00 a.m.; the weekday evening peak hour occurred from 5:30 p.m. to 6:30 p.m.; and the Saturday midday peak hour occurred from 12:00 p.m. to 1:00 p.m. The Technical Appendix contains a summary of the turning movement count data. The 2020 Existing weekday morning, weekday evening, and Saturday midday peak-hour volumes are summarized on appended **Figure 2**.

2020 EXISTING LOS/CAPACITY ANALYSIS

A Level of Service and Volume/Capacity analysis was conducted for the 2020 Existing Condition during the weekday morning, weekday evening, and Saturday midday peak hours at the study intersections. Under the existing condition, the signalized intersection of South Orange Avenue, Scotland Road, and Valley Street is calculated to operate at overall Level of Service C during each of the peak hours studied with the southbound left-turn approach calculated to operate at Level of Service E during the weekday evening peak hour. The signalized intersection of South Orange Avenue and Vose Avenue is calculated to operate at overall Level of Service A during each of the peak hours studied. The turning movements of the unsignalized intersection of Taylor Place and Scotland Road are calculated to operate at Level of Service C or better during each of the peak hours studied. The turning movements of the unsignalized intersection of Taylor Place and Vose Avenue are calculated to operate at Level of Service B or better during each of the peak hours studied.

Under the existing condition, the calculated 95th percentile queue at the southbound approach at the intersection of South Orange Avenue and Vose Avenue blocks existing driveways along Vose Avenue at the subject property during each of the peak hours studied. Based on field observations, the queues at this approach typically clear with each signal cycle and as such, there is sufficient space to make left-turn maneuvers from the site. Further, southbound queuing does not restrict right-turn egress movements from the subject site. The surrounding roadway network is a grid-style layout, and access to both directions of travel along South Orange Avenue is available via right-turn egress from the site.

2023 NO-BUILD CONDITION

BACKGROUND GROWTH

The 2020 Existing Condition traffic volume data was grown to a future horizon year of 2023, which is a conservative estimate for when the proposed mixed-use development is expected to be fully constructed. In accordance with industry guidelines, the existing traffic volumes at the study intersections were increased by

2.00% annually for three (3) years to generate the 2023 Base Traffic Volumes. These volumes are summarized on appended **Figure 3**. The 2.00% background growth rate was obtained from the New Jersey Department of Transportation (NJDOT) Annual Background Growth Rate Table.

OTHER PLANNED DEVELOPMENT PROJECTS

To evaluate the future traffic conditions, it is important to consider the potential site-generated traffic of other projects that could influence the traffic volume at the study intersections. Other planned development projects include those that are either in the entitlement process or have recently been approved for building permits in proximity to the proposed development. Based on consultations with Sal Renda, the Township of South Orange Village's Engineer, the following developments are anticipated to impact traffic volumes within the study area:

- Restaurant & Beer Garden – 12,692-square-foot restaurant located directly across Scotland Road at 101 South Orange Avenue
- The Learning Experience – 16,327-square-foot day care center located along South Orange Avenue near its intersection with Church Street to the west of the site

Appended **Figure 4** illustrates the site-generated traffic associated with the restaurant and day care center projects assigned to the study area network.

2023 NO-BUILD TRAFFIC VOLUMES

The site-generated trips associated with the restaurant and day care center projects were added to the 2023 Base Traffic Volumes to calculate the 2023 No-Build Traffic Volumes for the weekday morning, weekday evening, and Saturday midday peak hours. It is noted the restaurant and beer garden would not be in operation during the weekday morning peak period and the day care center would not be in operation during the Saturday midday peak period and as such, these developments would not increase the traffic volumes on the surrounding roadway network during these respective time periods. These volumes are summarized on appended **Figure 5**.

2023 NO-BUILD LOS/CAPACITY ANALYSIS

A Level of Service and Volume/Capacity analysis was also conducted for the 2023 No-Build Condition during the weekday morning, weekday evening, and Saturday midday peak hours at the study intersections. The signalized intersection of South Orange Avenue, Scotland Road, and Valley Street is calculated to operate generally consistent with the findings of the Existing Condition during each of the peak hours studied. It is noted the southbound left-turn approach is calculated to deteriorate to Level of Service E during the weekday morning peak hour and to under capacity constraints during the weekday evening peak hour. The signalized

intersection of South Orange Avenue and Vose Avenue is calculated to operate generally consistent with the findings of the Existing Condition during each of the peak hours studied. The turning movements of the unsignalized intersection of Taylor Place and Scotland Road are calculated to operate generally consistent with the findings of the Existing Condition during each of the peak hours studied. The turning movements of the unsignalized intersection of Taylor Place and Vose Avenue are calculated to operate generally consistent with the findings of the Existing Condition during each of the peak hours studied.

2023 BUILD CONDITION

The site-generated traffic volume of the proposed mixed-use development was estimated to identify the potential impacts of the project. For the purpose of this analysis, a complete project "build out" is assumed within three (3) years of the preparation of this study.

TRIP GENERATION

Trip generation projections for the proposed mixed-use development were prepared utilizing the ITE's Trip Generation Manual, 10th Edition. Trip generation rates associated with Land Use 221 "Multifamily Housing (Mid-Rise)," Land Use 710 "General Office Building," and Land Use 820 "Shopping Center" were cited for the 111 residential units, 9,910 square feet of office space, and 12,185 square feet of retail space, respectively. The 4,585-square-foot fitness center would be an amenity available to only residents of the building and as such, would not generate vehicular traffic.

The subject property is presently developed with numerous retail and office uses, a single-family dwelling, and the Little Stages Child Day Care, which each generate traffic to the surrounding roadway network. However, no trip reduction was applied for the site-generated trips associated with the uses currently in operation on the subject site. There is presently public parking available on-site via the Taylor municipal parking lot. Public parking on-site would continue to be provided on the subject property in the Build Condition, and existing traffic volumes associated with the municipal lot are anticipated to be maintained. **Table 2** provides the weekday morning, weekday evening, and Saturday midday trip generation volumes associated with the proposed development.

TABLE 2 – PROPOSED TRIP GENERATION

	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Saturday Midday Peak Hour		
Land Use	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**
111 Unit Multifamily Housing (Mid-Rise) *ITE Land Use 221*	10	30	40	30	19	49	24	25	49
9,910 SF General Office Building *ITE Land Use 710*	9	2	11	2	9	11	3	2	5
12,185 SF Shopping Center *ITE Land Use 820*	7	4	11	55	59	114	61	56	117
Total	**26**	**36**	**62**	**87**	**87**	**174**	**88**	**83**	**171**

Factors such as transit use and walkability have been found to significantly decrease the trip generation of the residential portion of mixed-use developments located proximate to transit. Based on American Community Survey data provided by the U.S. Census Bureau, approximately 43% of the Township of South Orange Village residents living in Census Tract 193, where the site is located, use public transportation, walk, or use means other than single-passenger vehicles to commute to work. Based on the available transit options within walking distance to the subject site and commuter characteristic data provided by the U.S. Census Bureau, a 25% reduction in external site-generated traffic originating and departing from the residential use was applied to account for transit use. The transit portion of the residential site-generated traffic is shown in **Table 3**.

As stated within Chapter 6 of ITE's Trip Generation Handbook, 3rd Edition, internally captured trips can be a component of the travel patterns at mixed-use developments, such as the one proposed. When combined within a single development, individual land uses tend to interact, and thus attract a portion of each other's trip generation, such as residents visiting the retail stores. Therefore, based on the nature of the proposed uses, an internal capture credit should be considered for this site. Utilizing published NJDOT data, internal trips were calculated between the proposed uses during the weekday morning, weekday evening, and Saturday midday peak hours. It is noted the published data for the Saturday midday peak hour is limited with respect to the land uses within the proposed development. For the purpose of this analysis, the Saturday midday peak hour internal trips were calculated using the published weekday evening peak hour rates. The internal capture portion of the site-generated traffic is shown in **Table 3**.

As stated within Chapter 10 of ITE's Trip Generation Handbook, 3rd Edition, there are instances when the total number of trips generated by a site is different from the amount of new traffic added to the street system by the generator. Retail uses are specifically located on or adjacent to busy streets to attract motorists already on the roadway. Therefore, the proposed retail uses associated with the proposed development would be

expected to attract a portion of its trips from the traffic passing the site on the way from an origin to an ultimate destination. These trips do not add new traffic to the adjacent roadway system and are referred to as pass-by trips.

Based upon published NJDOT data for Land Use 820 "Shopping Center", 34% of the site-generated traffic during the weekday evening peak hour and 26% of the site-generated traffic during the Saturday midday peak hour are comprised of pass-by traffic.

Table 3 shows the adjusted site-generated traffic for the proposed development after applying the appropriate trip reductions to account for transit use associated with the residential portion of the development, internal trip capture, and pass-by traffic.

TABLE 3 – PROPOSED TRIP GENERATION (ADJUSTED)

Land Use Code	Land Use	Amount	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Saturday Midday Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
221	Multifamily Housing (Mid-Rise)	111 Units	10	30	40	30	19	49	24	25	49
710	General Office Building	9,910 SF	9	2	11	2	9	11	3	2	5
820	Shopping Center	12,185 SF	7	4	11	55	59	114	61	56	117
ITE Trip Generation Total			**26**	**36**	**62**	**87**	**87**	**174**	**88**	**83**	**171**
Internal Capture Trip Reduction			-1	-1	-2	-23	-23	-46	-19	-19	-38
Residential Transit Trip Reduction – 25%			-3	-8	-11	-4	-3	-7	-3	-5	-8
Retail Pass-By Trip Reduction			--	--	--	-16	-16	-32	-11	-11	-22
Total New Vehicular Trips			**22**	**27**	**49**	**44**	**45**	**89**	**55**	**48**	**103**

At the site driveways, the calculated number of pass-by trips is shown as a negative number at the through movement as the vehicles are temporarily diverted from the through travel stream into and out of the site access point.

TRIP ASSIGNMENT/DISTRIBUTION

The trips generated by the proposed development were distributed according to the existing travel pattern along the adjacent roadways and the access management plan of the site. The site-generated trips for the residential potion of the site were routed to the Vose Avenue driveway and the site-generated trips for retail and office portions of the site were routed to the Taylor Place driveway as parking on the Vose Avenue level would be designated for residents and parking on the South Orange Avenue level would be designated for the retail and offices uses. The "New" Site-Generated Traffic Volumes are illustrated on **Figure 6** and the "Pass-By" Site-Generated Traffic Volumes expected to access the site are depicted on **Figure 7**.

2023 BUILD TRAFFIC VOLUMES

The site-generated trips were added to the 2023 No-Build Traffic Volumes to calculate the 2023 Build Traffic Volumes and are shown on appended **Figure 8**.

2023 BUILD LOS/CAPACITY ANALYSIS

A Level of Service and Volume/Capacity analysis was also conducted for the 2023 Build Condition during the weekday morning, weekday evening, and Saturday midday peak hours at the study intersections and proposed site driveways. Appended **Table A1** compares the Existing, No-Build, and Build Conditions Level of Service and delay values.

The signalized intersection of South Orange Avenue, Scotland Road, and Valley Street is calculated to operate generally consistent with the findings of the No-Build Condition at acceptable overall Level of Service C during each of the peak hours studied with the southbound left-turn approach calculated to deteriorate to Level of Service E during the Saturday midday peak hour. To alleviate existing delays and mitigate the impact of the proposed development on the signalized intersection, three (3) seconds of green time were redistributed from the eastbound and westbound through phase to the southbound lead left-turn phase. Under the proposed Mitigation Condition during the critical weekday evening peak hour, the signalized intersection is calculated to operate at acceptable overall Level of Service C with the southbound left-turn approach calculated to operate at acceptable Level of Service D. The proposed timing mitigation provides satisfactory mitigation and maintains the current background cycle length and offset timings along the corridor.

Regarding the queuing at the signalized intersection of South Orange Avenue and Vose Avenue, the proposed development is calculated to add approximately one (1) vehicle every two (2) signal cycles to the southbound approach of Vose Avenue during the critical Saturday midday peak hour and as such, would not significantly increase the queueing at this approach.

The signalized intersection of South Orange Avenue and Vose Avenue is calculated to operate at acceptable overall Level of Service B during each of the peak hour studied. The turning movements of the unsignalized intersection of Taylor Place and Scotland Road are calculated to operate generally consistent with the findings of the No-Build Condition at acceptable Level of Service C or better during each of the peak hours studied. The turning movements of the unsignalized intersection of Taylor Place and Vose Avenue are calculated to operate generally consistent with the findings of the No-Build Condition at acceptable Level of Service B or better during each of the peak hours studied.

The turning movements at the proposed driveways along Vose Avenue and Taylor Place are calculated to operate at acceptable Level of Service B or better during each of the peak hours studied. The 95th percentile

queues at the proposed driveways are calculated to less than one (1) vehicle each and as such, the proposed driveway depths would be able to accommodate the queuing at the driveways without impacting the operations of the parking garage.

SITE CIRCULATION/PARKING SUPPLY

A review was conducted of the proposed mixed-use using the Site Plan prepared by Marchetto, Higgins, Stieve Architects P.C., last revised March 13, 2020. In completing this review, particular attention was focused on the site access, circulation, and parking supply.

Vehicular access is proposed via one (1) full-movement driveway along Taylor Place and one (1) full-movement driveway along Vose Avenue. Pedestrian walkways between the proposed development and surrounding buildings would be maintained along South Orange Avenue and Scotland Road for access the parking garage. The on-site parking and circulation areas within the parking garage would be split into two (2) separate levels. The lower level would provide 125 resident parking spaces and be accessed via Vose Avenue. The upper level would provide 80 public parking spaces for the retail and office uses and be accessed via Taylor Place. Two-way vehicular circulation throughout the parking garage would be facilitated by 22-foot-wide drive aisles. A bike storage room would be located in the northerly portion of the building with access provided via Taylor Place.

Regarding the parking requirement for the proposed development, the Vose & Taylor Redevelopment Plan ("Redevelopment Plan") requires one (1) parking space per multifamily unit, three (3) parking spaces per 1,000 square feet for offices, and four (4) parking spaces per 1,000 square feet for commercial uses. For the proposed mixed-use development consisting of 111 residential units, 9,910 square feet of office space, and 12,185 square feet of retail space, this equates to 190 required spaces. The site would provide 205 total parking spaces, inclusive of six (6) ADA accessible parking spaces; 14 sets of tandem spaces (28 total tandem spaces); and 49 compact spaces, which meets the parking requirement and would be sufficient to support this project's parking demand. The Vose Avenue level of the parking garage provides 125 spaces designated for residents whereas 111 spaces are required for residents and the South Orange Avenue level of the parking garage provides 80 spaces for the retail and offices uses whereas 79 spaces are required for these uses and as such, each parking level satisfies its respective parking requirement separately. It is noted the tandem parking spaces would be designated for residents and office tenants; tandem parking would not be utilized by the general public. The standard parking spaces would be nine (9) feet wide by 18 feet deep and the compact parking spaces would be 8.5 feet wide by 18 feet deep in accordance with industry standards.

The parking supply for the residential portion of the site was evaluated with respect to data published within the ITE's Parking Generation, 5th Edition, for Land Use 221 "Multifamily Housing (Mid-Rise)."

Specifically, parking generation rates for "Dense Multi-Use Urban (< ½ mile to rail transit)" locations were utilized. The average parking demand rate during the peak weekday overnight period is 0.71 vehicles per unit. For the proposed mixed-use development consisting of 111 residential units, this equates to 79 parking spaces. As such, the proposed parking supply of 125 spaces would be sufficient to support the parking demand for the residential portion of the site.

The parking supply for the retail and office uses was evaluated with respect to data published within the ITE's Parking Generation, 5th Edition, for Land Use 710 "General Office Building" and Land Use 820 "Shopping Center." Specifically, parking generation rates for the month of December, when retail uses are at their highest demand, were utilized for Land Use 820 "Shopping Center." The average parking demand rate during the peak weekday midday period for Land Use 710 "General Office Building" is 2.39 vehicles per 1,000 square feet and for Land Use 820 "Shopping Center" is 3.77 vehicles per 1,000 square feet. For the proposed mixed-use development consisting of 9,910 square feet of office space and and 12,185 square feet of retail space, this equates to 70 parking spaces. As such, the proposed parking supply of 80 spaces would be sufficient to support the parking demand for the retail and office uses of the site.

Under existing conditions, the Taylor Place municipal parking lot provides 57 two-hour spaces for patrons visiting Downtown South Orange Village. Under the proposed development program, 80 public parking spaces would be provided, a 23-space increase, with a portion of the spaces designated for on-site employees and a portion designated for patrons of local businesses.

Based on nearby transit options for the site's residents, published ITE parking demand rates, and improvements to the number of publicly accessible off-street parking spaces, the proposed parking supply of 205 spaces would be sufficient to support the expected parking demand of the proposed development.

CONCLUSIONS

This report was prepared to examine the potential traffic impact of the proposed mixed-use development. The analysis findings, which have been based on industry-standard guidelines indicate that with minor signal timing adjustments at the adjacent intersection, the proposed development would not have a significant impact on the traffic operations of the adjacent roadway network. The mixed-use nature of the site, proximity of the site to the South Orange train station and nearby bus and jitney stops, and walkable nature of the surrounding area would result in a reduced traffic generation as compared to a similar suburban development with separate land uses per lot and no transit access. The site driveways and on-site layout have been designed to provide for effective access to and from the subject property. Based on the Redevelopment Plan, industry data, and local characteristics of the site and surrounding area, the parking supply would be sufficient to support this project. The proposed development is a transit-oriented development within Downtown South Orange Village

and would strengthen the transit node with increased transit use and pedestrian activity within the larger walkable downtown environment.

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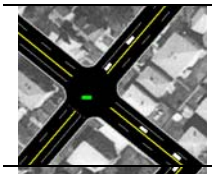
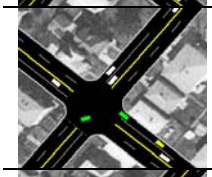
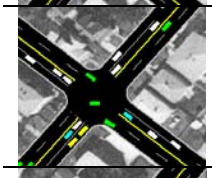
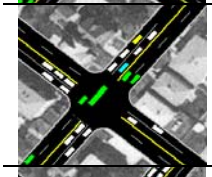
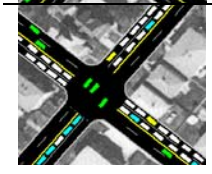
TECHNICAL APPENDIX

LEVEL OF SERVICE/AVERAGE CONTROL DELAY CRITERIA

LEVEL OF SERVICE /AVERAGE CONTROL DELAY CRITERIA

The ability of a roadway to effectively accommodate traffic demand is determined through an assessment of the volume-to-capacity ratio, delay and Level of Service of the lane group and/or intersection. The volume-to-capacity ratio is the ratio of traffic flow rate to capacity for a given transportation facility. As defined within the Highway Capacity Manual, 6th Edition (HCM), intersection delay is the total additional travel time experienced by drivers, passengers, or pedestrians as a result of control measures and interaction with other users of the facility, divided by the volume departing from the corresponding cross section of the facility. Level of service is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience.

For an unsignalized intersection, LOS A indicates operations with delay less than 10 seconds per vehicle, while LOS F describes operations with delay in excess of 50 seconds per vehicle. For a signalized intersection, LOS A indicates operations with delay less than 10 seconds per vehicle and LOS F denotes operations with delay in excess of 80 seconds per vehicle.

