HARRISON YARDS
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TRAFFIC IMPACT STUDY

Proposed Harrison Yards - Phase 2
700 Frank E. Rodgers Boulevard South
Town of Harrison
Hudson County, New Jersey

Prepared For:
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EXECUTIVE SUMMARY

Below is a summary of changes made since the last revision of this report, dated March 27, 2020:

1. Per consultations with Hudson County professionals, the recommended signal timings at the intersection of Frank E. Rodgers Boulevard South and Angelo Cifelli Drive/Site Driveway were revised to provide, at minimum, the same green time for the Frank E. Rodgers through phase as the previously approved signal timing directives. Further, the previously approved signal phasing would now be maintained. The County has preliminary approved the revised signal timing directives under the condition that the County reserves the right to revise the timing back to the original approval or as they see fit.

2. As such, the 2020 Build Mitigation Condition analysis was revised at the intersection of Frank E. Rodgers South and Angelo Cifelli Drive/Site Driveway during both peak hours studied. The results of the revised analysis indicate that the intersection would operate at an overall Level of Service D with all turning movements operating at acceptable Level of Service E or better during both peak hours studied. Further, the anticipated queue lengths would be accommodated without significant delay impacts.

INTRODUCTION

This Traffic Impact Study was prepared to investigate the potential impacts of Phase 2 of the Harrison Yards mixed-use development on the adjacent roadway network. The subject property is located along the easterly side of Frank E. Rodgers Boulevard South between Railroad Avenue and Somerset Street in the Town of Harrison, Hudson County, New Jersey. The site location is shown on appended **Figure 1**.

The subject property is designated as Block 133, Lots 1.03 and 1.05 as depicted on the Town of Harrison Tax Map. The site has approximately 521 feet of frontage along Frank E. Rodgers Boulevard South. The existing site is presently being developed with the previously approved Phase 1 of the multi-phase development. Phase 1 consists of two (2) mixed-use five (5) story buildings on the northwesterly portion of the site with access to the subject property via one (1) signalized driveway serving as the fourth leg to the intersection of Frank E. Rodgers Boulevard South and Angelo Cifelli Drive and one (1) full-movement driveway connecting to 5th Street proximate to its intersection with Essex Street. As part of Phase 2 of the multi-phase development plan, two (2) mixed-use high-rise buildings consisting of 898 residential units, a 200-room hotel, and 204,709 square feet of retail/commercial space would be constructed. Access to the Phase 2 and the overall property is proposed to be consistent with the previously approved access plan for Phase 1 of the development.

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 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 Hudson County and the Town of Harrison and were verified with field recordings at the study intersections.

2019 EXISTING CONDITION

2019 EXISTING ROADWAY CONDITIONS

The proposed mixed-use development located along the easterly side of Frank E. Rodgers Boulevard South between Railroad Avenue and Somerset Street in the Town of Harrison, Hudson County, New Jersey The subject property is designated as Block 133, Lots 1.03 and 1.05 as depicted on the Town of Harrison Tax Map The site has approximately 521 feet of frontage along Frank E. Rodgers Boulevard South. Land uses in the area are a mix of commercial, residential, industrial, and sporting/entertainment uses.

The proposed development is located within 500 feet (2-minute walk) from the Harrison Station which serves the Port Authority Trans-Hudson (PATH) trains, which provides direct service to Newark Penn Station, Journal Square, and World Trade Center as a well as transfer service to Hoboken Terminal, New York Penn Station, and Christopher Street to 33rd Street in Manhattan. Subsequent transfers are available at PATH stations for NJ Transit rail and bus service, NY Waterway ferries, and the New York City Subway. The subject site is also located directly adjacent to NJ Transit bus stops along Frank E. Rodgers Boulevard serving NJ Transit bus route 40, which provides direct service to Newark Liberty International Airport, IKEA, and The Mills and Jersey Gardens.