	Level Of Service (LOS)	Signalized Delay Range (average control delay in sec/veh)	Unsignalized Delay Range (average control delay in sec/veh)
	A	<=10	<=10
	B	>10 and <=20	>10 and <=15
	C	>20 and <=35	>15 and <=25
	D	>35 and <=55	>25 and <=35
	E	>55 and <=80	>35 and <=50
	F	>80	>50

Source: Highway Capacity Manual, 6th Edition

STONEFIELD

Table A1: Comparative Level of Service (Delay) Table

South Orange Avenue, Essex County, New Jersey

X (n) = Level of Service (seconds of delay)

		Weekday Morning Peak Hour			Weekday Evening Peak Hour				Saturday Midday Peak Hour		
Intersection	**Lane Group**	**2020 Existing Condition**	**2023 No-Build Condition**	**2023 Build Condition**	**2020 Existing Condition**	**2023 No-Build Condition**	**2023 Build Condition**	**2023 Mitigation Condition**	**2020 Existing Condition**	**2023 No-Build Condition**	**2023 Build Condition**
South Orange Avenue (E/W) & Valley Street/Scotland Road (N/S)	EB Left	B (13.8)	B (15.5)	B (15.7)	B (12.8)	B (14.1)	B (14.2)	B (16.0)	B (10.9)	B (11.9)	B (12.2)
	EB Through	A (5.7)	A (6.9)	A (7.1)	A (5.9)	A (7.6)	A (7.8)	B (10.8)	A (3.1)	A (4.3)	A (4.7)
	EB Through/Right	A (5.7)	A (6.9)	A (7.1)	A (5.9)	A (7.6)	A (7.8)	B (10.8)	A (3.1)	A (4.4)	A (4.7)
	WB Left	B (12.6)	B (13.3)	B (13.4)	B (12.8)	B (13.9)	B (14.1)	B (16.0)	B (10.9)	B (11.8)	B (12.0)
	WB Through	C (24.0)	C (28.7)	C (29.0)	C (20.0)	C (23.5)	C (23.8)	C (27.1)	B (17.9)	C (20.0)	C (20.4)
	WB Right	B (17.6)	B (18.5)	B (18.8)	B (17.8)	C (20.1)	C (20.7)	C (23.4)	B (15.4)	B (17.4)	B (18.0)
	NB Left	C (29.0)	C (28.3)	C (28.2)	C (27.9)	C (26.7)	C (26.6)	C (26.6)	C (31.4)	C (30.2)	C (29.9)
	NB Through	D (39.0)	D (39.4)	D (39.5)	D (39.0)	D (39.9)	D (40.1)	D (40.1)	D (37.9)	D (38.0)	D (38.1)
	NB Right	C (29.5)	C (28.7)	C (28.6)	C (29.4)	C (28.1)	C (27.8)	C (27.8)	C (32.2)	C (30.8)	C (30.4)
	SB Left	D (49.0)	E (58.3)	E (59.1)	E (57.7)	F (81.7)	F (96.8)	D (40.5)	D (40.1)	D (53.2)	E (61.4)
	SB Through	C (22.2)	C (21.7)	C (21.5)	C (21.9)	C (21.0)	C (20.8)	B (18.6)	C (24.1)	C (23.1)	C (22.9)
	SB Through/Right	C (22.3)	C (21.8)	C (21.6)	C (22.0)	C (21.1)	C (20.9)	B (18.7)	C (24.2)	C (23.2)	C (23.0)
	Overall	**C (23.1)**	**C (25.0)**	**C (25.1)**	**C (23.9)**	**C (27.0)**	**C (28.9)**	**C (24.4)**	**C (20.8)**	**C (22.8)**	**C (23.9)**
South Orange Avenue (E/W) & Vose Avenue (S)	EB Left	A (4.3)	A (4.6)	A (5.0)	A (4.7)	A (5.4)	A (6.1)		A (3.8)	A (4.1)	A (4.6)
	EB Through	A (6.0)	A (6.8)	A (7.2)	A (5.5)	A (6.6)	A (7.1)		A (4.6)	A (5.1)	A (5.5)
	WB Through	A (0.7)	A (0.7)	A (0.8)	A (0.5)	A (0.6)	A (0.6)		A (0.4)	A (0.4)	A (0.5)
	WB Right	A (0.1)	A (0.1)	A (0.1)	A (0.1)	A (0.1)	A (0.1)		A (0.2)	A (0.2)	A (0.2)
	SB Left/Right	D (49.0)	D (50.0)	D (51.3)	D (46.3)	D (47.6)	D (49.5)		D (46.0)	D (47.0)	D (49.0)
	Overall	**A (9.6)**	**A (9.7)**	**B (10.4)**	**A (9.1)**	**A (9.4)**	**B (10.4)**		**A (9.1)**	**A (9.3)**	**B (10.3)**
Taylor Place (E) & Scotland Road (N/S)	EB Left/Right	C (16.6)	C (18.1)	C (20.2)	C (16.8)	C (18.7)	C (24.2)		C (16.0)	C (18.3)	C (23.8)
	NB Left/Through	A (9.3)	A (9.5)	A (9.6)	A (9.1)	A (9.4)	A (9.5)		A (8.9)	A (9.1)	A (9.3)
Taylor Place (W) & Vose Avenue (N/S)	WB Left/Right	B (11.5)	B (11.8)	B (12.0)	B (12.7)	B (13.3)	B (13.7)		B (12.9)	B (13.5)	B (14.6)
	SB Left/Through	A (8.0)	A (8.0)	A (8.1)	A (8.2)	A (8.3)	A (8.3)		A (8.3)	A (8.3)	A (8.4)
Site Driveway (W) & Vose Avenue (N/S)	WB Left/Right			B (11.3)			B (11.9)				B (11.6)
	SB Left/Through			A (7.8)			A (8.1)				A (8.1)
Taylor Place (E/W) & Site Driveway (N)	WB Left/Through			A (7.7)			A (7.7)				A (7.8)
	NB Left/Right			A (9.6)			A (9.9)				B (10.2)

TURNING MOVEMENT COUNT DATA

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070

201.340.4468 t. 201.340.4472 f.

Intersection of South Orange Avenue (E/W)
and Valley Street/Scotland Road (N/S)
South Orange, Essex County, New Jersey
Tuesday, March 3, 2020

File Name : RUT-200075.04_AM
Site Code : 00200075
Start Date : 3/3/2020
Page No : 1

Groups Printed- Auto - HV - B/SB

	South Orange Avenue Eastbound					South Orange Avenue Westbound					Valley Street Northbound					Scotland Road Southbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
07:00 AM	4	51	0	0	55	14	67	24	2	107	8	57	17	0	82	30	77	2	0	109	353
07:15 AM	11	83	4	0	98	16	112	27	0	155	7	77	23	0	107	32	86	9	0	127	487
07:30 AM	13	83	9	0	105	24	121	25	0	170	5	95	27	0	127	53	106	13	0	172	574
07:45 AM	8	102	0	0	110	16	103	35	2	156	21	92	15	0	128	63	106	9	0	178	572
Total	36	319	13	0	368	70	403	111	4	588	41	321	82	0	444	178	375	33	0	586	1986
08:00 AM	16	101	2	0	119	20	98	41	2	161	18	110	31	0	159	59	68	14	0	141	580
08:15 AM	14	116	5	0	135	22	99	36	0	157	7	93	39	0	139	51	107	16	0	174	605
08:30 AM	15	108	10	0	133	20	115	34	1	170	16	88	27	0	131	60	98	10	0	168	602
08:45 AM	9	72	9	0	90	31	104	37	1	173	8	81	20	0	109	61	95	9	0	165	537
Total	54	397	26	0	477	93	416	148	4	661	49	372	117	0	538	231	368	49	0	648	2324
Grand Total	90	716	39	0	845	163	819	259	8	1249	90	693	199	0	982	409	743	82	0	1234	4310
Apprch %	10.7	84.7	4.6	0		13.1	65.6	20.7	0.6		9.2	70.6	20.3	0		33.1	60.2	6.6	0		
Total %	2.1	16.6	0.9	0	19.6	3.8	19	6	0.2	29	2.1	16.1	4.6	0	22.8	9.5	17.2	1.9	0	28.6	
Auto	87	705	38	0	830	155	814	256	8	1233	85	665	180	0	930	404	719	81	0	1204	4197
% Auto	96.7	98.5	97.4	0	98.2	95.1	99.4	98.8	100	98.7	94.4	96	90.5	0	94.7	98.8	96.8	98.8	0	97.6	97.4
HV	1	3	1	0	5	0	2	2	0	4	2	15	8	0	25	4	14	1	0	19	53
% HV	1.1	0.4	2.6	0	0.6	0	0.2	0.8	0	0.3	2.2	2.2	4	0	2.5	1	1.9	1.2	0	1.5	1.2
B/SB	2	8	0	0	10	8	3	1	0	12	3	13	11	0	27	1	10	0	0	11	60
% B/SB	2.2	1.1	0	0	1.2	4.9	0.4	0.4	0	1	3.3	1.9	5.5	0	2.7	0.2	1.3	0	0	0.9	1.4

	South Orange Avenue Eastbound					South Orange Avenue Westbound					Valley Street Northbound					Scotland Road Southbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	16	101	2	0	119	20	98	41	2	161	18	110	31	0	159	59	68	14	0	141	580
08:15 AM	14	116	5	0	135	22	99	36	0	157	7	93	39	0	139	51	107	16	0	174	605
08:30 AM	15	108	10	0	133	20	115	34	1	170	16	88	27	0	131	60	98	10	0	168	602
08:45 AM	9	72	9	0	90	31	104	37	1	173	8	81	20	0	109	61	95	9	0	165	537
Total Volume	54	397	26	0	477	93	416	148	4	661	49	372	117	0	538	231	368	49	0	648	2324
% App. Total	11.3	83.2	5.5	0		14.1	62.9	22.4	0.6		9.1	69.1	21.7	0		35.6	56.8	7.6	0		
PHF	.844	.856	.650	.000	.883	.750	.904	.902	.500	.955	.681	.845	.750	.000	.846	.947	.860	.766	.000	.931	.960
Auto	52	390	25	0	467	91	414	148	4	657	46	353	108	0	507	228	358	49	0	635	2266
% Auto	96.3	98.2	96.2	0	97.9	97.8	99.5	100	100	99.4	93.9	94.9	92.3	0	94.2	98.7	97.3	100	0	98.0	97.5
HV	0	1	1	0	2	0	2	0	0	2	2	11	5	0	18	2	5	0	0	7	29
% HV	0	0.3	3.8	0	0.4	0	0.5	0	0	0.3	4.1	3.0	4.3	0	3.3	0.9	1.4	0	0	1.1	1.2
B/SB	2	6	0	0	8	2	0	0	0	2	1	8	4	0	13	1	5	0	0	6	29
% B/SB	3.7	1.5	0	0	1.7	2.2	0	0	0	0.3	2.0	2.2	3.4	0	2.4	0.4	1.4	0	0	0.9	1.2

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070

201.340.4468 t. 201.340.4472 f.

Intersection of South Orange Avenue (E/W)
and Vose Avenue (S)
South Orange, Essex County, New Jersey
Tuesday, March 3, 2020

File Name : RUT-200075.03_AM
Site Code : 00200075
Start Date : 3/3/2020
Page No : 1

Groups Printed- Auto - HV - B/SB

	South Orange Avenue Eastbound					South Orange Avenue Westbound					Vose Avenue Southbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
07:00 AM	5	70	0	0	75	0	87	5	3	95	6	0	6	5	17	187
07:15 AM	5	95	0	0	100	0	121	2	0	123	12	0	20	5	37	260
07:30 AM	9	114	0	0	123	0	137	8	0	145	15	0	8	2	25	293
07:45 AM	15	125	0	0	140	0	158	13	0	171	13	0	25	1	39	350
Total	34	404	0	0	438	0	503	28	3	534	46	0	59	13	118	1090
08:00 AM	15	165	0	0	180	0	125	8	1	134	21	0	16	0	37	351
08:15 AM	20	156	0	0	176	0	116	13	2	131	30	0	45	0	75	382
08:30 AM	17	137	0	0	154	0	152	12	0	164	33	0	20	0	53	371
08:45 AM	14	116	0	0	130	0	216	18	0	234	22	0	19	2	43	407
Total	66	574	0	0	640	0	609	51	3	663	106	0	100	2	208	1511
Grand Total	100	978	0	0	1078	0	1112	79	6	1197	152	0	159	15	326	2601
Apprch %	9.3	90.7	0	0		0	92.9	6.6	0.5		46.6	0	48.8	4.6		
Total %	3.8	37.6	0	0	41.4	0	42.8	3	0.2	46	5.8	0	6.1	0.6	12.5	
Auto	100	972	0	0	1072	0	1101	78	6	1185	152	0	158	14	324	2581
% Auto	100	99.4	0	0	99.4	0	99	98.7	100	99	100	0	99.4	93.3	99.4	99.2
HV	0	1	0	0	1	0	2	1	0	3	0	0	1	0	1	5
% HV	0	0.1	0	0	0.1	0	0.2	1.3	0	0.3	0	0	0.6	0	0.3	0.2
B/SB	0	5	0	0	5	0	9	0	0	9	0	0	0	1	1	15
% B/SB	0	0.5	0	0	0.5	0	0.8	0	0	0.8	0	0	0	6.7	0.3	0.6

	South Orange Avenue Eastbound					South Orange Avenue Westbound					Vose Avenue Southbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 08:00 AM																
08:00 AM	15	165	0	0	180	0	125	8	1	134	21	0	16	0	37	351
08:15 AM	20	156	0	0	176	0	116	13	2	131	30	0	45	0	75	382
08:30 AM	17	137	0	0	154	0	152	12	0	164	33	0	20	0	53	371
08:45 AM	14	116	0	0	130	0	216	18	0	234	22	0	19	2	43	407
Total Volume	66	574	0	0	640	0	609	51	3	663	106	0	100	2	208	1511
% App. Total	10.3	89.7	0	0		0	91.9	7.7	0.5		51	0	48.1	1		
PHF	.825	.870	.000	.000	.889	.000	.705	.708	.375	.708	.803	.000	.556	.250	.693	.928
Auto	66	570	0	0	636	0	607	50	3	660	106	0	100	2	208	1504
% Auto	100	99.3	0	0	99.4	0	99.7	98.0	100	99.5	100	0	100	100	100	99.5
HV	0	1	0	0	1	0	1	1	0	2	0	0	0	0	0	3
% HV	0	0.2	0	0	0.2	0	0.2	2.0	0	0.3	0	0	0	0	0	0.2
B/SB	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	4
% B/SB	0	0.5	0	0	0.5	0	0.2	0	0	0.2	0	0	0	0	0	0.3

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070

201.340.4468 t. 201.340.4472 f.

Intersection of Taylor Place (E)
and Scotland Road (N/S)
South Orange, Essex County, New Jersey
Tuesday, March 3, 2020

File Name : RUT-200075.02_AM
Site Code : 00200075
Start Date : 3/3/2020
Page No : 1

Groups Printed- Auto - HV - B/SB

	Taylor Place Eastbound				Scotland Road Northbound				Scotland Road Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
08:00 AM	2	0	21	23	18	0	0	18	0	0	3	3	44
08:15 AM	4	0	18	22	17	0	0	17	0	0	12	12	51
08:30 AM	2	0	25	27	12	0	0	12	0	0	6	6	45
08:45 AM	4	0	15	19	14	0	0	14	0	0	4	4	37
Total	12	0	79	91	61	0	0	61	0	0	25	25	177
Grand Total	12	0	79	91	61	0	0	61	0	0	25	25	177
Apprch %	13.2	0	86.8		100	0	0		0	0	100		
Total %	6.8	0	44.6	51.4	34.5	0	0	34.5	0	0	14.1	14.1	
Auto	11	0	79	90	60	0	0	60	0	0	25	25	175
% Auto	91.7	0	100	98.9	98.4	0	0	98.4	0	0	100	100	98.9
HV	1	0	0	1	0	0	0	0	0	0	0	0	1
% HV	8.3	0	0	1.1	0	0	0	0	0	0	0	0	0.6
B/SB	0	0	0	0	1	0	0	1	0	0	0	0	1
% B/SB	0	0	0	0	1.6	0	0	1.6	0	0	0	0	0.6

	Taylor Place Eastbound				Scotland Road Northbound				Scotland Road Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	2	0	21	23	18	0	0	18	0	0	3	3	44
08:15 AM	4	0	18	22	17	0	0	17	0	0	12	12	51
08:30 AM	2	0	25	27	12	0	0	12	0	0	6	6	45
08:45 AM	4	0	15	19	14	0	0	14	0	0	4	4	37
Total Volume	12	0	79	91	61	0	0	61	0	0	25	25	177
% App. Total	13.2	0	86.8		100	0	0		0	0	100		
PHF	.750	.000	.790	.843	.847	.000	.000	.847	.000	.000	.521	.521	.868
Auto	11	0	79	90	60	0	0	60	0	0	25	25	175
% Auto	91.7	0	100	98.9	98.4	0	0	98.4	0	0	100	100	98.9
HV	1	0	0	1	0	0	0	0	0	0	0	0	1
% HV	8.3	0	0	1.1	0	0	0	0	0	0	0	0	0.6
B/SB	0	0	0	0	1	0	0	1	0	0	0	0	1
% B/SB	0	0	0	0	1.6	0	0	1.6	0	0	0	0	0.6

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070

201.340.4468 t. 201.340.4472 f.

Intersection of Taylor Place (W)
and Vose Avenue (N/S)
South Orange, Essex County, New Jersey
Tuesday, March 3, 2020

File Name : RUT-200075.01_AM
Site Code : 00200075
Start Date : 3/3/2020
Page No : 1

Groups Printed- Auto - HV - B/SB

	Taylor Place Westbound				Vose Avenue Northbound				Vose Avenue Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	4	0	7	11	0	8	1	9	11	17	0	28	48
07:15 AM	6	0	5	11	0	5	2	7	9	34	0	43	61
07:30 AM	3	0	6	9	0	14	4	18	21	23	0	44	71
07:45 AM	5	0	13	18	0	11	7	18	36	46	0	82	118
Total	18	0	31	49	0	38	14	52	77	120	0	197	298
08:00 AM	2	0	14	16	0	16	6	22	26	38	0	64	102
08:15 AM	6	0	12	18	0	21	5	26	15	50	0	65	109
08:30 AM	3	0	4	7	0	22	3	25	17	46	0	63	95
08:45 AM	7	0	5	12	0	12	13	25	19	48	0	67	104
Total	18	0	35	53	0	71	27	98	77	182	0	259	410
Grand Total	36	0	66	102	0	109	41	150	154	302	0	456	708
Apprch %	35.3	0	64.7		0	72.7	27.3		33.8	66.2	0		
Total %	5.1	0	9.3	14.4	0	15.4	5.8	21.2	21.8	42.7	0	64.4	
Auto	36	0	64	100	0	108	40	148	152	289	0	441	689
% Auto	100	0	97	98	0	99.1	97.6	98.7	98.7	95.7	0	96.7	97.3
HV	0	0	1	1	0	1	1	2	1	2	0	3	6
% HV	0	0	1.5	1	0	0.9	2.4	1.3	0.6	0.7	0	0.7	0.8
B/SB	0	0	1	1	0	0	0	0	1	11	0	12	13
% B/SB	0	0	1.5	1	0	0	0	0	0.6	3.6	0	2.6	1.8

	Taylor Place Westbound				Vose Avenue Northbound				Vose Avenue Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	2	0	14	16	0	16	6	22	26	38	0	64	102
08:15 AM	6	0	12	18	0	21	5	26	15	50	0	65	109
08:30 AM	3	0	4	7	0	22	3	25	17	46	0	63	95
08:45 AM	7	0	5	12	0	12	13	25	19	48	0	67	104
Total Volume	18	0	35	53	0	71	27	98	77	182	0	259	410
% App. Total	34	0	66		0	72.4	27.6		29.7	70.3	0		
PHF	.643	.000	.625	.736	.000	.807	.519	.942	.740	.910	.000	.966	.940
Auto	18	0	35	53	0	71	26	97	77	182	0	259	409
% Auto	100	0	100	100	0	100	96.3	99.0	100	100	0	100	99.8
HV	0	0	0	0	0	0	1	1	0	0	0	0	1
% HV	0	0	0	0	0	0	3.7	1.0	0	0	0	0	0.2
B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0
% B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070

201.340.4468 t. 201.340.4472 f.

Intersection of South Orange Avenue (E/W and Valley Street/Scotland Road (N/S)
South Orange, Essex County, New Jersey
Wednesday, March 4, 2020

File Name : RUT-200075.04_PM
Site Code : 00200075
Start Date : 3/4/2020

Groups Printed- Auto - HV - B/SB

	South Orange Avenue Eastbound					South Orange Avenue Westbound					Valley Street Northbound					Scotland Road Southbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
04:00 PM	12	113	5	0	130	31	77	31	0	139	10	76	29	0	115	67	92	9	0	168	552
04:15 PM	12	111	7	0	130	18	65	39	0	122	16	105	39	0	160	44	88	11	0	143	555
04:30 PM	13	137	10	0	160	18	84	48	0	150	9	114	27	0	150	55	96	18	0	169	629
04:45 PM	11	131	11	0	153	28	87	32	0	147	18	103	29	0	150	62	84	19	0	165	615
Total	48	492	33	0	573	95	313	150	0	558	53	398	124	0	575	228	360	57	0	645	2351
05:00 PM	19	142	7	0	168	28	79	47	0	154	11	111	28	0	150	51	89	8	0	148	620
05:15 PM	13	141	7	0	161	28	86	42	0	156	11	105	30	0	146	48	80	10	0	138	601
05:30 PM	15	121	12	0	148	18	103	44	0	165	7	92	37	0	136	60	102	11	0	173	622
05:45 PM	14	129	6	0	149	26	79	40	0	145	10	77	34	0	121	71	90	18	0	179	594
Total	61	533	32	0	626	100	347	173	0	620	39	385	129	0	553	230	361	47	0	638	2437
06:00 PM	13	135	12	0	160	18	103	46	0	167	20	112	31	0	163	58	93	17	0	168	658
06:15 PM	13	131	9	0	153	27	91	40	0	158	11	110	25	0	146	53	89	16	0	158	615
06:30 PM	11	129	9	0	149	23	80	32	0	135	15	101	43	0	159	50	62	13	0	125	568
06:45 PM	11	95	4	0	110	24	70	39	0	133	13	92	26	0	131	47	51	14	0	112	486
Total	48	490	34	0	572	92	344	157	0	593	59	415	125	0	599	208	295	60	0	563	2327
Grand Total	157	1515	99	0	1771	287	1004	480	0	1771	151	1198	378	0	1727	666	1016	164	0	1846	7115
Apprch %	8.9	85.5	5.6	0		16.2	56.7	27.1	0		8.7	69.4	21.9	0		36.1	55	8.9	0		
Total %	2.2	21.3	1.4	0	24.9	4	14.1	6.7	0	24.9	2.1	16.8	5.3	0	24.3	9.4	14.3	2.3	0	25.9	
Auto	155	1502	98	0	1755	270	1001	477	0	1748	150	1178	361	0	1689	665	1002	164	0	1831	7023
% Auto	98.7	99.1	99	0	99.1	94.1	99.7	99.4	0	98.7	99.3	98.3	95.5	0	97.8	99.8	98.6	100	0	99.2	98.7
HV	0	4	1	0	5	1	2	3	0	6	1	5	2	0	8	0	5	0	0	5	24
% HV	0	0.3	1	0	0.3	0.3	0.2	0.6	0	0.3	0.7	0.4	0.5	0	0.5	0	0.5	0	0	0.3	0.3
B/SB	2	9	0	0	11	16	1	0	0	17	0	15	15	0	30	1	9	0	0	10	68
% B/SB	1.3	0.6	0	0	0.6	5.6	0.1	0	0	1	0	1.3	4	0	1.7	0.2	0.9	0	0	0.5	1

	South Orange Avenue Eastbound					South Orange Avenue Westbound					Valley Street Northbound					Scotland Road Southbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 05:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:30 PM																					
05:30 PM	15	121	12	0	148	18	103	44	0	165	7	92	37	0	136	60	102	11	0	173	622
05:45 PM	14	129	6	0	149	26	79	40	0	145	10	77	34	0	121	71	90	18	0	179	594
06:00 PM	13	135	12	0	160	18	103	46	0	167	20	112	31	0	163	58	93	17	0	168	658
06:15 PM	13	131	9	0	153	27	91	40	0	158	11	110	25	0	146	53	89	16	0	158	615
Total Volume	55	516	39	0	610	89	376	170	0	635	48	391	127	0	566	242	374	62	0	678	2489
% App. Total	9	84.6	6.4	0		14	59.2	26.8	0		8.5	69.1	22.4	0		35.7	55.2	9.1	0		
PHF	.917	.956	.813	.000	.953	.824	.913	.924	.000	.951	.600	.873	.858	.000	.868	.852	.917	.861	.000	.947	.946
Auto	54	511	39	0	604	84	376	170	0	630	48	388	121	0	557	242	369	62	0	673	2464
% Auto	98.2	99.0	100	0	99.0	94.4	100	100	0	99.2	100	99.2	95.3	0	98.4	100	98.7	100	0	99.3	99.0
HV	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	4
% HV	0	0.4	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0.3	0.2
B/SB	1	3	0	0	4	5	0	0	0	5	0	3	6	0	9	0	3	0	0	3	21
% B/SB	1.8	0.6	0	0	0.7	5.6	0	0	0	0.8	0	0.8	4.7	0	1.6	0	0.8	0	0	0.4	0.8

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070

201.340.4468 t. 201.340.4472 f.