Frank E. Rodgers Boulevard South (County Route 697) is classified as an Urban Major Collector roadway with a general north-south orientation and is under the jurisdiction of Hudson County. In the immediate vicinity of the site, the roadway provides two (2) lanes of travel in each direction, with additional lanes provided at key intersections to facilitate turning movements and provide additional capacity. Curb and sidewalk are provided along both sides of the roadway, shoulders are not provided, and on-street parking is not permitted on Frank E. Rodgers Boulevard within the immediate vicinity of the site. Frank E. Rodgers Boulevard South provides north-south mobility within the Town of Harrison and provides access to the Jackson Street Bridge to the south which crosses the Passaic River and continues into the City of Newark.

Bergen Street is a local roadway with a general east-west orientation and is under the jurisdiction of the Town of Harrison. In the vicinity of the site, the roadway generally 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 generally not permitted between Frank E. Rodgers Boulevard and 5th Street. Bergen Street provides east-west mobility throughout the Town of Harrison and provides access to Interstate 280 West to the west.

South 5th Street is a local roadway with a general north-south orientation and is under the jurisdiction of the Town of Harrison. 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 in the immediate vicinity of the site. South 5th terminates south of Essex Street.

Essex Street is a local roadway with a general east-west orientation and is under the jurisdiction of the Town of Harrison. In the vicinity of the site, the roadway provides one (1) lane of westbound travel. Between South 5th Street and Frank E. Rodger Boulevard South, travel restrictions are in effect from 7:00 a.m. to 9:00 a.m. and from 3:00 p.m. to 7:00 p.m. 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 in the immediate vicinity of the site. Interstate 280 West provides an off-ramp to Essex Street to the immediate east of its intersection with South 5th Street.

Angelo Cifelli Drive is a local roadway with a general east-west orientation and is under the jurisdiction of the Town of Harrison. In the vicinity of the site, the roadway provides one (1) lane of travel in each direction divided by a planted median. Curb and sidewalk are provided along both sides of the roadway, shoulders are not provided, and on-street parking is permitted along both sides of the roadway with restrictions in effect Tuesdays from 9:00 a.m. to 12:00 p.m. on the northerly side of the roadway and Fridays from 9:00 a.m. to 12:00 p.m. on the southerly side of the roadway. Along both sides of the roadway there is a 30-minute limit in effect from 8:00 a.m. to 8:00 p.m.

Frank E. Rodgers Boulevard South and Bergen Street intersect to form a four (4)-leg intersection controlled by a three (3)-phase traffic signal operating on a 120-second fixed background cycle. The eastbound approach of Bergen Street provides one (1) shared left-turn/through/right-turn lane and the westbound approach of Bergen Street provides one (1) exclusive left-turn lane and one (1) shared through/right-turn lane. The northbound approach of Frank E. Rodgers Boulevard South provides one (1) exclusive left-turn lane and the southbound approach of Frank E. Rodgers Boulevard South provides one (1) shared left-turn/through lane and one (1) exclusive right-turn lane. Crosswalks and pedestrian signals are provided across all legs of the intersection.

Bergen Street and South 5th Street intersect to form a four (4)-leg intersection controlled by a two (2)-phase traffic signal operating on a 120-second fixed background cycle. All approaches at the intersection provide one (1) shared left-turn/through/right-turn lane. Crosswalks are provided across all legs of the intersection.

Essex Street and South 5th Street intersect to form a four (4)-leg intersection controlled by a two (2)-phase traffic signal operating on a 70-second fixed background cycle. The westbound approach of Essex Street provides one (1) shared left-turn/through/right-turn lane. The northbound approach of South 5th Street

provides one (1) shared left-turn/through lane and the southbound approach of South 5th Street provides one (1) shared through/right-turn lane. Pedestrian ramps are provided at each corner of the intersection with their orientation allowing for travel across all legs of the intersection.

Frank E. Rodgers Boulevard South and Angel Cifelli Drive intersect to form a T-intersection controlled by a three (3)-phase traffic signal operating on a 120-second fixed background cycle. The eastbound approach of Angelo Cifelli Drive provides one (1) exclusive left-turn lane and one (1) exclusive right-turn lane. The northbound approach of Frank E. Rodgers Boulevard South provides one (1) exclusive left-turn lane, two (2) exclusive through lanes and the southbound approach of Frank E. Rodgers Boulevard South provides one (1) shared through/right-turn lane and one (1) exclusive through lane. Crosswalks and pedestrian signals are provided across the westerly leg of the intersection. Our office received preliminary signal timing directives (dated November 16, 2016) from Michael Santopietro of Hudson County which are provided within the Technical Appendix. For the purpose of conducting a conservative traffic analysis under the No-Build and Build conditions at this intersection, it was assumed that Pedestrian Phase 6C would be actuated every cycle during both peak hours studied, which would increase the overall cycle length to a minimum of 145 seconds.

2019 EXISTING TRAFFIC VOLUMES

Manual turning movement counts were collected during the typical weekday morning and weekday evening 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 intersection of Frank E. Rodgers Boulevard South and Bergen Street. Specifically, manual turning movement counts were conducted on Wednesday, September 11, 2019, from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 7:00 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 7:30 a.m. to 8:30 a.m.; the weekday evening peak hour occurred from 4:00 p.m. to 5:00 p.m. The Technical Appendix contains a summary of the turning movement count data. The 2019 Existing weekday morning and weekday evening peak-hour volumes are summarized on appended **Figure 2**.

The 2019 traffic volumes collected at the intersection of Frank E. Rodgers Boulevard South and Bergen Street were compared to the 2015 traffic volumes collected at the same intersection by Jacobs Engineering within the Traffic Impact Study prepared for the original development plan, dated September 8, 2015, to understand traffic growth in the vicinity of the site. During the weekday morning peak hour, traffic volumes at the intersection increased by an annual growth rate of approximately 4%. During the weekday evening peak

hour, total traffic volume counted at the intersection decreased from 2015 to 2019. The background growth of traffic volume likely account for developments in the vicinity of the site as well as ambient growth from the larger regional area.

Turning movement counts conducted by Jacobs Engineering within their Traffic Impact Study for the original development plan of the site were utilized to establish existing conditions of three (3) adjacent intersections. Specifically, the following intersections were included for analysis:

1. Intersection of Frank E. Rodgers Boulevard & Angelo Cifelli Drive
2. Intersection of Bergen Street & 5th Street
3. Intersection of Essex Street & 5th Street

The traffic volumes were grown to account for background growth in the vicinity based on the as-counted traffic volume differences between the 2015 data and the 2019 data. During the weekday morning peak hour, the observed 4% annual background growth rate was applied. During the weekday evening peak hour, a background growth rate of 1.00% was utilized to provide a conservative analysis despite a reduction in counted traffic volumes. The 1.00% background growth rate was obtained from the New Jersey Department of Transportation (NJDOT) Annual Background Growth Rate Table.

2019 EXISTING LOS/CAPACITY ANALYSIS

A Level of Service and Volume/Capacity analysis was conducted for the 2019 Existing Condition during the weekday morning and weekday evening peak hours at the study intersections.

Under the existing condition, the signalized intersection of Frank E. Rodgers Boulevard South and Bergen Street is calculated to operate at overall Level of Service D during the weekday morning peak hour and overall Level of Service C during the weekday evening peak hour. The northbound left-turn approach is calculated to operate at Level of Service E during the weekday morning peak hour and Level of Service B during the weekday evening peak hour, and the westbound left-turn approach is calculated to operate at Level of Service E during each of the peak hours studied.

The signalized intersection of Bergen Street and 5th Street is calculated to operate at overall Level of Service B during each of the peak hours studied. The individual turning movements are calculated to operate at Level of Service C or better during each of the peak hours studied.

The signalized intersection of Essex Street and 5th Street is calculated to operate at overall Level of Service A during each of the peak hours studied. The individual turning movements are calculated to operate at Level of Service B or better during each of the peak hours studied.

The signalized intersection of Frank E. Rodgers Boulevard and Angelo Cifelli Drive is calculated to operate at overall Level of Service C during each of the peak hours studied. The eastbound left-turn approach is calculated to operate at Level of Service E during the weekday morning peak hour and Level of Service D during the weekday evening peak hour.