Intersection of South Orange Avenue (E/W)
and Vose Avenue (S)
South Orange, Essex County, New Jersey
Wednesday, March 4, 2020

File Name : RUT-200075.03_PM
Site Code : 00200075
Start Date : 3/4/2020
Page No : 1

Groups Printed- Auto - HV - B/SB

	South Orange Avenue Eastbound					South Orange Avenue Westbound					Vose Avenue Southbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
04:00 PM	16	54	0	0	70	0	51	12	10	73	12	0	16	14	42	185
04:15 PM	14	59	0	0	73	0	54	21	21	96	19	0	29	12	60	229
04:30 PM	13	73	0	0	86	0	77	9	8	94	19	0	10	12	41	221
04:45 PM	10	85	0	0	95	0	82	12	9	103	20	0	13	9	42	240
Total	53	271	0	0	324	0	264	54	48	366	70	0	68	47	185	875
05:00 PM	13	82	0	0	95	0	83	11	8	102	23	0	17	7	47	244
05:15 PM	10	93	0	0	103	0	89	16	10	115	24	0	22	12	58	276
05:30 PM	12	110	0	0	122	0	108	12	9	129	21	0	18	11	50	301
05:45 PM	114	98	0	0	212	0	97	13	9	119	22	0	21	10	53	384
Total	149	383	0	0	532	0	377	52	36	465	90	0	78	40	208	1205
06:00 PM	13	100	0	0	113	0	99	16	11	126	20	0	27	11	58	297
06:15 PM	10	95	0	0	105	0	91	12	10	113	21	0	22	10	53	271
06:30 PM	7	81	0	0	88	0	79	12	8	99	18	0	21	5	44	231
06:45 PM	5	74	0	0	79	0	78	10	6	94	10	0	14	3	27	200
Total	35	350	0	0	385	0	347	50	35	432	69	0	84	29	182	999
Grand Total	237	1004	0	0	1241	0	988	156	119	1263	229	0	230	116	575	3079
Apprch %	19.1	80.9	0	0		0	78.2	12.4	9.4		39.8	0	40	20.2		
Total %	7.7	32.6	0	0	40.3	0	32.1	5.1	3.9	41	7.4	0	7.5	3.8	18.7	
Auto	237	1001	0	0	1238	0	984	156	119	1259	228	0	229	116	573	3070
% Auto	100	99.7	0	0	99.8	0	99.6	100	100	99.7	99.6	0	99.6	100	99.7	99.7
HV	0	1	0	0	1	0	2	0	0	2	1	0	0	0	1	4
% HV	0	0.1	0	0	0.1	0	0.2	0	0	0.2	0.4	0	0	0	0.2	0.1
B/SB	0	2	0	0	2	0	2	0	0	2	0	0	1	0	1	5
% B/SB	0	0.2	0	0	0.2	0	0.2	0	0	0.2	0	0	0.4	0	0.2	0.2

	South Orange Avenue Eastbound					South Orange Avenue Westbound					Vose Avenue Southbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 05:30 PM to 06:15 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 05:30 PM																
05:30 PM	12	110	0	0	122	0	108	12	9	129	21	0	18	11	50	301
05:45 PM	114	98	0	0	212	0	97	13	9	119	22	0	21	10	53	384
06:00 PM	13	100	0	0	113	0	99	16	11	126	20	0	27	11	58	297
06:15 PM	10	95	0	0	105	0	91	12	10	113	21	0	22	10	53	271
Total Volume	149	403	0	0	552	0	395	53	39	487	84	0	88	42	214	1253
% App. Total	27	73	0	0		0	81.1	10.9	8		39.3	0	41.1	19.6		
PHF	.327	.916	.000	.000	.651	.000	.914	.828	.886	.944	.955	.000	.815	.955	.922	.816
Auto	149	403	0	0	552	0	395	53	39	487	84	0	88	42	214	1253
% Auto	100	100	0	0	100	0	100	100	100	100	100	0	100	100	100	100
HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070

201.340.4468 t. 201.340.4472 f.

Intersection of Taylor Place (E)
and Scotland Road (N/S)
South Orange, Essex County, New Jersey
Wednesday, March 4, 2020

File Name : RUT-200075.02_PM
Site Code : 00200075
Start Date : 3/4/2020
Page No : 1

Groups Printed- Auto - HV - B/SB

	Taylor Place Eastbound				Scotland Road Northbound				Scotland Road Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	5	0	28	33	18	120	0	138	0	137	6	143	314
04:15 PM	7	0	29	36	18	130	0	148	0	126	8	134	318
04:30 PM	9	0	30	39	14	156	0	170	0	133	7	140	349
04:45 PM	4	0	29	33	14	135	0	149	0	140	5	145	327
Total	25	0	116	141	64	541	0	605	0	536	26	562	1308
05:00 PM	6	0	26	32	12	166	0	178	0	122	7	129	339
05:15 PM	3	0	28	31	16	144	0	160	0	110	6	116	307
05:30 PM	7	0	23	30	15	136	0	151	0	150	6	156	337
05:45 PM	6	0	29	35	12	119	0	131	0	150	7	157	323
Total	22	0	106	128	55	565	0	620	0	532	26	558	1306
06:00 PM	2	0	30	32	20	151	0	171	0	138	6	144	347
06:15 PM	6	0	25	31	12	151	0	163	0	133	6	139	333
06:30 PM	2	0	16	18	16	128	0	144	0	109	4	113	275
06:45 PM	5	0	12	17	5	137	0	142	0	100	5	105	264
Total	15	0	83	98	53	567	0	620	0	480	21	501	1219
Grand Total	62	0	305	367	172	1673	0	1845	0	1548	73	1621	3833
Apprch %	16.9	0	83.1		9.3	90.7	0		0	95.5	4.5		
Total %	1.6	0	8	9.6	4.5	43.6	0	48.1	0	40.4	1.9	42.3	
Auto	62	0	304	366	172	1665	0	1837	0	1542	71	1613	3816
% Auto	100	0	99.7	99.7	100	99.5	0	99.6	0	99.6	97.3	99.5	99.6
HV	0	0	1	1	0	5	0	5	0	2	1	3	9
% HV	0	0	0.3	0.3	0	0.3	0	0.3	0	0.1	1.4	0.2	0.2
B/SB	0	0	0	0	0	3	0	3	0	4	1	5	8
% B/SB	0	0	0	0	0	0.2	0	0.2	0	0.3	1.4	0.3	0.2

	Taylor Place Eastbound				Scotland Road Northbound				Scotland Road Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:30 PM to 06:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:30 PM													
05:30 PM	7	0	23	30	15	136	0	151	0	150	6	156	337
05:45 PM	6	0	29	35	12	119	0	131	0	150	7	157	323
06:00 PM	2	0	30	32	20	151	0	171	0	138	6	144	347
06:15 PM	6	0	25	31	12	151	0	163	0	133	6	139	333
Total Volume	21	0	107	128	59	557	0	616	0	571	25	596	1340
% App. Total	16.4	0	83.6		9.6	90.4	0		0	95.8	4.2		
PHF	.750	.000	.892	.914	.738	.922	.000	.901	.000	.952	.893	.949	.965
Auto	21	0	107	128	59	557	0	616	0	571	25	596	1340
% Auto	100	0	100	100	100	100	0	100	0	100	100	100	100
HV	0	0	0	0	0	0	0	0	0	0	0	0	0
% HV	0	0	0	0	0	0	0	0	0	0	0	0	0
B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0
% B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070

201.340.4468 t. 201.340.4472 f.

Intersection of Taylor Place (W)
and Vose Avenue (N/S)
South Orange, Essex County, New Jersey
Wednesday, March 4, 2020

File Name : RUT-200075.01_PM
Site Code : 00200075
Start Date : 3/4/2020
Page No : 1

Groups Printed- Auto - HV - B/SB

	Taylor Place Westbound				Vose Avenue Northbound				Vose Avenue Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	7	0	13	20	0	26	11	37	21	35	0	56	113
04:15 PM	12	0	12	24	0	19	5	24	22	35	0	57	105
04:30 PM	11	0	12	23	0	16	9	25	26	31	0	57	105
04:45 PM	1	0	6	7	0	14	9	23	23	28	0	51	81
Total	31	0	43	74	0	75	34	109	92	129	0	221	404
05:00 PM	5	0	9	14	0	22	9	31	18	35	0	53	98
05:15 PM	7	0	9	16	0	21	9	30	18	34	0	52	98
05:30 PM	8	0	9	17	0	19	15	34	13	31	0	44	95
05:45 PM	9	0	4	13	0	19	11	30	21	30	0	51	94
Total	29	0	31	60	0	81	44	125	70	130	0	200	385
06:00 PM	9	0	13	22	0	20	5	25	23	39	0	62	109
06:15 PM	6	0	8	14	0	22	12	34	17	29	0	46	94
06:30 PM	9	0	9	18	0	21	7	28	8	16	0	24	70
06:45 PM	3	0	4	7	0	10	10	20	7	22	0	29	56
Total	27	0	34	61	0	73	34	107	55	106	0	161	329
Grand Total	87	0	108	195	0	229	112	341	217	365	0	582	1118
Apprch %	44.6	0	55.4		0	67.2	32.8		37.3	62.7	0		
Total %	7.8	0	9.7	17.4	0	20.5	10	30.5	19.4	32.6	0	52.1	
Auto	87	0	106	193	0	228	112	340	216	364	0	580	1113
% Auto	100	0	98.1	99	0	99.6	100	99.7	99.5	99.7	0	99.7	99.6
HV	0	0	1	1	0	0	0	0	1	0	0	1	2
% HV	0	0	0.9	0.5	0	0	0	0	0.5	0	0	0.2	0.2
B/SB	0	0	1	1	0	1	0	1	0	1	0	1	3
% B/SB	0	0	0.9	0.5	0	0.4	0	0.3	0	0.3	0	0.2	0.3

	Taylor Place Westbound				Vose Avenue Northbound				Vose Avenue Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:30 PM to 06:15 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:30 PM													
05:30 PM	8	0	9	17	0	19	15	34	13	31	0	44	95
05:45 PM	9	0	4	13	0	19	11	30	21	30	0	51	94
06:00 PM	9	0	13	22	0	20	5	25	23	39	0	62	109
06:15 PM	6	0	8	14	0	22	12	34	17	29	0	46	94
Total Volume	32	0	34	66	0	80	43	123	74	129	0	203	392
% App. Total	48.5	0	51.5		0	65	35		36.5	63.5	0		
PHF	.889	.000	.654	.750	.000	.909	.717	.904	.804	.827	.000	.819	.899
Auto	32	0	34	66	0	80	43	123	74	128	0	202	391
% Auto	100	0	100	100	0	100	100	100	100	99.2	0	99.5	99.7
HV	0	0	0	0	0	0	0	0	0	0	0	0	0
% HV	0	0	0	0	0	0	0	0	0	0	0	0	0
B/SB	0	0	0	0	0	0	0	0	0	1	0	1	1
% B/SB	0	0	0	0	0	0	0	0	0	0.8	0	0.5	0.3

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070

201.340.4468 t. 201.340.4472 f.

Intersection of South Orange Avenue (E/W)
and Valley Street/Scotland Road (N/S)
South Orange, Essex County, New Jersey
Saturday, February 29, 2020

File Name : RUT-200075.04_SAT
Site Code : 00200075
Start Date : 2/29/2020
Page No : 1

Groups Printed- Auto - HV - B/SB

	South Orange Avenue Eastbound					South Orange Avenue Westbound					Valley Street Northbound					Scotland Road Southbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
11:00 AM	15	80	4	0	99	22	88	42	1	153	17	75	24	1	117	28	53	16	0	97	466
11:15 AM	12	102	6	0	120	15	90	32	1	138	13	52	34	0	99	52	68	19	0	139	496
11:30 AM	9	92	5	1	107	31	93	39	2	165	22	67	29	0	118	41	67	19	0	127	517
11:45 AM	13	88	10	1	112	31	92	40	0	163	21	61	19	0	101	62	92	12	0	166	542
Total	49	362	25	2	438	99	363	153	4	619	73	255	106	1	435	183	280	66	0	529	2021
12:00 PM	27	103	18	0	148	24	100	40	0	164	12	78	23	0	113	46	90	15	0	151	576
12:15 PM	14	106	5	0	125	31	94	28	1	154	17	84	30	0	131	53	74	9	0	136	546
12:30 PM	20	73	17	0	110	20	106	38	0	164	10	71	32	1	114	60	62	17	1	140	528
12:45 PM	10	90	20	1	121	31	98	46	0	175	26	77	35	0	138	49	59	24	0	132	566
Total	71	372	60	1	504	106	398	152	1	657	65	310	120	1	496	208	285	65	1	559	2216
01:00 PM	14	100	13	0	127	21	81	45	0	147	22	71	35	0	128	56	67	25	0	148	550
01:15 PM	16	106	11	0	133	22	102	45	0	169	15	82	22	0	119	45	62	12	0	119	540
01:30 PM	9	89	10	0	108	17	109	50	0	176	23	68	30	0	121	47	73	17	0	137	542
01:45 PM	15	95	6	0	116	19	90	34	0	143	11	71	26	0	108	56	66	25	0	147	514
Total	54	390	40	0	484	79	382	174	0	635	71	292	113	0	476	204	268	79	0	551	2146
Grand Total	174	1124	125	3	1426	284	1143	479	5	1911	209	857	339	2	1407	595	833	210	1	1639	6383
Apprch %	12.2	78.8	8.8	0.2		14.9	59.8	25.1	0.3		14.9	60.9	24.1	0.1		36.3	50.8	12.8	0.1		
Total %	2.7	17.6	2	0	22.3	4.4	17.9	7.5	0.1	29.9	3.3	13.4	5.3	0	22	9.3	13.1	3.3	0	25.7	
Auto	173	1120	125	3	1421	272	1141	476	5	1894	209	849	329	2	1389	593	817	210	1	1621	6325
% Auto	99.4	99.6	100	100	99.6	95.8	99.8	99.4	100	99.1	100	99.1	97.1	100	98.7	99.7	98.1	100	100	98.9	99.1
HV	1	2	0	0	3	4	2	3	0	9	0	4	1	0	5	2	10	0	0	12	29
% HV	0.6	0.2	0	0	0.2	1.4	0.2	0.6	0	0.5	0	0.5	0.3	0	0.4	0.3	1.2	0	0	0.7	0.5
B/SB	0	2	0	0	2	8	0	0	0	8	0	4	9	0	13	0	6	0	0	6	29
% B/SB	0	0.2	0	0	0.1	2.8	0	0	0	0.4	0	0.5	2.7	0	0.9	0	0.7	0	0	0.4	0.5

	South Orange Avenue Eastbound					South Orange Avenue Westbound					Valley Street Northbound					Scotland Road Southbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	27	103	18	0	148	24	100	40	0	164	12	78	23	0	113	46	90	15	0	151	576
12:15 PM	14	106	5	0	125	31	94	28	1	154	17	84	30	0	131	53	74	9	0	136	546
12:30 PM	20	73	17	0	110	20	106	38	0	164	10	71	32	1	114	60	62	17	1	140	528
12:45 PM	10	90	20	1	121	31	98	46	0	175	26	77	35	0	138	49	59	24	0	132	566
Total Volume	71	372	60	1	504	106	398	152	1	657	65	310	120	1	496	208	285	65	1	559	2216
% App. Total	14.1	73.8	11.9	0.2		16.1	60.6	23.1	0.2		13.1	62.5	24.2	0.2		37.2	51	11.6	0.2		
PHF	.657	.877	.750	.250	.851	.855	.939	.826	.250	.939	.625	.923	.857	.250	.899	.867	.792	.677	.250	.925	.962
Auto	71	372	60	1	504	102	397	152	1	652	65	306	117	1	489	208	279	65	1	553	2198
% Auto	100	100	100	100	100	96.2	99.7	100	100	99.2	100	98.7	97.5	100	98.6	100	97.9	100	100	98.9	99.2
HV	0	0	0	0	0	1	1	0	0	2	0	3	0	0	3	0	3	0	0	3	8
% HV	0	0	0	0	0	0.9	0.3	0	0	0.3	0	1.0	0	0	0.6	0	1.1	0	0	0.5	0.4
B/SB	0	0	0	0	0	3	0	0	0	3	0	1	3	0	4	0	3	0	0	3	10
% B/SB	0	0	0	0	0	2.8	0	0	0	0.5	0	0.3	2.5	0	0.8	0	1.1	0	0	0.5	0.5

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070

201.340.4468 t. 201.340.4472 f.

Intersection of South Orange Avenue (E/W)
and Vose Avenue (S)
South Orange, Essex County, New Jersey
Saturday, February 29, 2020

File Name : RUT-200075.03_SAT
Site Code : 00200075
Start Date : 2/29/2020
Page No : 1

Groups Printed- Auto - HV - B/SB

	South Orange Avenue Eastbound					South Orange Avenue Westbound					Vose Avenue Southbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
11:00 AM	29	107	0	0	136	0	87	29	0	116	31	0	26	0	57	309
11:15 AM	15	109	0	0	124	0	87	26	0	113	28	0	21	0	49	286
11:30 AM	19	104	0	0	123	0	105	17	1	123	22	0	26	3	51	297
11:45 AM	25	110	0	0	135	0	97	21	1	119	34	0	15	2	51	305
Total	88	430	0	0	518	0	376	93	2	471	115	0	88	5	208	1197
12:00 PM	27	135	0	0	162	0	92	20	0	112	31	0	15	3	49	323
12:15 PM	23	108	0	0	131	0	93	26	2	121	30	0	17	1	48	300
12:30 PM	16	117	0	0	133	0	102	16	3	121	23	0	32	4	59	313
12:45 PM	19	110	0	0	129	0	116	23	1	140	19	0	24	0	43	312
Total	85	470	0	0	555	0	403	85	6	494	103	0	88	8	199	1248
01:00 PM	12	120	0	0	132	0	98	15	0	113	25	0	22	2	49	294
01:15 PM	25	95	0	0	120	0	84	16	0	100	31	0	21	0	52	272
01:30 PM	16	103	0	0	119	0	115	19	0	134	18	0	14	1	33	286
01:45 PM	26	112	0	0	138	0	103	26	0	129	21	0	14	0	35	302
Total	79	430	0	0	509	0	400	76	0	476	95	0	71	3	169	1154
Grand Total	252	1330	0	0	1582	0	1179	254	8	1441	313	0	247	16	576	3599
Apprch %	15.9	84.1	0	0		0	81.8	17.6	0.6		54.3	0	42.9	2.8		
Total %	7	37	0	0	44	0	32.8	7.1	0.2	40	8.7	0	6.9	0.4	16	
Auto	252	1329	0	0	1581	0	1177	254	8	1439	313	0	246	16	575	3595
% Auto	100	99.9	0	0	99.9	0	99.8	100	100	99.9	100	0	99.6	100	99.8	99.9
HV	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	3
% HV	0	0	0	0	0	0	0.2	0	0	0.1	0	0	0.4	0	0.2	0.1
B/SB	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% B/SB	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0

	South Orange Avenue Eastbound					South Orange Avenue Westbound					Vose Avenue Southbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 12:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 12:00 PM																
12:00 PM	27	135	0	0	162	0	92	20	0	112	31	0	15	3	49	323
12:15 PM	23	108	0	0	131	0	93	26	2	121	30	0	17	1	48	300
12:30 PM	16	117	0	0	133	0	102	16	3	121	23	0	32	4	59	313
12:45 PM	19	110	0	0	129	0	116	23	1	140	19	0	24	0	43	312
Total Volume	85	470	0	0	555	0	403	85	6	494	103	0	88	8	199	1248
% App. Total	15.3	84.7	0	0		0	81.6	17.2	1.2		51.8	0	44.2	4		
PHF	.787	.870	.000	.000	.856	.000	.869	.817	.500	.882	.831	.000	.688	.500	.843	.966
Auto	85	470	0	0	555	0	402	85	6	493	103	0	88	8	199	1247
% Auto	100	100	0	0	100	0	99.8	100	100	99.8	100	0	100	100	100	99.9
HV	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% HV	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0	0	0	0.1
B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070

201.340.4468 t. 201.340.4472 f.

Intersection of Taylor Place (E)
and Scotland Road (N/S)
South Orange, Essex County, New Jersey
Saturday, February 29, 2020

File Name : RUT-200075.02_SAT
Site Code : 00200075
Start Date : 2/29/2020
Page No : 1

Groups Printed- Auto - HV - B/SB

	Taylor Place Eastbound				Scotland Road Northbound				Scotland Road Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:00 AM	10	0	20	30	18	0	0	18	0	0	4	4	52
11:15 AM	10	0	32	42	11	0	0	11	0	0	4	4	57
11:30 AM	8	0	29	37	16	0	0	16	0	0	11	11	64
11:45 AM	4	0	25	29	21	0	0	21	0	0	12	12	62
Total	32	0	106	138	66	0	0	66	0	0	31	31	235
12:00 PM	4	0	34	38	19	0	0	19	0	0	6	6	63
12:15 PM	6	0	27	33	16	0	0	16	0	0	5	5	54
12:30 PM	5	0	26	31	14	0	0	14	0	0	8	8	53
12:45 PM	8	0	24	32	12	0	0	12	0	0	7	7	51
Total	23	0	111	134	61	0	0	61	0	0	26	26	221
01:00 PM	6	0	21	27	12	0	0	12	0	0	11	11	50
Grand Total	61	0	238	299	139	0	0	139	0	0	68	68	506
Apprch %	20.4	0	79.6		100	0	0		0	0	100		
Total %	12.1	0	47	59.1	27.5	0	0	27.5	0	0	13.4	13.4	
Auto	61	0	237	298	138	0	0	138	0	0	68	68	504
% Auto	100	0	99.6	99.7	99.3	0	0	99.3	0	0	100	100	99.6
HV	0	0	1	1	1	0	0	1	0	0	0	0	2
% HV	0	0	0.4	0.3	0.7	0	0	0.7	0	0	0	0	0.4
B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0
% B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0

	Taylor Place Eastbound				Scotland Road Northbound				Scotland Road Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	4	0	34	38	19	0	0	19	0	0	6	6	63
12:15 PM	6	0	27	33	16	0	0	16	0	0	5	5	54
12:30 PM	5	0	26	31	14	0	0	14	0	0	8	8	53
12:45 PM	8	0	24	32	12	0	0	12	0	0	7	7	51
Total Volume	23	0	111	134	61	0	0	61	0	0	26	26	221
% App. Total	17.2	0	82.8		100	0	0		0	0	100		
PHF	.719	.000	.816	.882	.803	.000	.000	.803	.000	.000	.813	.813	.877
Auto	23	0	110	133	61	0	0	61	0	0	26	26	220
% Auto	100	0	99.1	99.3	100	0	0	100	0	0	100	100	99.5
HV	0	0	1	1	0	0	0	0	0	0	0	0	1
% HV	0	0	0.9	0.7	0	0	0	0	0	0	0	0	0.5
B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0
% B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070

201.340.4468 t. 201.340.4472 f.

Intersection of Taylor Place (W)
and Vose Avenue (N/S)
South Orange, Essex County, New Jersey
Saturday, February 29, 2020

File Name : RUT-200075.01_SAT
Site Code : 00200075
Start Date : 2/29/2020
Page No : 1

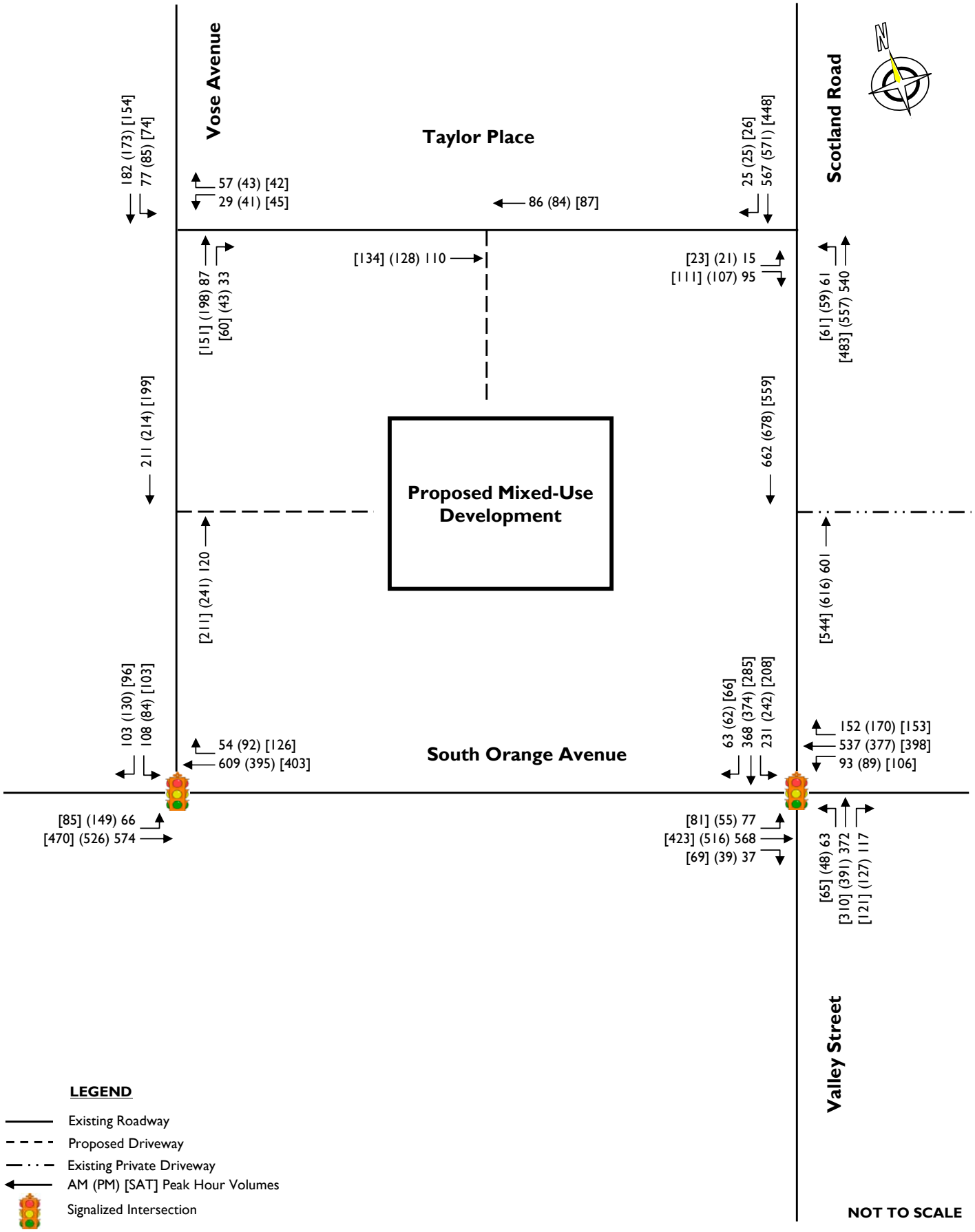
Groups Printed- Auto - HV - B/SB

	Taylor Place Westbound				Vose Avenue Northbound				Vose Avenue Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
11:00 AM	9	0	14	23	0	29	13	42	16	40	0	56	121
11:15 AM	6	0	7	13	0	26	22	48	24	42	0	66	127
11:30 AM	8	0	8	16	0	13	11	24	22	41	0	63	103
11:45 AM	11	0	13	24	0	27	16	43	21	35	0	56	123
Total	34	0	42	76	0	95	62	157	83	158	0	241	474
12:00 PM	5	0	16	21	0	23	16	39	17	39	0	56	116
12:15 PM	10	0	8	18	0	24	10	34	19	37	0	56	108
12:30 PM	10	0	6	16	0	16	22	38	19	22	0	41	95
12:45 PM	12	0	5	17	0	19	12	31	16	29	0	45	93
Total	37	0	35	72	0	82	60	142	71	127	0	198	412
01:00 PM	9	0	8	17	0	13	16	29	12	38	0	50	96
01:15 PM	10	0	10	20	0	28	12	40	11	25	0	36	96
01:30 PM	10	0	4	14	0	19	13	32	4	28	0	32	78
01:45 PM	3	0	6	9	0	21	16	37	17	26	0	43	89
Total	32	0	28	60	0	81	57	138	44	117	0	161	359
Grand Total	103	0	105	208	0	258	179	437	198	402	0	600	1245
Apprch %	49.5	0	50.5		0	59	41		33	67	0		
Total %	8.3	0	8.4	16.7	0	20.7	14.4	35.1	15.9	32.3	0	48.2	
Auto	103	0	105	208	0	257	179	436	195	401	0	596	1240
% Auto	100	0	100	100	0	99.6	100	99.8	98.5	99.8	0	99.3	99.6
HV	0	0	0	0	0	1	0	1	3	1	0	4	5
% HV	0	0	0	0	0	0.4	0	0.2	1.5	0.2	0	0.7	0.4
B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0
% B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0

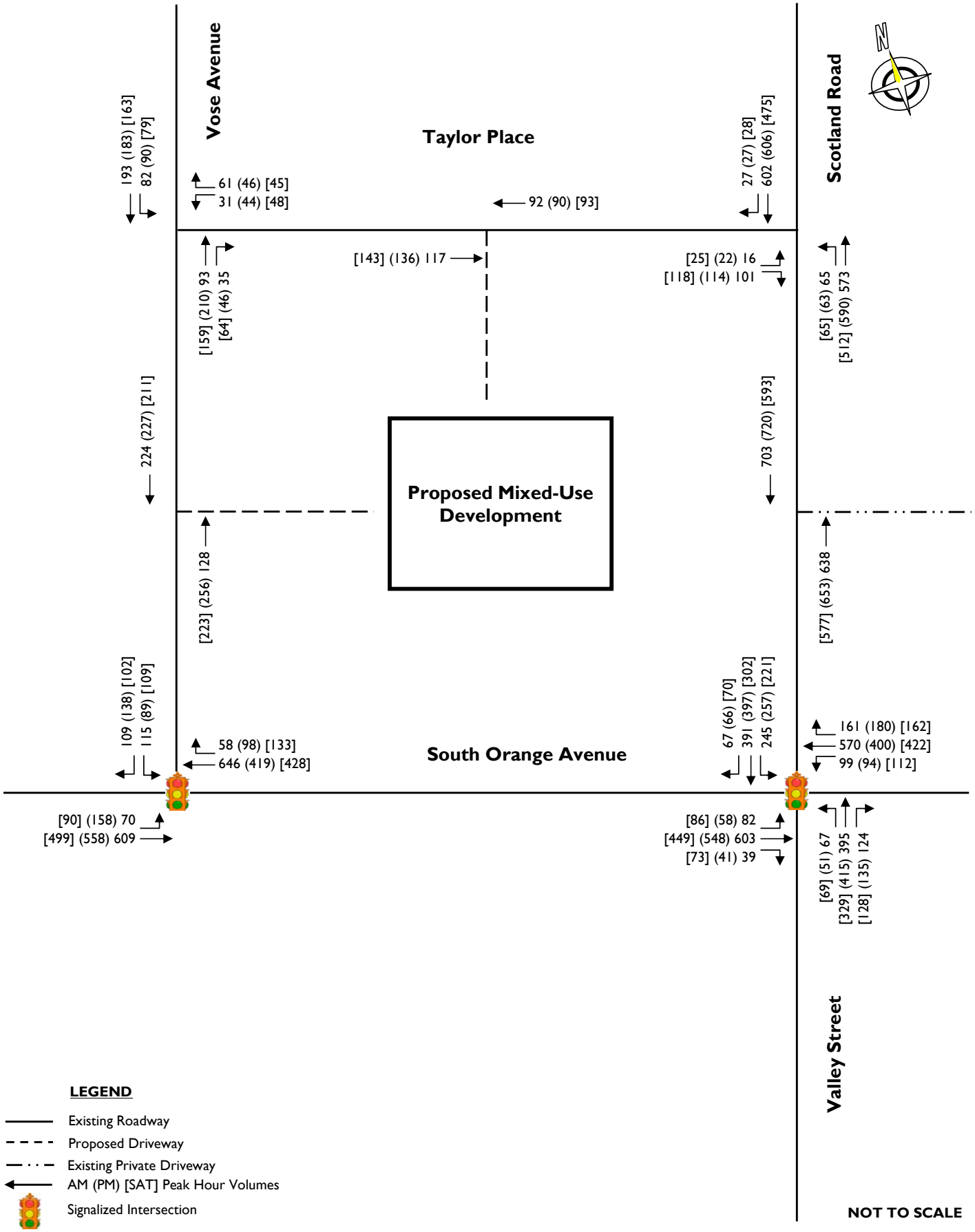
	Taylor Place Westbound				Vose Avenue Northbound				Vose Avenue Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	5	0	16	21	0	23	16	39	17	39	0	56	116
12:15 PM	10	0	8	18	0	24	10	34	19	37	0	56	108
12:30 PM	10	0	6	16	0	16	22	38	19	22	0	41	95
12:45 PM	12	0	5	17	0	19	12	31	16	29	0	45	93
Total Volume	37	0	35	72	0	82	60	142	71	127	0	198	412
% App. Total	51.4	0	48.6		0	57.7	42.3		35.9	64.1	0		
PHF	.771	.000	.547	.857	.000	.854	.682	.910	.934	.814	.000	.884	.888
Auto	37	0	35	72	0	81	60	141	70	126	0	196	409
% Auto	100	0	100	100	0	98.8	100	99.3	98.6	99.2	0	99.0	99.3
HV	0	0	0	0	0	1	0	1	1	1	0	2	3
% HV	0	0	0	0	0	1.2	0	0.7	1.4	0.8	0	1.0	0.7
B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0
% B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0

FIGURES

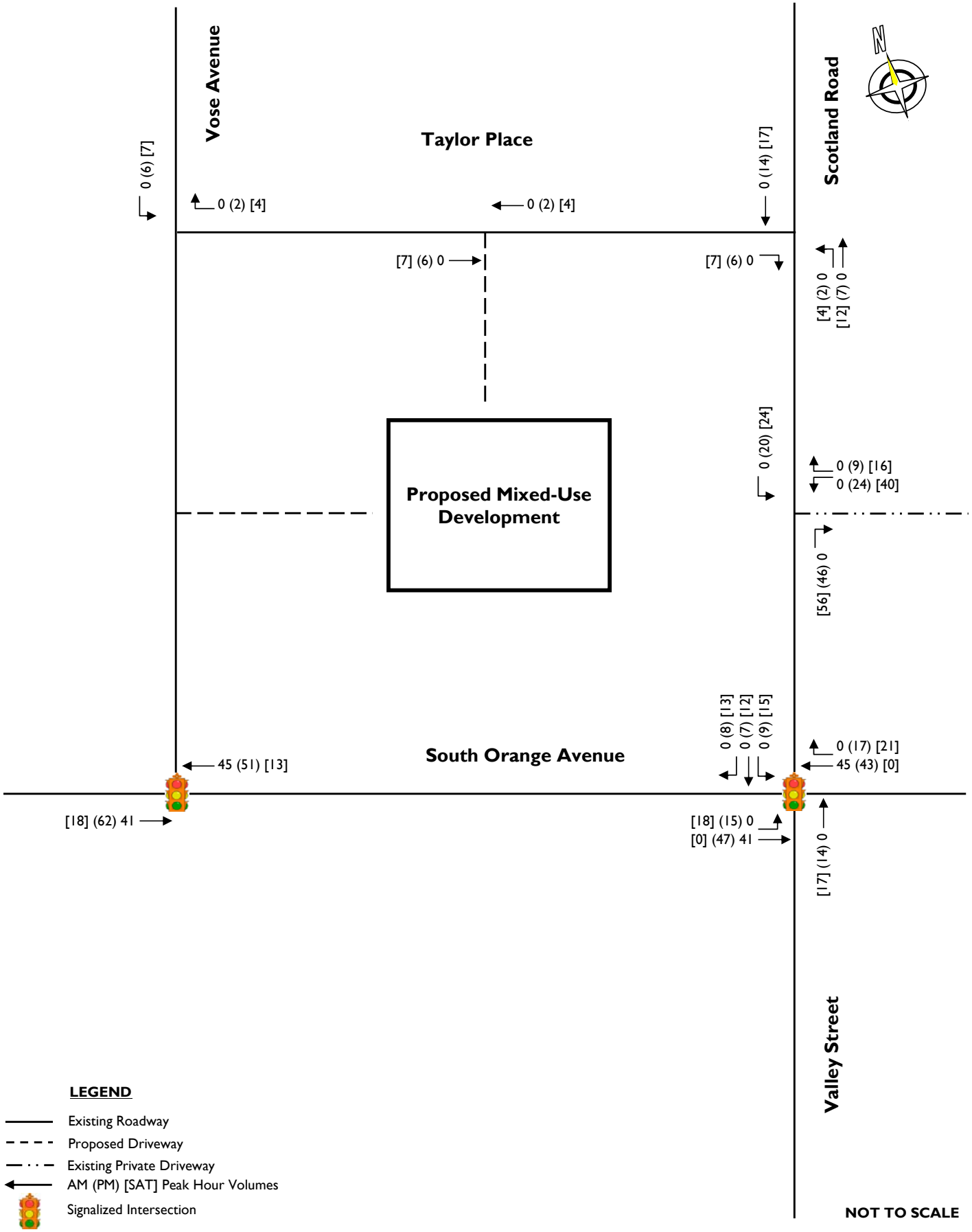
STONEFIELD	**Proposed Mixed-Use Development** **South Orange Avenue** **South Orange, Essex County, New Jersey** **Traffic Impact Study**	**FIGURE 1** **Site Location Map**



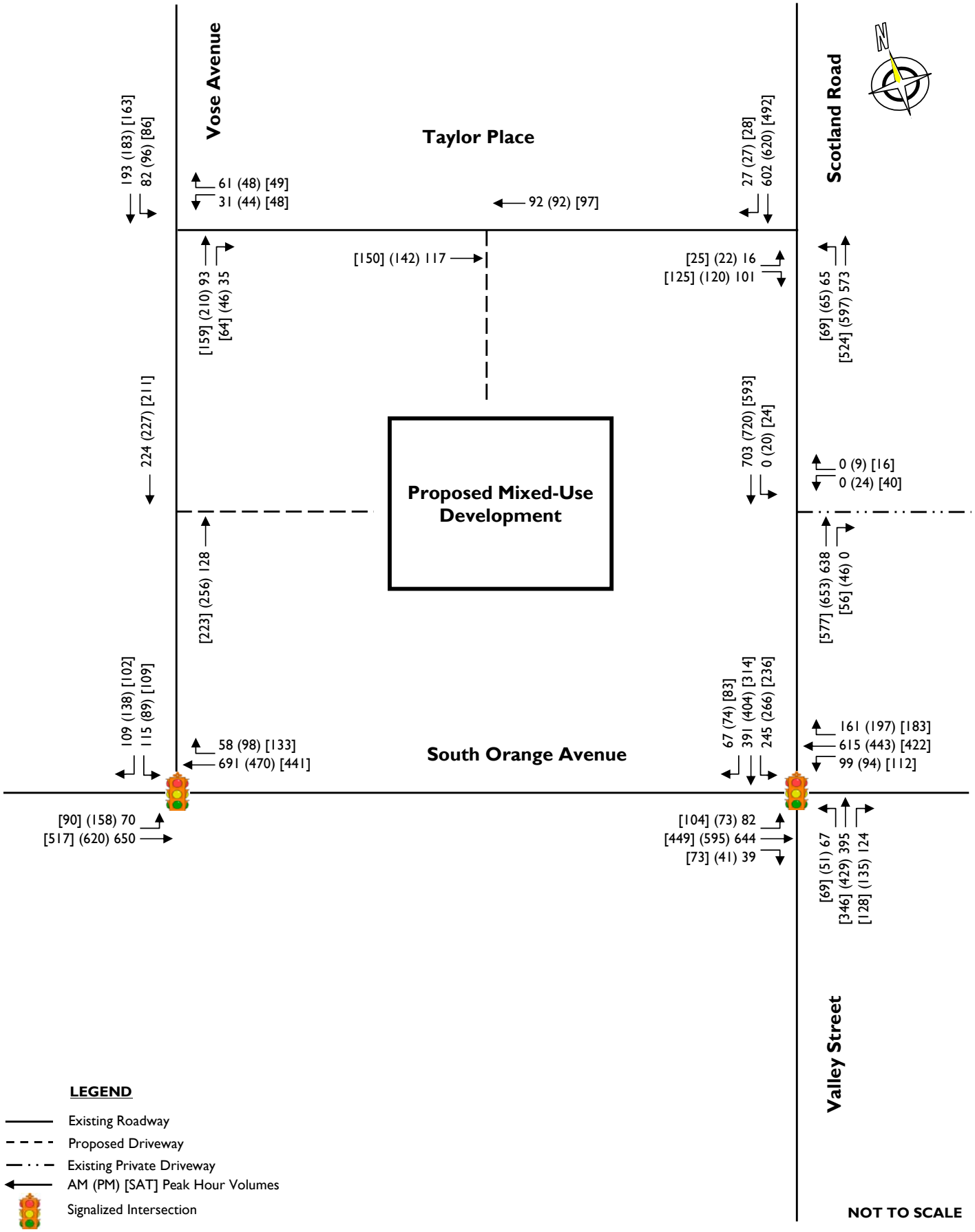
STONEFIELD	**Proposed Mixed-Use Development** **South Orange Avenue** **South Orange, Essex County, New Jersey** **Traffic Impact Study**	**FIGURE 2** **2020 Existing Traffic Volumes**



STONEFIELD	**Proposed Mixed-Use Development** **South Orange Avenue** **South Orange, Essex County, New Jersey** **Traffic Impact Study**	**FIGURE 3** **2023 Base Traffic Volumes**



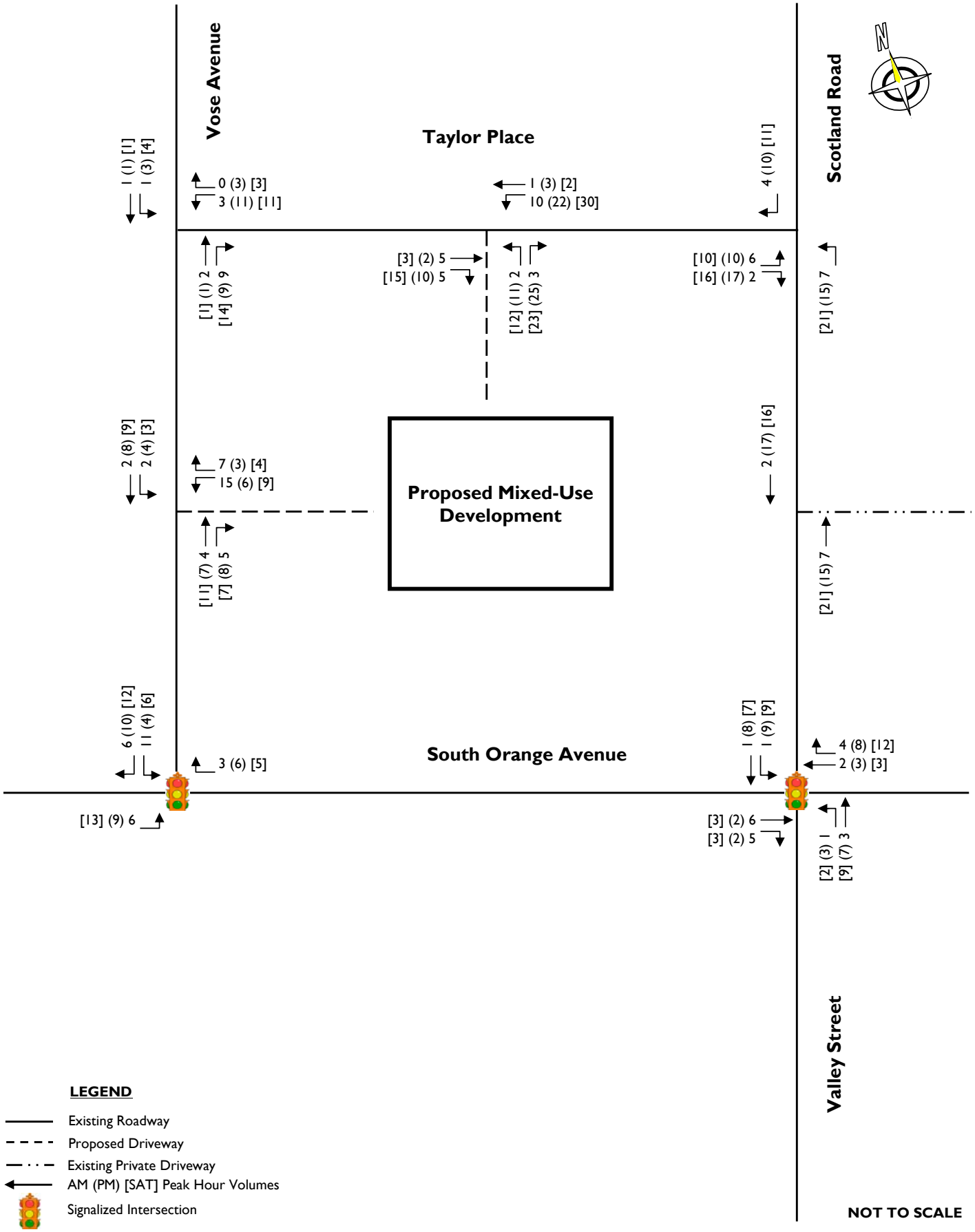
STONEFIELD	**Proposed Mixed-Use Development** **South Orange Avenue** **South Orange, Essex County, New Jersey** **Traffic Impact Study**	**FIGURE 4** **Other Planned Projects** **Future Traffic Volumes**



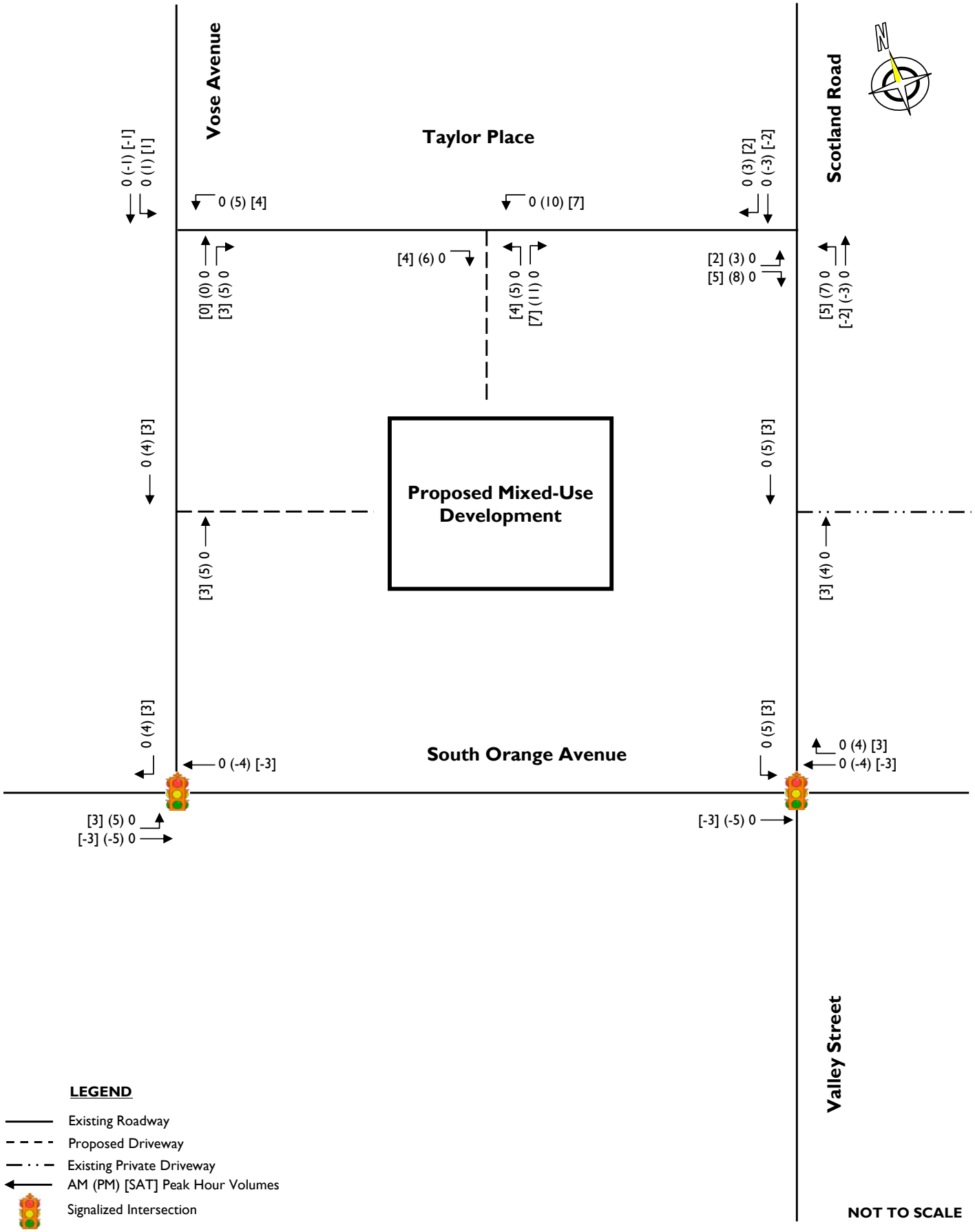
STONEFIELD

Proposed Mixed-Use Development
South Orange Avenue
South Orange, Essex County, New Jersey
Traffic Impact Study

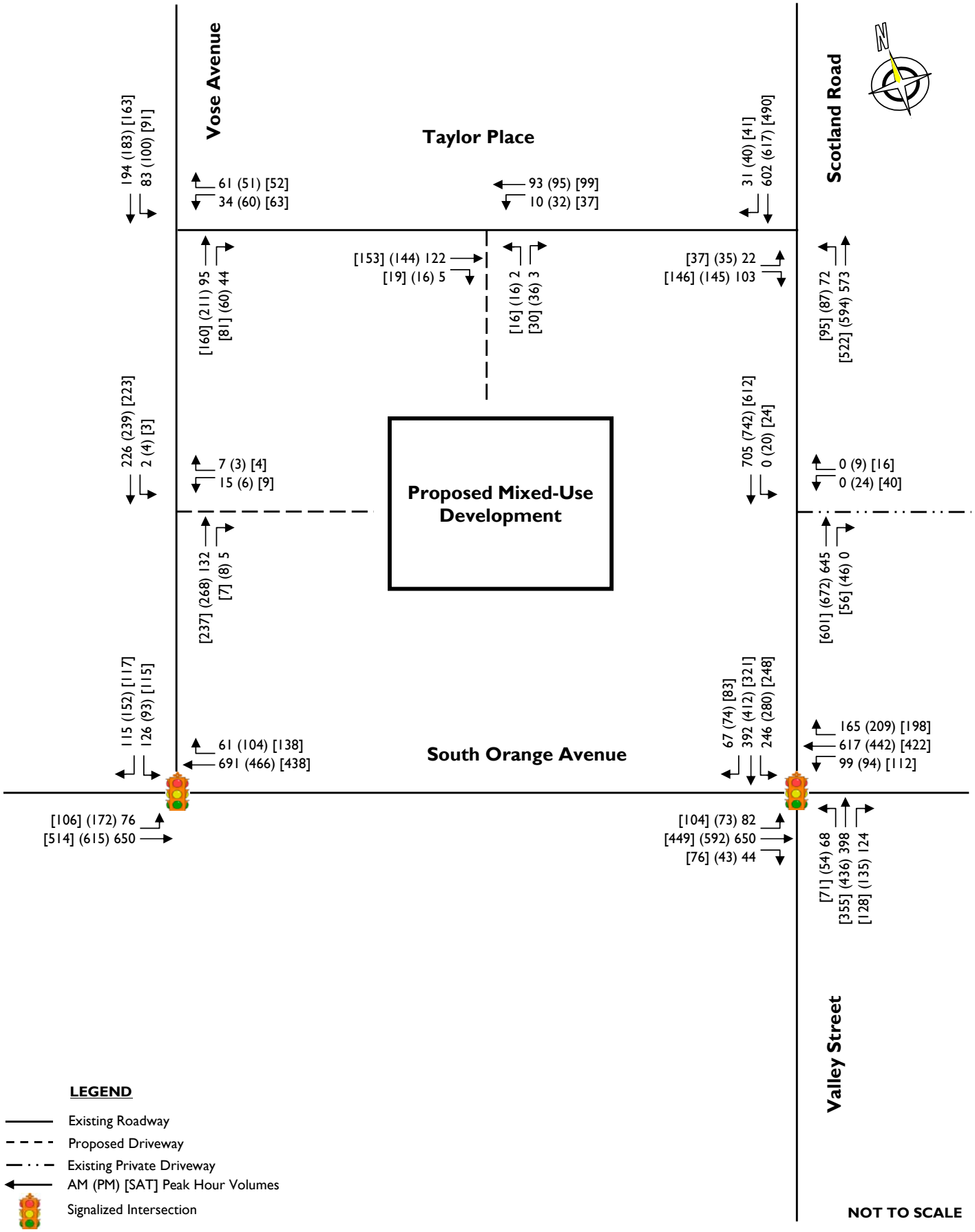
FIGURE 5
2023 No-Build Traffic Volumes



STONEFIELD	**Proposed Mixed-Use Development** **South Orange Avenue** **South Orange, Essex County, New Jersey** **Traffic Impact Study**	**FIGURE 6** **"New" Site-Generated Traffic Volumes**



STONEFIELD	**Proposed Mixed-Use Development** **South Orange Avenue** **South Orange, Essex County, New Jersey** **Traffic Impact Study**	**FIGURE 7** **"Pass-By" Site-Generated Traffic Volumes**



STONEFIELD	**Proposed Mixed-Use Development** **South Orange Avenue** **South Orange, Essex County, New Jersey** **Traffic Impact Study**	**FIGURE 8** **2023 Build Traffic Volumes**

INTERNAL CAPTURE CALCULATION SHEETS

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Proposed Mixed-Use Development	**Organization:**	SE&D
Project Location:	South Orange, Essex County, New Jersey	**Performed By:**	NLP
Scenario Description:	RUT-200075	**Date:**	3/16/2020
Analysis Year:	2023	**Checked By:**	JRC
Analysis Period:	**AM Street Peak Hour**	**Date:**	3/16/2020

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	9,910	SF	11	9	2
Retail	820	12,185	SF	11	7	4
Restaurant				0		
Cinema/Entertainment				0		
Residential	221	111	Units	40	10	30
Hotel				0		
All Other Land Uses[2]				0		
				62	26	36

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	62	26	36
Internal Capture Percentage	3%	4%	3%
External Vehicle-Trips[5]	60	25	35
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	0%	50%
Retail	14%	0%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	0%	0%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Proposed Mixed-Use Development
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	9	9	1.00	2	2
Retail	1.00	7	7	1.00	4	4
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	10	10	1.00	30	30
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	1	0	0	0
Retail	1		1	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	0	6	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	0	0	0	0
Retail	0		0	0	0	0
Restaurant	1	1		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	9	9	9	0	0
Retail	1	6	7	6	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	10	10	10	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	1	1	2	1	0	0
Retail	0	4	4	4	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	30	30	30	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Proposed Mixed-Use Development	**Organization:**	SE&D
Project Location:	South Orange, Essex County, New Jersey	**Performed By:**	NLP
Scenario Description:	RUT-200075	**Date:**	3/16/2020
Analysis Year:	2023	**Checked By:**	JRC
Analysis Period:	**PM Street Peak Hour**	**Date:**	3/16/2020

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	9,910	SF	11	2	9
Retail	820	12,185	SF	114	55	59
Restaurant				0		
Cinema/Entertainment				0		
Residential	221	111	Units	49	30	19
Hotel				0		
All Other Land Uses[2]				0		
				174	87	87

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	0	0	0	0
Retail	0		0	0	14	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	6	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	174	87	87
Internal Capture Percentage	26%	26%	26%
External Vehicle-Trips[5]	128	64	64
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	50%	22%
Retail	15%	24%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	47%	37%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Proposed Mixed-Use Development
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	2	2	1.00	9	9
Retail	1.00	55	55	1.00	59	59
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	30	30	1.00	19	19
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	0	0	0	0
Retail	1		17	2	15	3
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	8	4	0		1
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	0	0	1	0
Retail	1		0	0	14	0
Restaurant	1	28		0	5	0
Cinema/Entertainment	0	2	0		1	0
Residential	1	6	0	0		0
Hotel	0	1	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	1	1	2	1	0	0
Retail	8	47	55	47	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	14	16	30	16	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	2	7	9	7	0	0
Retail	14	45	59	45	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	7	12	19	12	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Proposed Mixed-Use Development	**Organization:**	SE&D
Project Location:	South Orange, Essex County, New Jersey	**Performed By:**	NLP
Scenario Description:	RUT-200075	**Date:**	3/5/2020
Analysis Year:	2023	**Checked By:**	JRC
Analysis Period:	**Saturday Peak Hour**	**Date:**	3/5/2020

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	9,910	SF	5	3	2
Retail	820	12,185	SF	117	61	56
Restaurant				0		
Cinema/Entertainment				0		
Residential	221	111	Units	49	24	25
Hotel				0		
All Other Land Uses[2]				0		
				171	88	83

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	1		0	0	11	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	6	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	171	88	83
Internal Capture Percentage	22%	22%	23%
External Vehicle-Trips[5]	133	69	64
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	67%	0%
Retail	10%	21%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	46%	28%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Proposed Mixed-Use Development
Analysis Period:	**Saturday Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	3	3	1.00	2	2
Retail	1.00	61	61	1.00	56	56
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	24	24	1.00	25	25
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	1		16	2	15	3
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	11	5	0		1
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	0	0	1	0
Retail	1		0	0	11	0
Restaurant	1	31		0	4	0
Cinema/Entertainment	0	2	0		1	0
Residential	2	6	0	0		0
Hotel	0	1	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	2	1	3	1	0	0
Retail	6	55	61	55	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	11	13	24	13	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	2	2	2	0	0
Retail	12	44	56	44	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	7	18	25	18	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

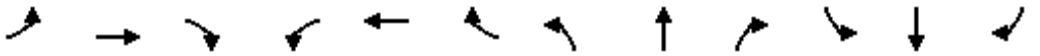
[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

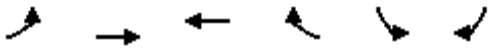
CAPACITY ANALYSIS DETAIL SHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	568	37	93	537	152	63	372	117	231	368	63
Future Volume (veh/h)	77	568	37	93	537	152	63	372	117	231	368	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.93	0.97		0.88	0.90		0.89	0.97		0.87
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2034	2067	2067	2067	2084	2100	2002	2018	1969	2084	2051	2051
Adj Flow Rate, veh/h	80	592	39	97	559	158	66	388	122	241	383	66
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	2	2	2	1	0	6	5	8	1	3	3
Cap, veh/h	373	1557	102	545	880	664	291	470	345	283	1119	190
Arrive On Green	0.13	0.84	0.84	0.07	0.42	0.42	0.23	0.23	0.23	0.08	0.34	0.34
Sat Flow, veh/h	1938	3721	245	1969	2084	1573	907	2018	1482	1984	3254	552
Grp Volume(v), veh/h	80	312	319	97	559	158	66	388	122	241	227	222
Grp Sat Flow(s),veh/h/ln	1938	1964	2001	1969	2084	1573	907	2018	1482	1984	1948	1857
Q Serve(g_s), s	1.9	3.4	3.4	2.4	19.1	5.8	5.4	16.4	6.2	7.0	7.8	8.0
Cycle Q Clear(g_c), s	1.9	3.4	3.4	2.4	19.1	5.8	5.4	16.4	6.2	7.0	7.8	8.0
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	373	822	838	545	880	664	291	470	345	283	670	639
V/C Ratio(X)	0.21	0.38	0.38	0.18	0.64	0.24	0.23	0.83	0.35	0.85	0.34	0.35
Avail Cap(c_a), veh/h	393	822	838	558	880	664	372	650	477	283	844	805
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.5	4.5	4.5	12.4	20.5	16.7	28.6	32.8	28.9	27.6	21.9	22.0
Incr Delay (d2), s/veh	0.2	1.1	1.1	0.2	3.5	0.8	0.4	6.2	0.6	21.4	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	2.4	2.4	1.9	14.8	4.0	2.2	13.6	4.1	9.4	6.4	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.8	5.7	5.7	12.6	24.0	17.6	29.0	39.0	29.5	49.0	22.2	22.3
LnGrp LOS	B	A	A	B	C	B	C	D	C	D	C	C
Approach Vol, veh/h		711			814			576			690	
Approach Delay, s/veh		6.6			21.4			35.8			31.6	
Approach LOS		A			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	9.1	44.0	10.0	27.0	9.4	43.7		37.0				
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	29.0	7.0	29.0		39.0				
Max Q Clear Time (g_c+I1), s	3.9	21.1	9.0	18.4	4.4	5.4		10.0				
Green Ext Time (p_c), s	0.0	2.7	0.0	2.5	0.0	4.0		3.1				

Intersection Summary			
HCM 6th Ctrl Delay		23.1	
HCM 6th LOS		C	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	66	574	609	54	108	103
Future Volume (veh/h)	66	574	609	54	108	103
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97			0.93	1.00	0.78
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	2100	2084	2084	2067	2100	2100
Adj Flow Rate, veh/h	71	617	655	55	116	109
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	1	2	0	0
Cap, veh/h	660	1495	1495	1169	135	127
Arrive On Green	0.72	0.72	1.00	1.00	0.16	0.16
Sat Flow, veh/h	808	2084	2084	1630	844	793
Grp Volume(v), veh/h	71	617	655	55	226	0
Grp Sat Flow(s),veh/h/ln	808	2084	2084	1630	1644	0
Q Serve(g_s), s	2.4	10.7	0.0	0.0	12.0	0.0
Cycle Q Clear(g_c), s	2.4	10.7	0.0	0.0	12.0	0.0
Prop In Lane	1.00			1.00	0.51	0.48
Lane Grp Cap(c), veh/h	660	1495	1495	1169	264	0
V/C Ratio(X)	0.11	0.41	0.44	0.05	0.86	0.00
Avail Cap(c_a), veh/h	660	1495	1495	1169	384	0
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.75	0.75	1.00	0.00
Uniform Delay (d), s/veh	3.9	5.1	0.0	0.0	36.8	0.0
Incr Delay (d2), s/veh	0.3	0.8	0.7	0.1	12.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	7.2	0.5	0.0	9.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.3	6.0	0.7	0.1	49.0	0.0
LnGrp LOS	A	A	A	A	D	A
Approach Vol, veh/h		688	710		226	
Approach Delay, s/veh		5.8	0.7		49.0	
Approach LOS		A	A		D	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	69.6	20.4	69.6
Change Period (Y+Rc), s	5.0	6.0	5.0
Max Green Setting (Gmax), s	58.0	21.0	58.0
Max Q Clear Time (g_c+I1), s	12.7	14.0	2.0
Green Ext Time (p_c), s	3.3	0.4	3.3

Intersection Summary	
HCM 6th Ctrl Delay	9.6
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	95	61	540	567	25
Future Vol, veh/h	15	95	61	540	567	25
Conflicting Peds, #/hr	2	3	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	8	0	2	0	0	0
Mvmt Flow	17	109	70	621	652	29

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1435	675	686	0	-	0
Stage 1	672	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Critical Hdwy	5.4	5.2	4.12	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	220	552	908	-	-	-
Stage 1	496	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	192	548	904	-	-	-
Mov Cap-2 Maneuver	192	-	-	-	-	-
Stage 1	435	-	-	-	-	-
Stage 2	448	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.6	0.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	904	-	437	-	-
HCM Lane V/C Ratio	0.078	-	0.289	-	-
HCM Control Delay (s)	9.3	0	16.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.3	-	1.2	-	-

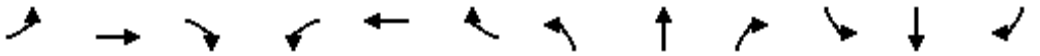
Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	57	87	33	77	182
Future Vol, veh/h	29	57	87	33	77	182
Conflicting Peds, #/hr	36	36	0	72	72	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	31	61	93	35	82	194

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	577	219	0	0	200	0
Stage 1	183	-	-	-	-	-
Stage 2	394	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	566	878	-	-	1384	-
Stage 1	853	-	-	-	-	-
Stage 2	686	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	473	790	-	-	1289	-
Mov Cap-2 Maneuver	473	-	-	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	615	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.5	0	2.4
HCM LOS	B		

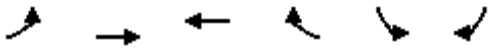
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	644	1289	-
HCM Lane V/C Ratio	-	-	0.142	0.064	-
HCM Control Delay (s)	-	-	11.5	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	516	39	89	377	170	48	391	127	242	374	62
Future Volume (veh/h)	55	516	39	89	377	170	48	391	127	242	374	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.93	0.97		0.88	0.88		0.87	0.97		0.85
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2067	2084	2084	2002	2100	2100	2100	2084	2018	2100	2084	2084
Adj Flow Rate, veh/h	58	543	41	94	397	179	51	412	134	255	394	65
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	1	1	6	0	0	0	1	5	0	1	1
Cap, veh/h	453	1533	115	540	891	667	301	497	354	283	1159	188
Arrive On Green	0.12	0.83	0.83	0.07	0.42	0.42	0.24	0.24	0.24	0.08	0.35	0.35
Sat Flow, veh/h	1969	3708	279	1906	2100	1572	925	2084	1484	2000	3316	538
Grp Volume(v), veh/h	58	289	295	94	397	179	51	412	134	255	232	227
Grp Sat Flow(s),veh/h/ln	1969	1979	2008	1906	2100	1572	925	2084	1484	2000	1979	1875
Q Serve(g_s), s	1.4	3.2	3.2	2.4	12.1	6.7	4.0	16.9	6.8	7.0	7.8	8.0
Cycle Q Clear(g_c), s	1.4	3.2	3.2	2.4	12.1	6.7	4.0	16.9	6.8	7.0	7.8	8.0
Prop In Lane	1.00		0.14	1.00		1.00	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	453	818	830	540	891	667	301	497	354	283	692	655
V/C Ratio(X)	0.13	0.35	0.36	0.17	0.45	0.27	0.17	0.83	0.38	0.90	0.34	0.35
Avail Cap(c_a), veh/h	489	818	830	554	891	667	378	671	478	283	858	812
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.7	4.8	4.8	12.7	18.4	16.8	27.6	32.5	28.7	28.1	21.6	21.7
Incr Delay (d2), s/veh	0.1	1.0	1.0	0.2	1.6	1.0	0.3	6.4	0.7	29.6	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	2.3	2.3	1.8	10.1	4.6	1.6	14.3	4.5	7.4	6.5	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	5.9	5.9	12.8	20.0	17.8	27.9	39.0	29.4	57.7	21.9	22.0
LnGrp LOS	B	A	A	B	C	B	C	D	C	E	C	C
Approach Vol, veh/h		642			670			597			714	
Approach Delay, s/veh		6.5			18.4			35.9			34.7	
Approach LOS		A			B			D			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	44.2	10.0	27.5	9.3	43.2		37.5				
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	29.0	7.0	29.0		39.0				
Max Q Clear Time (g_c+I1), s	3.4	14.1	9.0	18.9	4.4	5.2		10.0				
Green Ext Time (p_c), s	0.0	2.8	0.0	2.6	0.0	3.7		3.2				

Intersection Summary												
HCM 6th Ctrl Delay			23.9									
HCM 6th LOS			C									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	149	526	395	92	84	130
Future Volume (veh/h)	149	526	395	92	84	130
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99			0.97	1.00	0.84
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	2100	2100	2100	2100	2100	2100
Adj Flow Rate, veh/h	182	641	482	64	102	108
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	777	1536	1536	1265	121	128
Arrive On Green	0.73	0.73	1.00	1.00	0.15	0.15
Sat Flow, veh/h	954	2100	2100	1730	826	875
Grp Volume(v), veh/h	182	641	482	64	211	0
Grp Sat Flow(s),veh/h/ln	954	2100	2100	1730	1709	0
Q Serve(g_s), s	5.7	10.6	0.0	0.0	10.8	0.0
Cycle Q Clear(g_c), s	5.7	10.6	0.0	0.0	10.8	0.0
Prop In Lane	1.00			1.00	0.48	0.51
Lane Grp Cap(c), veh/h	777	1536	1536	1265	250	0
V/C Ratio(X)	0.23	0.42	0.31	0.05	0.84	0.00
Avail Cap(c_a), veh/h	777	1536	1536	1265	399	0
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.90	0.90	1.00	0.00
Uniform Delay (d), s/veh	4.0	4.7	0.0	0.0	37.4	0.0
Incr Delay (d2), s/veh	0.7	0.8	0.5	0.1	8.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.8	7.0	0.4	0.0	8.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.7	5.5	0.5	0.1	46.3	0.0
LnGrp LOS	A	A	A	A	D	A
Approach Vol, veh/h		823	546		211	
Approach Delay, s/veh		5.3	0.4		46.3	
Approach LOS		A	A		D	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	70.8	19.2	70.8
Change Period (Y+Rc), s	5.0	6.0	5.0
Max Green Setting (Gmax), s	58.0	21.0	58.0
Max Q Clear Time (g_c+I1), s	12.6	12.8	2.0
Green Ext Time (p_c), s	3.8	0.4	2.2

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	107	59	557	571	25
Future Vol, veh/h	21	107	59	557	571	25
Conflicting Peds, #/hr	13	13	26	0	0	26
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	22	110	61	574	589	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1337	641	641	0	-	0
Stage 1	628	-	-	-	-	-
Stage 2	709	-	-	-	-	-
Critical Hdwy	5.4	5.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	247	572	953	-	-	-
Stage 1	536	-	-	-	-	-
Stage 2	491	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	212	551	929	-	-	-
Mov Cap-2 Maneuver	212	-	-	-	-	-
Stage 1	472	-	-	-	-	-
Stage 2	479	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.8	0.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	929	-	436	-	-
HCM Lane V/C Ratio	0.065	-	0.303	-	-
HCM Control Delay (s)	9.1	0	16.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.3	-	-

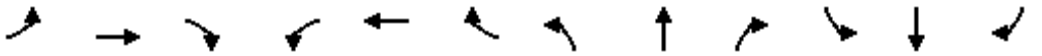
Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	43	198	43	85	173
Future Vol, veh/h	41	43	198	43	85	173
Conflicting Peds, #/hr	19	19	0	38	38	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	46	48	220	48	94	192

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	681	301	0	0	306	0
Stage 1	282	-	-	-	-	-
Stage 2	399	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	506	808	-	-	1266	-
Stage 1	770	-	-	-	-	-
Stage 2	682	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	438	765	-	-	1220	-
Mov Cap-2 Maneuver	438	-	-	-	-	-
Stage 1	742	-	-	-	-	-
Stage 2	612	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	2.7
HCM LOS	B		

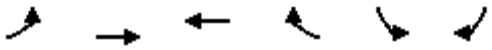
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	561	1220	-
HCM Lane V/C Ratio	-	-	0.166	0.077	-
HCM Control Delay (s)	-	-	12.7	8.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.3	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	423	69	106	398	153	65	310	121	208	285	66
Future Volume (veh/h)	81	423	69	106	398	153	65	310	121	208	285	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.93	0.96		0.88	0.97		0.97	0.99		0.97
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2100	2100	2100	2034	2084	2100	2100	2084	2051	2067	2100	2100
Adj Flow Rate, veh/h	84	441	72	110	415	159	68	323	126	217	297	69
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	4	1	0	0	1	3	2	0	0
Cap, veh/h	507	1540	249	628	954	717	296	408	330	283	983	224
Arrive On Green	0.14	0.91	0.91	0.07	0.46	0.46	0.20	0.20	0.20	0.08	0.31	0.31
Sat Flow, veh/h	2000	3396	549	1938	2084	1566	1104	2084	1682	1969	3203	730
Grp Volume(v), veh/h	84	257	256	110	415	159	68	323	126	217	183	183
Grp Sat Flow(s),veh/h/ln	2000	1995	1950	1938	2084	1566	1104	2084	1682	1969	1995	1938
Q Serve(g_s), s	1.8	1.5	1.5	2.6	12.1	5.5	4.8	13.3	5.9	7.0	6.3	6.5
Cycle Q Clear(g_c), s	1.8	1.5	1.5	2.6	12.1	5.5	4.8	13.3	5.9	7.0	6.3	6.5
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	507	905	884	628	954	717	296	408	330	283	613	595
V/C Ratio(X)	0.17	0.28	0.29	0.18	0.43	0.22	0.23	0.79	0.38	0.77	0.30	0.31
Avail Cap(c_a), veh/h	526	905	884	638	954	717	436	671	542	283	865	840
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.7	2.4	2.4	10.7	16.5	14.7	31.0	34.4	31.5	28.2	23.8	23.9
Incr Delay (d2), s/veh	0.1	0.7	0.8	0.1	1.4	0.7	0.4	3.5	0.7	11.9	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	1.2	1.2	1.9	9.9	3.7	2.3	11.4	4.4	8.1	5.4	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.9	3.1	3.1	10.9	17.9	15.4	31.4	37.9	32.2	40.1	24.1	24.2
LnGrp LOS	B	A	A	B	B	B	C	D	C	D	C	C
Approach Vol, veh/h		597			684			517			583	
Approach Delay, s/veh		4.2			16.2			35.7			30.1	
Approach LOS		A			B			D			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	9.1	47.2	10.0	23.6	9.6	46.8		33.6				
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	29.0	7.0	29.0		39.0				
Max Q Clear Time (g_c+I1), s	3.8	14.1	9.0	15.3	4.6	3.5		8.5				
Green Ext Time (p_c), s	0.0	2.8	0.0	2.4	0.1	3.3		2.4				

Intersection Summary												
HCM 6th Ctrl Delay			20.8									
HCM 6th LOS			C									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	85	470	403	126	103	96
Future Volume (veh/h)	85	470	403	126	103	96
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96			0.91	1.00	0.78
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	2100	2100	2084	2100	2100	2100
Adj Flow Rate, veh/h	88	485	415	124	106	91
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	1	0	0	0
Cap, veh/h	764	1545	1533	1188	126	108
Arrive On Green	0.74	0.74	1.00	1.00	0.14	0.14
Sat Flow, veh/h	930	2100	2084	1615	887	762
Grp Volume(v), veh/h	88	485	415	124	198	0
Grp Sat Flow(s),veh/h/ln	930	2100	2084	1615	1658	0
Q Serve(g_s), s	2.5	7.1	0.0	0.0	10.5	0.0
Cycle Q Clear(g_c), s	2.5	7.1	0.0	0.0	10.5	0.0
Prop In Lane	1.00			1.00	0.54	0.46
Lane Grp Cap(c), veh/h	764	1545	1533	1188	236	0
V/C Ratio(X)	0.12	0.31	0.27	0.10	0.84	0.00
Avail Cap(c_a), veh/h	764	1545	1533	1188	387	0
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.90	0.90	1.00	0.00
Uniform Delay (d), s/veh	3.5	4.1	0.0	0.0	37.6	0.0
Incr Delay (d2), s/veh	0.3	0.5	0.4	0.2	8.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	4.7	0.3	0.1	8.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	3.8	4.6	0.4	0.2	46.0	0.0
LnGrp LOS	A	A	A	A	D	A
Approach Vol, veh/h		573	539		198	
Approach Delay, s/veh		4.5	0.3		46.0	
Approach LOS		A	A		D	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	71.2	18.8	71.2
Change Period (Y+Rc), s	5.0	6.0	5.0
Max Green Setting (Gmax), s	58.0	21.0	58.0
Max Q Clear Time (g_c+I1), s	9.1	12.5	2.0
Green Ext Time (p_c), s	2.5	0.4	2.0

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	111	61	483	448	26
Future Vol, veh/h	23	111	61	483	448	26
Conflicting Peds, #/hr	10	11	21	0	0	21
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	1	0	0	0	0
Mvmt Flow	26	126	69	549	509	30

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1242	556	560	0	-	0
Stage 1	545	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Critical Hdwy	5.4	5.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	275	622	1021	-	-	-
Stage 1	585	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	238	603	1001	-	-	-
Mov Cap-2 Maneuver	238	-	-	-	-	-
Stage 1	517	-	-	-	-	-
Stage 2	488	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16	1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1001	-	477	-	-
HCM Lane V/C Ratio	0.069	-	0.319	-	-
HCM Control Delay (s)	8.9	0	16	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.4	-	-

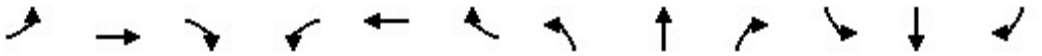
Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	42	151	60	74	154
Future Vol, veh/h	45	42	151	60	74	154
Conflicting Peds, #/hr	32	32	0	64	64	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	1	0	1	1
Mvmt Flow	51	47	170	67	83	173

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	639	300	0	0	301	0
Stage 1	268	-	-	-	-	-
Stage 2	371	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.11	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.209	-
Pot Cap-1 Maneuver	530	809	-	-	1266	-
Stage 1	782	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	446	737	-	-	1189	-
Mov Cap-2 Maneuver	446	-	-	-	-	-
Stage 1	734	-	-	-	-	-
Stage 2	628	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	2.7
HCM LOS	B		

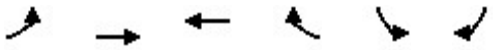
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	551	1189	-
HCM Lane V/C Ratio	-	-	0.177	0.07	-
HCM Control Delay (s)	-	-	12.9	8.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	644	39	99	615	161	67	395	124	245	391	67
Future Volume (veh/h)	82	644	39	99	615	161	67	395	124	245	391	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.93	0.97		0.88	0.91		0.89	0.97		0.88
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2034	2067	2067	2067	2084	2100	2002	2018	1969	2084	2051	2051
Adj Flow Rate, veh/h	85	671	41	103	641	168	70	411	129	255	407	70
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	2	2	2	1	0	6	5	8	1	3	3
Cap, veh/h	318	1520	93	503	854	642	297	492	363	282	1156	196
Arrive On Green	0.14	0.81	0.81	0.07	0.41	0.41	0.24	0.24	0.24	0.08	0.36	0.36
Sat Flow, veh/h	1938	3741	228	1969	2084	1567	892	2018	1490	1984	3257	552
Grp Volume(v), veh/h	85	352	360	103	641	168	70	411	129	255	241	236
Grp Sat Flow(s),veh/h/ln	1938	1964	2005	1969	2084	1567	892	2018	1490	1984	1948	1861
Q Serve(g_s), s	2.1	4.7	4.7	2.6	23.6	6.4	5.8	17.4	6.4	7.0	8.2	8.4
Cycle Q Clear(g_c), s	2.1	4.7	4.7	2.6	23.6	6.4	5.8	17.4	6.4	7.0	8.2	8.4
Prop In Lane	1.00		0.11	1.00		1.00	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	318	798	815	503	854	642	297	492	363	282	692	661
V/C Ratio(X)	0.27	0.44	0.44	0.20	0.75	0.26	0.24	0.83	0.35	0.90	0.35	0.36
Avail Cap(c_a), veh/h	336	798	815	515	854	642	367	650	480	282	844	806
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.1	5.4	5.4	13.1	22.6	17.6	27.9	32.3	28.2	28.0	21.4	21.4
Incr Delay (d2), s/veh	0.4	1.5	1.4	0.2	6.0	1.0	0.4	7.1	0.6	30.3	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	3.1	3.2	2.0	18.2	4.4	2.3	14.4	4.2	7.6	6.8	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.5	6.9	6.9	13.3	28.7	18.5	28.3	39.4	28.7	58.3	21.7	21.8
LnGrp LOS	B	A	A	B	C	B	C	D	C	E	C	C
Approach Vol, veh/h		797			912			610			732	
Approach Delay, s/veh		7.8			25.1			35.9			34.4	
Approach LOS		A			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	42.9	10.0	28.0	9.5	42.6		38.0				
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	29.0	7.0	29.0		39.0				
Max Q Clear Time (g_c+I1), s	4.1	25.6	9.0	19.4	4.6	6.7		10.4				
Green Ext Time (p_c), s	0.0	1.6	0.0	2.6	0.0	4.6		3.3				

Intersection Summary			
HCM 6th Ctrl Delay		25.0	
HCM 6th LOS		C	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	650	691	58	115	109
Future Volume (veh/h)	70	650	691	58	115	109
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98			0.93	1.00	0.79
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	2100	2084	2084	2067	2100	2100
Adj Flow Rate, veh/h	75	699	743	59	124	115
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	1	2	0	0
Cap, veh/h	608	1480	1480	1156	144	133
Arrive On Green	0.71	0.71	1.00	1.00	0.17	0.17
Sat Flow, veh/h	744	2084	2084	1629	857	794
Grp Volume(v), veh/h	75	699	743	59	240	0
Grp Sat Flow(s),veh/h/ln	744	2084	2084	1629	1658	0
Q Serve(g_s), s	2.9	13.2	0.0	0.0	12.7	0.0
Cycle Q Clear(g_c), s	2.9	13.2	0.0	0.0	12.7	0.0
Prop In Lane	1.00			1.00	0.52	0.48
Lane Grp Cap(c), veh/h	608	1480	1480	1156	278	0
V/C Ratio(X)	0.12	0.47	0.50	0.05	0.86	0.00
Avail Cap(c_a), veh/h	608	1480	1480	1156	387	0
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.61	0.61	1.00	0.00
Uniform Delay (d), s/veh	4.2	5.7	0.0	0.0	36.5	0.0
Incr Delay (d2), s/veh	0.4	1.1	0.7	0.1	13.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	8.7	0.6	0.0	10.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.6	6.8	0.7	0.1	50.0	0.0
LnGrp LOS	A	A	A	A	D	A
Approach Vol, veh/h		774	802		240	
Approach Delay, s/veh		6.6	0.7		50.0	
Approach LOS		A	A		D	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	68.9	21.1	68.9
Change Period (Y+Rc), s	5.0	6.0	5.0
Max Green Setting (Gmax), s	58.0	21.0	58.0
Max Q Clear Time (g_c+I1), s	15.2	14.7	2.0
Green Ext Time (p_c), s	4.0	0.4	4.0

Intersection Summary	
HCM 6th Ctrl Delay	9.7
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	101	65	573	602	27
Future Vol, veh/h	16	101	65	573	602	27
Conflicting Peds, #/hr	2	3	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	8	0	2	0	0	0
Mvmt Flow	18	116	75	659	692	31

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1524	716	728	0	-	0
Stage 1	713	-	-	-	-	-
Stage 2	811	-	-	-	-	-
Critical Hdwy	5.4	5.2	4.12	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	199	529	876	-	-	-
Stage 1	475	-	-	-	-	-
Stage 2	427	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	170	525	872	-	-	-
Mov Cap-2 Maneuver	170	-	-	-	-	-
Stage 1	409	-	-	-	-	-
Stage 2	425	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.1	1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	872	-	408	-	-
HCM Lane V/C Ratio	0.086	-	0.33	-	-
HCM Control Delay (s)	9.5	0	18.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.3	-	1.4	-	-

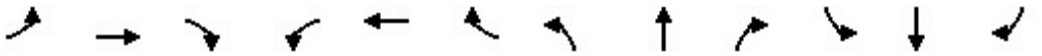
Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	31	61	93	35	82	193
Future Vol, veh/h	31	61	93	35	82	193
Conflicting Peds, #/hr	36	36	0	72	72	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	33	65	99	37	87	205

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	605	226	0	0	208	0
Stage 1	190	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	549	871	-	-	1375	-
Stage 1	847	-	-	-	-	-
Stage 2	671	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	456	783	-	-	1281	-
Mov Cap-2 Maneuver	456	-	-	-	-	-
Stage 1	789	-	-	-	-	-
Stage 2	598	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0	2.4
HCM LOS	B		

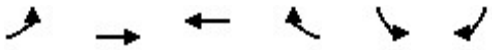
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	631	1281	-
HCM Lane V/C Ratio	-	-	0.155	0.068	-
HCM Control Delay (s)	-	-	11.8	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	595	41	94	443	197	51	429	135	266	404	74
Future Volume (veh/h)	73	595	41	94	443	197	51	429	135	266	404	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.92	0.97		0.88	0.90		0.88	0.97		0.86
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2067	2084	2084	2002	2100	2100	2100	2084	2018	2100	2084	2084
Adj Flow Rate, veh/h	77	626	43	99	466	207	54	452	142	280	425	78
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	1	1	6	0	0	0	1	5	0	1	1
Cap, veh/h	396	1475	101	489	839	623	312	534	385	281	1195	216
Arrive On Green	0.13	0.79	0.79	0.07	0.40	0.40	0.26	0.26	0.26	0.08	0.37	0.37
Sat Flow, veh/h	1969	3736	256	1906	2100	1559	903	2084	1500	2000	3253	588
Grp Volume(v), veh/h	77	331	338	99	466	207	54	452	142	280	256	247
Grp Sat Flow(s),veh/h/ln	1969	1979	2013	1906	2100	1559	903	2084	1500	2000	1979	1862
Q Serve(g_s), s	1.9	4.8	4.8	2.6	15.4	8.3	4.3	18.5	7.0	7.0	8.5	8.7
Cycle Q Clear(g_c), s	1.9	4.8	4.8	2.6	15.4	8.3	4.3	18.5	7.0	7.0	8.5	8.7
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	396	781	794	489	839	623	312	534	385	281	727	684
V/C Ratio(X)	0.19	0.42	0.43	0.20	0.56	0.33	0.17	0.85	0.37	1.00	0.35	0.36
Avail Cap(c_a), veh/h	419	781	794	501	839	623	371	671	483	281	858	807
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.9	6.2	6.2	13.7	20.9	18.7	26.5	31.8	27.5	28.8	20.7	20.8
Incr Delay (d2), s/veh	0.2	1.3	1.3	0.2	2.6	1.4	0.3	8.1	0.6	53.0	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	3.2	3.3	2.0	12.5	5.8	1.7	15.7	4.6	10.7	7.1	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.1	7.6	7.6	13.9	23.5	20.1	26.7	39.9	28.1	81.7	21.0	21.1
LnGrp LOS	B	A	A	B	C	C	C	D	C	F	C	C
Approach Vol, veh/h		746			772			648			783	
Approach Delay, s/veh		8.2			21.4			36.2			42.7	
Approach LOS		A			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	42.0	10.0	29.1	9.4	41.5		39.1				
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	29.0	7.0	29.0		39.0				
Max Q Clear Time (g_c+I1), s	3.9	17.4	9.0	20.5	4.6	6.8		10.7				
Green Ext Time (p_c), s	0.0	3.0	0.0	2.5	0.0	4.3		3.5				

Intersection Summary			
HCM 6th Ctrl Delay		27.0	
HCM 6th LOS		C	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	158	620	470	98	89	138
Future Volume (veh/h)	158	620	470	98	89	138
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99			0.97	1.00	0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	2100	2100	2100	2100	2100	2100
Adj Flow Rate, veh/h	193	756	573	72	109	117
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	710	1517	1517	1249	128	137
Arrive On Green	0.72	0.72	1.00	1.00	0.16	0.16
Sat Flow, veh/h	871	2100	2100	1729	825	885
Grp Volume(v), veh/h	193	756	573	72	227	0
Grp Sat Flow(s),veh/h/ln	871	2100	2100	1729	1718	0
Q Serve(g_s), s	7.1	14.0	0.0	0.0	11.6	0.0
Cycle Q Clear(g_c), s	7.1	14.0	0.0	0.0	11.6	0.0
Prop In Lane	1.00			1.00	0.48	0.52
Lane Grp Cap(c), veh/h	710	1517	1517	1249	267	0
V/C Ratio(X)	0.27	0.50	0.38	0.06	0.85	0.00
Avail Cap(c_a), veh/h	710	1517	1517	1249	401	0
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.83	0.83	1.00	0.00
Uniform Delay (d), s/veh	4.5	5.4	0.0	0.0	37.0	0.0
Incr Delay (d2), s/veh	0.9	1.2	0.6	0.1	10.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.1	9.1	0.5	0.0	9.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.4	6.6	0.6	0.1	47.6	0.0
LnGrp LOS	A	A	A	A	D	A
Approach Vol, veh/h		949	645		227	
Approach Delay, s/veh		6.3	0.5		47.6	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		70.0		20.0		70.0
Change Period (Y+Rc), s		5.0		6.0		5.0
Max Green Setting (Gmax), s		58.0		21.0		58.0
Max Q Clear Time (g_c+I1), s		16.0		13.6		2.0
Green Ext Time (p_c), s		4.9		0.4		2.8

Intersection Summary	
HCM 6th Ctrl Delay	9.4
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	120	65	597	620	27
Future Vol, veh/h	22	120	65	597	620	27
Conflicting Peds, #/hr	13	13	26	0	0	26
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	23	124	67	615	639	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1441	692	693	0	-	0
Stage 1	679	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Critical Hdwy	5.4	5.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	220	542	912	-	-	-
Stage 1	507	-	-	-	-	-
Stage 2	464	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	185	522	889	-	-	-
Mov Cap-2 Maneuver	185	-	-	-	-	-
Stage 1	438	-	-	-	-	-
Stage 2	452	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.7	0.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	889	-	407	-	-
HCM Lane V/C Ratio	0.075	-	0.36	-	-
HCM Control Delay (s)	9.4	0	18.7	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.6	-	-

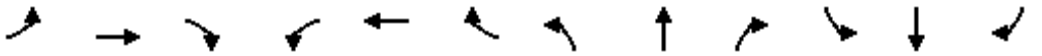
Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	48	210	46	96	183
Future Vol, veh/h	44	48	210	46	96	183
Conflicting Peds, #/hr	19	19	0	38	38	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	49	53	233	51	107	203

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	733	316	0	0	322	0
Stage 1	297	-	-	-	-	-
Stage 2	436	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	479	796	-	-	1249	-
Stage 1	758	-	-	-	-	-
Stage 2	656	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	408	753	-	-	1204	-
Mov Cap-2 Maneuver	408	-	-	-	-	-
Stage 1	731	-	-	-	-	-
Stage 2	580	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	2.8
HCM LOS	B		

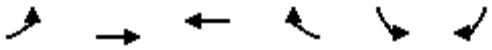
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	536	1204	-
HCM Lane V/C Ratio	-	-	0.191	0.089	-
HCM Control Delay (s)	-	-	13.3	8.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.3	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	449	73	112	422	183	69	346	128	236	314	83
Future Volume (veh/h)	104	449	73	112	422	183	69	346	128	236	314	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.92	0.97		0.87	0.97		0.97	0.99		0.97
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2100	2100	2100	2034	2084	2100	2100	2084	2051	2067	2100	2100
Adj Flow Rate, veh/h	108	468	76	117	440	191	72	360	133	246	327	86
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	4	1	0	0	1	3	2	0	0
Cap, veh/h	468	1476	238	593	907	677	308	446	361	283	1013	262
Arrive On Green	0.15	0.87	0.87	0.07	0.44	0.44	0.21	0.21	0.21	0.08	0.33	0.33
Sat Flow, veh/h	2000	3396	547	1938	2084	1555	1062	2084	1687	1969	3114	804
Grp Volume(v), veh/h	108	273	271	117	440	191	72	360	133	246	207	206
Grp Sat Flow(s),veh/h/ln	2000	1995	1948	1938	2084	1555	1062	2084	1687	1969	1995	1924
Q Serve(g_s), s	2.5	2.2	2.3	2.8	13.6	7.1	5.1	14.8	6.1	7.0	7.0	7.3
Cycle Q Clear(g_c), s	2.5	2.2	2.3	2.8	13.6	7.1	5.1	14.8	6.1	7.0	7.0	7.3
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		0.42
Lane Grp Cap(c), veh/h	468	867	846	593	907	677	308	446	361	283	649	626
V/C Ratio(X)	0.23	0.32	0.32	0.20	0.48	0.28	0.23	0.81	0.37	0.87	0.32	0.33
Avail Cap(c_a), veh/h	478	867	846	601	907	677	422	671	544	283	865	834
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	3.5	3.5	11.6	18.2	16.3	29.8	33.6	30.2	29.1	22.9	22.9
Incr Delay (d2), s/veh	0.2	0.8	0.9	0.2	1.9	1.0	0.4	4.4	0.6	24.1	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.8	1.7	1.7	2.1	11.0	4.8	2.4	12.6	4.5	6.4	6.0	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.9	4.3	4.4	11.8	20.0	17.4	30.2	38.0	30.8	53.2	23.1	23.2
LnGrp LOS	B	A	A	B	C	B	C	D	C	D	C	C
Approach Vol, veh/h		652			748			565			659	
Approach Delay, s/veh		5.6			18.1			35.3			34.4	
Approach LOS		A			B			D			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	45.2	10.0	25.3	9.6	45.1		35.3				
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	29.0	7.0	29.0		39.0				
Max Q Clear Time (g_c+I1), s	4.5	15.6	9.0	16.8	4.8	4.3		9.3				
Green Ext Time (p_c), s	0.1	3.0	0.0	2.5	0.1	3.5		2.8				

Intersection Summary												
HCM 6th Ctrl Delay			22.8									
HCM 6th LOS			C									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	517	441	133	109	102
Future Volume (veh/h)	90	517	441	133	109	102
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96			0.91	1.00	0.79
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	2100	2100	2084	2100	2100	2100
Adj Flow Rate, veh/h	93	533	455	131	112	97
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	1	0	0	0
Cap, veh/h	731	1531	1519	1176	132	115
Arrive On Green	0.73	0.73	1.00	1.00	0.15	0.15
Sat Flow, veh/h	893	2100	2084	1614	890	770
Grp Volume(v), veh/h	93	533	455	131	210	0
Grp Sat Flow(s),veh/h/ln	893	2100	2084	1614	1668	0
Q Serve(g_s), s	2.8	8.3	0.0	0.0	11.0	0.0
Cycle Q Clear(g_c), s	2.8	8.3	0.0	0.0	11.0	0.0
Prop In Lane	1.00			1.00	0.53	0.46
Lane Grp Cap(c), veh/h	731	1531	1519	1176	248	0
V/C Ratio(X)	0.13	0.35	0.30	0.11	0.85	0.00
Avail Cap(c_a), veh/h	731	1531	1519	1176	389	0
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.88	0.88	1.00	0.00
Uniform Delay (d), s/veh	3.7	4.4	0.0	0.0	37.3	0.0
Incr Delay (d2), s/veh	0.4	0.6	0.4	0.2	9.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	5.5	0.3	0.1	8.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.1	5.1	0.4	0.2	47.0	0.0
LnGrp LOS	A	A	A	A	D	A
Approach Vol, veh/h		626	586		210	
Approach Delay, s/veh		4.9	0.4		47.0	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		70.6		19.4		70.6
Change Period (Y+Rc), s		5.0		6.0		5.0
Max Green Setting (Gmax), s		58.0		21.0		58.0
Max Q Clear Time (g_c+I1), s		10.3		13.0		2.0
Green Ext Time (p_c), s		2.8		0.4		2.2

Intersection Summary	
HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	125	69	524	492	28
Future Vol, veh/h	25	125	69	524	492	28
Conflicting Peds, #/hr	10	11	21	0	0	21
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	1	0	0	0	0
Mvmt Flow	28	142	78	595	559	32

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1357	607	612	0	-	0
Stage 1	596	-	-	-	-	-
Stage 2	761	-	-	-	-	-
Critical Hdwy	5.4	5.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	242	591	977	-	-	-
Stage 1	554	-	-	-	-	-
Stage 2	465	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	204	573	957	-	-	-
Mov Cap-2 Maneuver	204	-	-	-	-	-
Stage 1	476	-	-	-	-	-
Stage 2	456	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.3	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	957	-	440	-	-
HCM Lane V/C Ratio	0.082	-	0.387	-	-
HCM Control Delay (s)	9.1	0	18.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.3	-	1.8	-	-

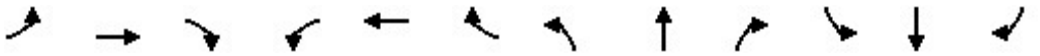
Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	48	49	159	64	86	163
Future Vol, veh/h	48	49	159	64	86	163
Conflicting Peds, #/hr	32	32	0	64	64	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	1	0	1	1
Mvmt Flow	54	55	179	72	97	183

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	688	311	0	0	315	0
Stage 1	279	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.11	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.209	-
Pot Cap-1 Maneuver	503	800	-	-	1251	-
Stage 1	773	-	-	-	-	-
Stage 2	675	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	416	728	-	-	1175	-
Mov Cap-2 Maneuver	416	-	-	-	-	-
Stage 1	726	-	-	-	-	-
Stage 2	594	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	2.9
HCM LOS	B		

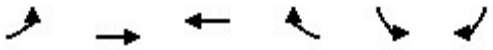
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	531	1175	-
HCM Lane V/C Ratio	-	-	0.205	0.082	-
HCM Control Delay (s)	-	-	13.5	8.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0.3	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	650	44	99	617	165	68	398	124	246	392	67
Future Volume (veh/h)	82	650	44	99	617	165	68	398	124	246	392	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.93	0.98		0.88	0.91		0.89	0.97		0.88
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2034	2067	2067	2067	2084	2100	2002	2018	1969	2084	2051	2051
Adj Flow Rate, veh/h	85	677	46	103	643	172	71	415	129	256	408	70
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	2	2	2	1	0	6	5	8	1	3	3
Cap, veh/h	315	1501	102	497	850	639	299	496	367	282	1163	197
Arrive On Green	0.14	0.81	0.81	0.07	0.41	0.41	0.25	0.25	0.25	0.08	0.36	0.36
Sat Flow, veh/h	1938	3711	252	1969	2084	1566	891	2018	1491	1984	3259	551
Grp Volume(v), veh/h	85	358	365	103	643	172	71	415	129	256	242	236
Grp Sat Flow(s),veh/h/ln	1938	1964	1999	1969	2084	1566	891	2018	1491	1984	1948	1861
Q Serve(g_s), s	2.1	4.9	4.9	2.6	23.8	6.6	5.9	17.6	6.4	7.0	8.2	8.4
Cycle Q Clear(g_c), s	2.1	4.9	4.9	2.6	23.8	6.6	5.9	17.6	6.4	7.0	8.2	8.4
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	315	795	809	497	850	639	299	496	367	282	695	664
V/C Ratio(X)	0.27	0.45	0.45	0.21	0.76	0.27	0.24	0.84	0.35	0.91	0.35	0.36
Avail Cap(c_a), veh/h	333	795	809	508	850	639	367	650	481	282	844	807
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.3	5.6	5.6	13.2	22.8	17.7	27.8	32.2	28.0	27.9	21.2	21.3
Incr Delay (d2), s/veh	0.4	1.5	1.5	0.2	6.2	1.0	0.4	7.3	0.6	31.1	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	3.2	3.3	2.0	18.4	4.5	2.3	14.5	4.2	7.7	6.8	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.7	7.1	7.1	13.4	29.0	18.8	28.2	39.5	28.6	59.1	21.5	21.6
LnGrp LOS	B	A	A	B	C	B	C	D	C	E	C	C
Approach Vol, veh/h		808			918			615			734	
Approach Delay, s/veh		8.0			25.4			35.9			34.7	
Approach LOS		A			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	42.7	10.0	28.1	9.5	42.4		38.1				
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	29.0	7.0	29.0		39.0				
Max Q Clear Time (g_c+I1), s	4.1	25.8	9.0	19.6	4.6	6.9		10.4				
Green Ext Time (p_c), s	0.0	1.5	0.0	2.6	0.0	4.7		3.3				

Intersection Summary			
HCM 6th Ctrl Delay		25.1	
HCM 6th LOS		C	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	76	650	691	61	126	115
Future Volume (veh/h)	76	650	691	61	126	115
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98			0.93	1.00	0.80
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	2100	2084	2084	2067	2100	2100
Adj Flow Rate, veh/h	82	699	743	63	135	122
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	1	2	0	0
Cap, veh/h	600	1461	1461	1140	155	140
Arrive On Green	0.70	0.70	1.00	1.00	0.18	0.18
Sat Flow, veh/h	741	2084	2084	1627	876	792
Grp Volume(v), veh/h	82	699	743	63	258	0
Grp Sat Flow(s),veh/h/ln	741	2084	2084	1627	1675	0
Q Serve(g_s), s	3.3	13.6	0.0	0.0	13.5	0.0
Cycle Q Clear(g_c), s	3.3	13.6	0.0	0.0	13.5	0.0
Prop In Lane	1.00			1.00	0.52	0.47
Lane Grp Cap(c), veh/h	600	1461	1461	1140	296	0
V/C Ratio(X)	0.14	0.48	0.51	0.06	0.87	0.00
Avail Cap(c_a), veh/h	600	1461	1461	1140	391	0
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.60	0.60	1.00	0.00
Uniform Delay (d), s/veh	4.5	6.1	0.0	0.0	36.0	0.0
Incr Delay (d2), s/veh	0.5	1.1	0.8	0.1	15.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	9.1	0.6	0.0	11.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.0	7.2	0.8	0.1	51.3	0.0
LnGrp LOS	A	A	A	A	D	A
Approach Vol, veh/h		781	806		258	
Approach Delay, s/veh		7.0	0.7		51.3	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		68.1		21.9		68.1
Change Period (Y+Rc), s		5.0		6.0		5.0
Max Green Setting (Gmax), s		58.0		21.0		58.0
Max Q Clear Time (g_c+I1), s		15.6		15.5		2.0
Green Ext Time (p_c), s		4.0		0.4		4.0

Intersection Summary	
HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	103	72	573	602	31
Future Vol, veh/h	22	103	72	573	602	31
Conflicting Peds, #/hr	2	3	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	8	0	2	0	0	0
Mvmt Flow	25	118	83	659	692	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1542	718	733	0	-	0
Stage 1	715	-	-	-	-	-
Stage 2	827	-	-	-	-	-
Critical Hdwy	5.4	5.2	4.12	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	195	528	872	-	-	-
Stage 1	474	-	-	-	-	-
Stage 2	420	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	164	524	868	-	-	-
Mov Cap-2 Maneuver	164	-	-	-	-	-
Stage 1	401	-	-	-	-	-
Stage 2	418	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.2	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	868	-	378	-	-
HCM Lane V/C Ratio	0.095	-	0.38	-	-
HCM Control Delay (s)	9.6	0	20.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.3	-	1.7	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	61	95	44	83	194
Future Vol, veh/h	34	61	95	44	83	194
Conflicting Peds, #/hr	36	36	0	72	72	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	36	65	101	47	88	206

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	615	233	0	0	220	0
Stage 1	197	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	543	865	-	-	1361	-
Stage 1	841	-	-	-	-	-
Stage 2	669	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	450	778	-	-	1268	-
Mov Cap-2 Maneuver	450	-	-	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	595	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	2.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	617	1268	-
HCM Lane V/C Ratio	-	-	0.164	0.07	-
HCM Control Delay (s)	-	-	12	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.2	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	7	132	5	2	226
Future Vol, veh/h	15	7	132	5	2	226
Conflicting Peds, #/hr	36	36	0	72	72	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	16	8	145	5	2	248

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	508	256	0	0	222	0
Stage 1	220	-	-	-	-	-
Stage 2	288	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	608	846	-	-	1359	-
Stage 1	821	-	-	-	-	-
Stage 2	766	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	546	761	-	-	1266	-
Mov Cap-2 Maneuver	546	-	-	-	-	-
Stage 1	764	-	-	-	-	-
Stage 2	738	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.3	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	600	1266	-
HCM Lane V/C Ratio	-	-	0.04	0.002	-
HCM Control Delay (s)	-	-	11.3	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

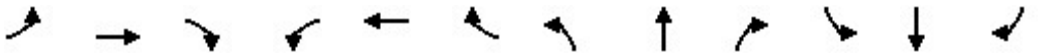
Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	122	5	10	93	2	3
Future Vol, veh/h	122	5	10	93	2	3
Conflicting Peds, #/hr	0	36	36	0	18	18
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	137	6	11	104	2	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	179	0	320	194
Stage 1	-	-	-	-	176	-
Stage 2	-	-	-	-	144	-
Critical Hdwy	-	-	4.1	-	5.4	5.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1409	-	741	900
Stage 1	-	-	-	-	859	-
Stage 2	-	-	-	-	888	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1361	-	697	854
Mov Cap-2 Maneuver	-	-	-	-	697	-
Stage 1	-	-	-	-	830	-
Stage 2	-	-	-	-	865	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	9.6
HCM LOS			A

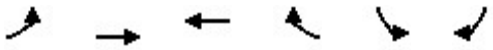
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	783	-	-	1361	-
HCM Lane V/C Ratio	0.007	-	-	0.008	-
HCM Control Delay (s)	9.6	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	592	43	94	442	209	54	436	135	280	412	74
Future Volume (veh/h)	73	592	43	94	442	209	54	436	135	280	412	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.92	0.97		0.88	0.90		0.88	0.97		0.86
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2067	2084	2084	2002	2100	2100	2100	2084	2018	2100	2084	2084
Adj Flow Rate, veh/h	77	623	45	99	465	220	57	459	142	295	434	78
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	1	1	6	0	0	0	1	5	0	1	1
Cap, veh/h	391	1457	105	485	832	617	313	541	390	280	1211	214
Arrive On Green	0.13	0.78	0.78	0.07	0.40	0.40	0.26	0.26	0.26	0.08	0.37	0.37
Sat Flow, veh/h	1969	3721	268	1906	2100	1557	898	2084	1503	2000	3267	579
Grp Volume(v), veh/h	77	331	337	99	465	220	57	459	142	295	260	252
Grp Sat Flow(s),veh/h/ln	1969	1979	2009	1906	2100	1557	898	2084	1503	2000	1979	1867
Q Serve(g_s), s	1.9	4.9	4.9	2.6	15.5	8.9	4.5	18.8	7.0	7.0	8.6	8.8
Cycle Q Clear(g_c), s	1.9	4.9	4.9	2.6	15.5	8.9	4.5	18.8	7.0	7.0	8.6	8.8
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	391	775	787	485	832	617	313	541	390	280	733	692
V/C Ratio(X)	0.20	0.43	0.43	0.20	0.56	0.36	0.18	0.85	0.36	1.05	0.36	0.36
Avail Cap(c_a), veh/h	414	775	787	498	832	617	369	671	484	280	858	809
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.78	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.0	6.5	6.5	13.9	21.1	19.1	26.4	31.7	27.3	28.6	20.5	20.6
Incr Delay (d2), s/veh	0.2	1.3	1.3	0.2	2.7	1.6	0.3	8.4	0.6	68.2	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	3.3	3.4	2.0	12.5	6.2	1.8	15.9	4.6	12.5	7.2	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.2	7.8	7.8	14.1	23.8	20.7	26.6	40.1	27.8	96.8	20.8	20.9
LnGrp LOS	B	A	A	B	C	C	C	D	C	F	C	C
Approach Vol, veh/h		745			784			658			807	
Approach Delay, s/veh		8.5			21.7			36.3			48.6	
Approach LOS		A			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	41.7	10.0	29.3	9.4	41.2		39.3				
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	29.0	7.0	29.0		39.0				
Max Q Clear Time (g_c+I1), s	3.9	17.5	9.0	20.8	4.6	6.9		10.8				
Green Ext Time (p_c), s	0.0	3.0	0.0	2.5	0.0	4.2		3.6				

Intersection Summary												
HCM 6th Ctrl Delay			28.9									
HCM 6th LOS			C									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	172	615	466	104	93	152
Future Volume (veh/h)	172	615	466	104	93	152
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99			0.97	1.00	0.86
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	2100	2100	2100	2100	2100	2100
Adj Flow Rate, veh/h	210	750	568	79	113	134
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	698	1492	1492	1228	131	155
Arrive On Green	0.71	0.71	1.00	1.00	0.17	0.17
Sat Flow, veh/h	870	2100	2100	1728	783	929
Grp Volume(v), veh/h	210	750	568	79	248	0
Grp Sat Flow(s),veh/h/ln	870	2100	2100	1728	1719	0
Q Serve(g_s), s	8.3	14.5	0.0	0.0	12.6	0.0
Cycle Q Clear(g_c), s	8.3	14.5	0.0	0.0	12.6	0.0
Prop In Lane	1.00			1.00	0.46	0.54
Lane Grp Cap(c), veh/h	698	1492	1492	1228	288	0
V/C Ratio(X)	0.30	0.50	0.38	0.06	0.86	0.00
Avail Cap(c_a), veh/h	698	1492	1492	1228	401	0
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.83	0.83	1.00	0.00
Uniform Delay (d), s/veh	5.0	5.9	0.0	0.0	36.5	0.0
Incr Delay (d2), s/veh	1.1	1.2	0.6	0.1	13.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.5	9.5	0.5	0.1	10.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.1	7.1	0.6	0.1	49.5	0.0
LnGrp LOS	A	A	A	A	D	A
Approach Vol, veh/h		960	647		248	
Approach Delay, s/veh		6.9	0.5		49.5	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		68.9		21.1		68.9
Change Period (Y+Rc), s		5.0		6.0		5.0
Max Green Setting (Gmax), s		58.0		21.0		58.0
Max Q Clear Time (g_c+I1), s		16.5		14.6		2.0
Green Ext Time (p_c), s		4.9		0.5		2.7

Intersection Summary	
HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	145	87	594	617	40
Future Vol, veh/h	35	145	87	594	617	40
Conflicting Peds, #/hr	13	13	26	0	0	26
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	36	149	90	612	636	41

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1488	696	703	0	-	0
Stage 1	683	-	-	-	-	-
Stage 2	805	-	-	-	-	-
Critical Hdwy	5.4	5.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	209	540	904	-	-	-
Stage 1	505	-	-	-	-	-
Stage 2	443	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	168	520	882	-	-	-
Mov Cap-2 Maneuver	168	-	-	-	-	-
Stage 1	416	-	-	-	-	-
Stage 2	432	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.2	1.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	882	-	369	-	-
HCM Lane V/C Ratio	0.102	-	0.503	-	-
HCM Control Delay (s)	9.5	0	24.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.3	-	2.7	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	51	211	60	100	183
Future Vol, veh/h	60	51	211	60	100	183
Conflicting Peds, #/hr	19	19	0	38	38	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	67	57	234	67	111	203

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	750	325	0	0	339	0
Stage 1	306	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Critical Hdwy	5	5.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	511	789	-	-	1231	-
Stage 1	751	-	-	-	-	-
Stage 2	651	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	432	747	-	-	1186	-
Mov Cap-2 Maneuver	432	-	-	-	-	-
Stage 1	724	-	-	-	-	-
Stage 2	572	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.7	0	3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	536	1186	-
HCM Lane V/C Ratio	-	-	0.23	0.094	-
HCM Control Delay (s)	-	-	13.7	8.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.9	0.3	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	3	268	8	4	239
Future Vol, veh/h	6	3	268	8	4	239
Conflicting Peds, #/hr	19	19	0	38	38	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	4	327	10	5	291

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	690	389	0	0	375	0
Stage 1	370	-	-	-	-	-
Stage 2	320	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	502	739	-	-	1195	-
Stage 1	703	-	-	-	-	-
Stage 2	741	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	473	699	-	-	1152	-
Mov Cap-2 Maneuver	473	-	-	-	-	-
Stage 1	678	-	-	-	-	-
Stage 2	724	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.9	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	530	1152	-
HCM Lane V/C Ratio	-	-	0.021	0.004	-
HCM Control Delay (s)	-	-	11.9	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

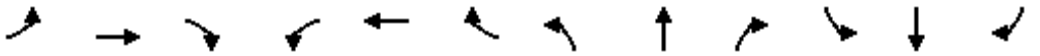
Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	144	16	32	95	16	36
Future Vol, veh/h	144	16	32	95	16	36
Conflicting Peds, #/hr	0	20	20	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	157	17	35	103	17	39

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	194	0	369	196
Stage 1	-	-	-	-	186	-
Stage 2	-	-	-	-	183	-
Critical Hdwy	-	-	4.1	-	5.4	5.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1391	-	704	898
Stage 1	-	-	-	-	851	-
Stage 2	-	-	-	-	853	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1365	-	665	873
Mov Cap-2 Maneuver	-	-	-	-	665	-
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	822	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	9.9
HCM LOS			A

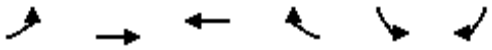
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	796	-	-	1365	-
HCM Lane V/C Ratio	0.071	-	-	0.025	-
HCM Control Delay (s)	9.9	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	449	76	112	422	198	71	355	128	248	321	83
Future Volume (veh/h)	104	449	76	112	422	198	71	355	128	248	321	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.92	0.97		0.87	0.97		0.97	0.99		0.97
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2100	2100	2100	2034	2084	2100	2100	2084	2051	2067	2100	2100
Adj Flow Rate, veh/h	108	468	79	117	440	206	74	370	133	258	334	86
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	4	1	0	0	1	3	2	0	0
Cap, veh/h	460	1449	243	586	897	669	311	456	370	283	1033	261
Arrive On Green	0.15	0.86	0.86	0.07	0.43	0.43	0.22	0.22	0.22	0.08	0.33	0.33
Sat Flow, veh/h	2000	3373	565	1938	2084	1552	1056	2084	1688	1969	3130	792
Grp Volume(v), veh/h	108	275	272	117	440	206	74	370	133	258	211	209
Grp Sat Flow(s),veh/h/ln	2000	1995	1943	1938	2084	1552	1056	2084	1688	1969	1995	1927
Q Serve(g_s), s	2.5	2.4	2.5	2.9	13.7	7.8	5.3	15.2	6.0	7.0	7.1	7.3
Cycle Q Clear(g_c), s	2.5	2.4	2.5	2.9	13.7	7.8	5.3	15.2	6.0	7.0	7.1	7.3
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		0.41
Lane Grp Cap(c), veh/h	460	857	835	586	897	669	311	456	370	283	659	636
V/C Ratio(X)	0.23	0.32	0.33	0.20	0.49	0.31	0.24	0.81	0.36	0.91	0.32	0.33
Avail Cap(c_a), veh/h	470	857	835	594	897	669	420	671	544	283	865	835
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.9	3.8	3.8	11.9	18.5	16.8	29.5	33.4	29.8	29.6	22.6	22.7
Incr Delay (d2), s/veh	0.2	0.9	0.9	0.2	1.9	1.2	0.4	4.7	0.6	31.8	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.8	1.8	1.8	2.2	11.1	5.3	2.5	12.9	4.5	7.9	6.1	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.2	4.7	4.7	12.0	20.4	18.0	29.9	38.1	30.4	61.4	22.9	23.0
LnGrp LOS	B	A	A	B	C	B	C	D	C	E	C	C
Approach Vol, veh/h		655			763			577			678	
Approach Delay, s/veh		5.9			18.5			35.3			37.6	
Approach LOS		A			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	44.8	10.0	25.7	9.6	44.7		35.7				
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	29.0	7.0	29.0		39.0				
Max Q Clear Time (g_c+I1), s	4.5	15.7	9.0	17.2	4.9	4.5		9.3				
Green Ext Time (p_c), s	0.1	3.0	0.0	2.5	0.1	3.5		2.8				

Intersection Summary			
HCM 6th Ctrl Delay		23.9	
HCM 6th LOS		C	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	106	514	438	138	115	117
Future Volume (veh/h)	106	514	438	138	115	117
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96			0.90	1.00	0.80
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	2100	2100	2084	2100	2100	2100
Adj Flow Rate, veh/h	109	530	452	136	119	113
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	1	0	0	0
Cap, veh/h	717	1503	1491	1153	139	132
Arrive On Green	0.72	0.72	1.00	1.00	0.16	0.16
Sat Flow, veh/h	891	2100	2084	1611	856	812
Grp Volume(v), veh/h	109	530	452	136	233	0
Grp Sat Flow(s),veh/h/ln	891	2100	2084	1611	1675	0
Q Serve(g_s), s	3.6	8.6	0.0	0.0	12.2	0.0
Cycle Q Clear(g_c), s	3.6	8.6	0.0	0.0	12.2	0.0
Prop In Lane	1.00			1.00	0.51	0.48
Lane Grp Cap(c), veh/h	717	1503	1491	1153	272	0
V/C Ratio(X)	0.15	0.35	0.30	0.12	0.86	0.00
Avail Cap(c_a), veh/h	717	1503	1491	1153	391	0
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.87	0.87	1.00	0.00
Uniform Delay (d), s/veh	4.1	4.9	0.0	0.0	36.7	0.0
Incr Delay (d2), s/veh	0.4	0.7	0.5	0.2	12.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	5.9	0.3	0.1	9.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.6	5.5	0.5	0.2	49.0	0.0
LnGrp LOS	A	A	A	A	D	A
Approach Vol, veh/h		639	588		233	
Approach Delay, s/veh		5.4	0.4		49.0	
Approach LOS		A	A		D	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	69.4	20.6	69.4
Change Period (Y+Rc), s	5.0	6.0	5.0
Max Green Setting (Gmax), s	58.0	21.0	58.0
Max Q Clear Time (g_c+I1), s	10.6	14.2	2.0
Green Ext Time (p_c), s	2.8	0.5	2.2

Intersection Summary	
HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	146	95	522	490	41
Future Vol, veh/h	37	146	95	522	490	41
Conflicting Peds, #/hr	10	11	21	0	0	21
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	1	0	0	0	0
Mvmt Flow	42	166	108	593	557	47

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1421	613	625	0	-	0
Stage 1	602	-	-	-	-	-
Stage 2	819	-	-	-	-	-
Critical Hdwy	5.4	5.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	225	587	966	-	-	-
Stage 1	551	-	-	-	-	-
Stage 2	437	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	179	569	947	-	-	-
Mov Cap-2 Maneuver	179	-	-	-	-	-
Stage 1	448	-	-	-	-	-
Stage 2	428	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.8	1.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	947	-	395	-	-
HCM Lane V/C Ratio	0.114	-	0.526	-	-
HCM Control Delay (s)	9.3	0	23.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.4	-	3	-	-

Intersection	
Int Delay, s/veh	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	63	52	160	81	91	163
Future Vol, veh/h	63	52	160	81	91	163
Conflicting Peds, #/hr	32	32	0	64	64	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	1	0	1	1
Mvmt Flow	71	58	180	91	102	183

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	709	322	0	0	335	0
Stage 1	290	-	-	-	-	-
Stage 2	419	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.11	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.209	-
Pot Cap-1 Maneuver	491	791	-	-	1230	-
Stage 1	764	-	-	-	-	-
Stage 2	668	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	404	720	-	-	1155	-
Mov Cap-2 Maneuver	404	-	-	-	-	-
Stage 1	717	-	-	-	-	-
Stage 2	585	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.6	0	3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	504	1155	-
HCM Lane V/C Ratio	-	-	0.256	0.089	-
HCM Control Delay (s)	-	-	14.6	8.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1	0.3	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	4	237	7	3	223
Future Vol, veh/h	9	4	237	7	3	223
Conflicting Peds, #/hr	32	32	0	64	64	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	9	4	242	7	3	228

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	576	342	0	0	313	0
Stage 1	310	-	-	-	-	-
Stage 2	266	-	-	-	-	-
Critical Hdwy	5.4	5.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	566	775	-	-	1259	-
Stage 1	748	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	514	706	-	-	1182	-
Mov Cap-2 Maneuver	514	-	-	-	-	-
Stage 1	702	-	-	-	-	-
Stage 2	757	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.6	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	561	1182	-
HCM Lane V/C Ratio	-	-	0.024	0.003	-
HCM Control Delay (s)	-	-	11.6	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

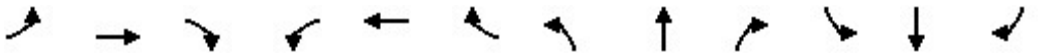
Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	153	19	37	99	16	30
Future Vol, veh/h	153	19	37	99	16	30
Conflicting Peds, #/hr	0	36	36	0	18	18
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	163	20	39	105	17	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	219	0	410	227
Stage 1	-	-	-	-	209	-
Stage 2	-	-	-	-	201	-
Critical Hdwy	-	-	4.1	-	5.4	5.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1362	-	674	871
Stage 1	-	-	-	-	831	-
Stage 2	-	-	-	-	838	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1315	-	619	827
Mov Cap-2 Maneuver	-	-	-	-	619	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	797	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	740	-	-	1315	-
HCM Lane V/C Ratio	0.066	-	-	0.03	-
HCM Control Delay (s)	10.2	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	592	43	94	442	209	54	436	135	280	412	74
Future Volume (veh/h)	73	592	43	94	442	209	54	436	135	280	412	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.92	0.97		0.86	0.90		0.88	0.97		0.87
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2067	2084	2084	2002	2100	2100	2100	2084	2018	2100	2084	2084
Adj Flow Rate, veh/h	77	623	45	99	465	220	57	459	142	295	434	78
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	1	1	6	0	0	0	1	5	0	1	1
Cap, veh/h	357	1332	96	445	762	558	313	541	390	347	1323	235
Arrive On Green	0.13	0.72	0.72	0.07	0.36	0.36	0.26	0.26	0.26	0.11	0.40	0.40
Sat Flow, veh/h	1969	3718	268	1906	2100	1537	898	2084	1503	2000	3275	581
Grp Volume(v), veh/h	77	331	337	99	465	220	57	459	142	295	260	252
Grp Sat Flow(s),veh/h/ln	1969	1979	2007	1906	2100	1537	898	2084	1503	2000	1979	1877
Q Serve(g_s), s	2.0	6.4	6.4	2.8	16.3	9.6	4.5	18.8	7.0	9.5	8.1	8.3
Cycle Q Clear(g_c), s	2.0	6.4	6.4	2.8	16.3	9.6	4.5	18.8	7.0	9.5	8.1	8.3
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	357	709	719	445	762	558	313	541	390	347	799	758
V/C Ratio(X)	0.22	0.47	0.47	0.22	0.61	0.39	0.18	0.85	0.36	0.85	0.33	0.33
Avail Cap(c_a), veh/h	379	709	719	457	762	558	369	671	484	347	924	876
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.78	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.8	9.1	9.1	15.7	23.5	21.3	26.4	31.7	27.3	22.7	18.4	18.5
Incr Delay (d2), s/veh	0.2	1.7	1.7	0.3	3.6	2.1	0.3	8.4	0.6	17.8	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	4.3	4.4	2.2	13.4	6.7	1.8	15.9	4.6	10.1	6.7	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.0	10.8	10.8	16.0	27.1	23.4	26.6	40.1	27.8	40.5	18.6	18.7
LnGrp LOS	B	B	B	B	C	C	C	D	C	D	B	B
Approach Vol, veh/h		745			784			658			807	
Approach Delay, s/veh		11.4			24.6			36.3			26.7	
Approach LOS		B			C			D			C	

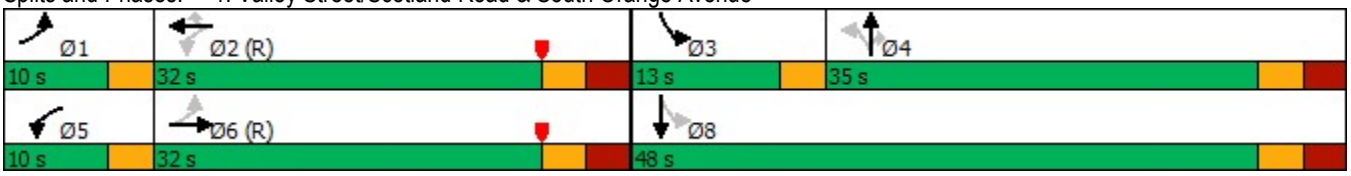
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	38.7	13.0	29.3	9.4	38.2		42.3				
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	26.0	10.0	29.0	7.0	26.0		42.0				
Max Q Clear Time (g_c+I1), s	4.0	18.3	11.5	20.8	4.8	8.4		10.3				
Green Ext Time (p_c), s	0.0	2.4	0.0	2.5	0.0	3.9		3.6				

Intersection Summary			
HCM 6th Ctrl Delay		24.4	
HCM 6th LOS		C	

Phase Number	1	2	3	4	5	6	8
Movement	EBL	WBTL	SBL	NBTL	WBL	EBTL	SBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize							
Recall Mode	None	C-Max	None	None	None	C-Max	None
Maximum Split (s)	10	32	13	35	10	32	48
Maximum Split (%)	11.1%	35.6%	14.4%	38.9%	11.1%	35.6%	53.3%
Minimum Split (s)	10	32	10	13	10	32	13
Yellow Time (s)	3	3	3	3	3	3	3
All-Red Time (s)	0	3	0	3	0	3	3
Minimum Initial (s)	7	26	7	7	7	26	7
Vehicle Extension (s)	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0
Walk Time (s)							
Flash Dont Walk (s)							
Dual Entry	No	Yes	No	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	37	47	79	2	37	47	79
End Time (s)	47	79	2	37	47	79	37
Yield/Force Off (s)	44	73	89	31	44	73	31
Yield/Force Off 170(s)	44	73	89	31	44	73	31
Local Start Time (s)	54	64	6	19	54	64	6
Local Yield (s)	61	0	16	48	61	0	48
Local Yield 170(s)	61	0	16	48	61	0	48

Intersection Summary	
Cycle Length	90
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 73 (81%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow	

Splits and Phases: 1: Valley Street/Scotland Road & South Orange Avenue



EXISTING TRAFFIC SIGNAL TIMING DIRECTIVE

INTERSECTION NAME:	SOUTH ORANGE AVENUE AND VALLEY STREET/SCOTLAND ROAD TOWNSHIP OF SOUTH ORANGE VILLAGE					CHECKED: 2/25/2020		CONTROLLER TYPE: ASC/2S-2100		
INTERVAL	#	1	2	3	4	5	6	7	8	FLASH TIME: N/A
PHASING										CYCLE = 90 sec
MODE/RECALL	0									PHASE 1+5: EB & WB LTs South Orange Ave
MIN. GREEN	1	7	22	7	7	7	22		7	PHASE 2+6: EB & WB South Orange Ave
WALK	2	0	10	0	9	0	10		9	PHASE 3: SB Scotland Rd
PED. CLR.	3	0	19	7	20	7	19		20	PHASE 4+8: NB & SB Scotland Rd & Valley St
VEH. EXT.	4	3.0	3.0	3.0	3.0	3.0	3.0		3.0	
MAX I	5	7	26	7	27	7	26		27	OFFSET: 73 SEC
MAX II	6	-	-	-	-	-	-		-	
MAX SPLITS	7	7	29	7	29	7	29		29	
AMBER	8	3.0	3.0	3.0	3.0	3.0	3.0		3.0	
ALL RED	9	0.0	3.0	0.0	3.0	0.0	3.0		3.0	

NOTES:

DIRECTIVE NUMBER: 512

INTERSECTION NAME:	SOUTH ORANGE AVENUE AND VOSE AVENUE TOWNSHIP OF SOUTH ORANGE VILLAGE					CHECKED: 2/25/2020		CONTROLLER TYPE: ASC/2S-2100		
INTERVAL	#	1	2	3	4	5	6	7	8	FLASH TIME: N/A
PHASING										CYCLE = 90 sec
MODE/RECALL	0									
MIN. GREEN	1		25		7		25			PHASE 2+6: EB & WB South Orange Ave
WALK	2		11		7		11			PHASE 4: SB Vose Ave
PED. CLR.	3		14		14		14			
VEH. EXT.	4		2.0		2.0		2.0			OFFSET: 2 SEC
MAX I	5		25		27		25			
MAX II	6		-		-		-			
MAX SPLITS	7		58		21		58			
AMBER	8		3.0		3.0		3.0			
ALL RED	9		2.0		3.0		2.0			

NOTES:

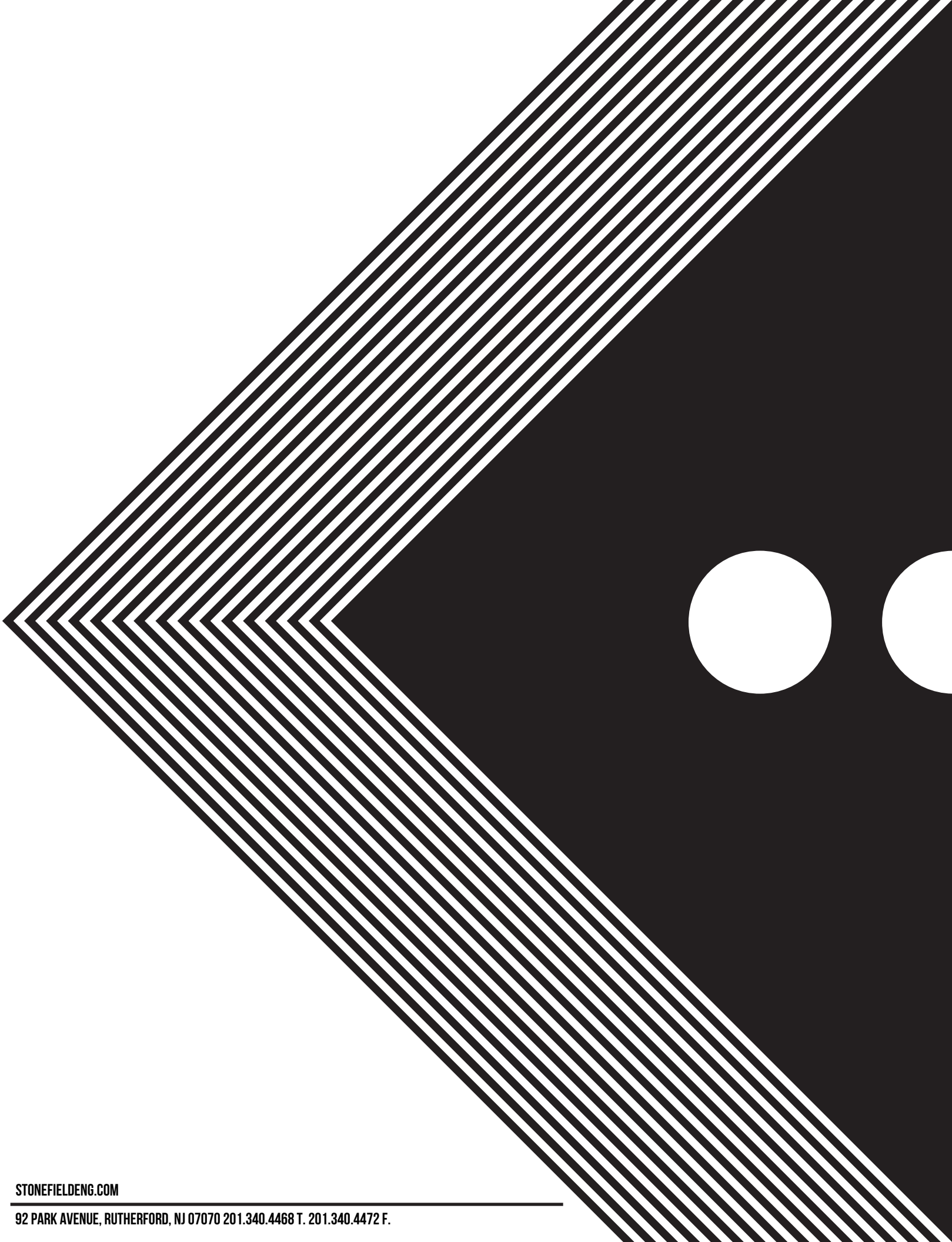
DIRECTIVE NUMBER: 520

PROPOSED TRAFFIC SIGNAL TIMING DIRECTIVE

INTERSECTION NAME:	SOUTH ORANGE AVENUE AND VALLEY STREET/SCOTLAND ROAD TOWNSHIP OF SOUTH ORANGE VILLAGE					CHECKED: 2/25/2020		CONTROLLER TYPE: ASC/2S-2100		
INTERVAL	#	1	2	3	4	5	6	7	8	FLASH TIME: N/A
PHASING										CYCLE = 90 sec
MODE/RECALL	0									PHASE 1+5: EB & WB LTs South Orange Ave
MIN. GREEN	1	7	22	7	7	7	22		7	PHASE 2+6: EB & WB South Orange Ave
WALK	2	0	10	0	9	0	10		9	PHASE 3: SB Scotland Rd
PED. CLR.	3	0	19	7	20	7	19		20	PHASE 4+8: NB & SB Scotland Rd & Valley St
VEH. EXT.	4	3.0	3.0	3.0	3.0	3.0	3.0		3.0	
MAX I	5	7	26	10	27	7	26		27	OFFSET: 73 SEC
MAX II	6	-	-	-	-	-	-		-	
MAX SPLITS	7	7	26	10	29	7	26		29	
AMBER	8	3.0	3.0	3.0	3.0	3.0	3.0		3.0	
ALL RED	9	0.0	3.0	0.0	3.0	0.0	3.0		3.0	

NOTES:

DIRECTIVE NUMBER: 512



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