2022 NO-BUILD CONDITION

BACKGROUND GROWTH

The 2019 Existing Condition traffic volume data was grown to a future horizon year of 2022, 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 1.00% annually for three (3) years to generate the 2022 Base Traffic Volumes. These volumes are summarized on appended **Figure 3**. The 1.00% background growth rate was obtained from the New Jersey Department of Transportation (NJDOT) Annual Background Growth Rate Table.

PHASE 1 SITE-GENERATED TRAFFIC VOLUMES

Traffic volumes associated with Phase 1 of the development program were calculated to consider the traffic impact of the portion of the development currently under construction. Trip generation projections for Phase 1 were prepared utilizing the ITE's Trip Generation Manual, 10th Edition. Trip generation rates associated with Land Use 221 "Multifamily Housing (Mid-Rise)" for dense multi-use urban locations were cited for the 209 residential units under construction in Phase 1 of the development program. Consistent with the methodology utilized in the Jacobs Engineering traffic study, the 8,495 square feet of ground-level retail as it would generally be patronized by residents from the proposed development and surrounding neighborhood and are not expected to generate new vehicle trips. **Table 1** provides the weekday morning and weekday evening trip generation associated with Phase 1 of the development program.

TABLE 1 – PHASE 1 TRIP GENERATION

	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
Land Use	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**
209 Units Multifamily Housing (Mid-Rise) *ITE Land Use 221*	5	37	42	27	11	38

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 the Town of Harrison's Planning Board Engineer, Antonios Panagopoulos of T&M Associates, the following developments approved and/or under construction are anticipated to impact traffic volumes within the study area:

1. *Block D Partners Urban Renewal 1, LLC* – Block 138.04 Lot 1 ("Parcel D", southeast corner of Riverbend Drive and 5th Street)
2. *Benjamin Harrison Urban Renewal, LLC* – Block 71, Lots 1.01 and 12; and Block 72, Lot 1.01 (southwest corner of Bergen St/1st St)
3. *Supor Properties Railroad Ave., LLC* – 1-15 Railroad Avenue, Block 72, Lot 32 (westerly side of Bergen Street)

Appended **Figure 5** illustrates the site-generated traffic associated with the approved developments in the vicinity of the site assigned to the study area network.

2022 NO-BUILD TRAFFIC VOLUMES

The site-generated trips associated with Phase 1 of the subject property and the site-generated trips associated with the adjacent developments were added to the 2022 Base Traffic Volumes to calculate the 2022 No-Build Traffic Volumes for the weekday morning and weekday evening peak hours. These volumes are summarized on appended **Figure 6**.

2022 NO-BUILD LOS/CAPACITY ANALYSIS

A Level of Service and Volume/Capacity analysis was also conducted for the 2022 No-Build Condition during the weekday morning and weekday evening peak hours at the study intersections. The overall intersection Levels of Service at the signalized intersection of Frank E. Rodgers Boulevard South and Bergen Street are calculated to operate generally consistent with the findings of the Existing Condition. The northbound left-turn movement is calculated to operate under capacity constraints during the weekday morning peak hour, and the westbound left-turn movement is calculated to operate under capacity constraints during both the weekday morning and weekday evening peak hours. All other turning movements at the intersection are calculated to operate at Level of Service D or better during each of the peak hours studied.

The signalized intersection of Bergen Street and 5th Street is calculated to continue to operate at overall Level of Service B during each of the peak hours studied, with individual turning movements operating at Level of Service C or better during each of the peak hours studied.

The signalized intersection of Essex Street and 5th Street is calculated to continue to operate at overall Level of Service A during each of the peak hours studied, with individual turning movements operating at Level of Service B or better during each of the peak hours studied.

The signalized intersection of Frank E. Rodgers Boulevard and Angelo Cifelli Drive is calculated to continue to operate at overall Level of Service C during the weekday morning peak hour and would operate at overall Level of Service D during the weekday evening peak hour. The movements at the eastbound and westbound (site driveway) approaches are calculated to operate at Level of Service E or better during each of the peak hours studied.

2022 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 222 "Multifamily Housing (High-Rise)" and Land Use 310 "Hotel" were cited for the 898 residential units and 200-room hotel respectively. As the tenants of the proposed 204,709-square-foot retail/commercial space are unknown at this time, an equal split was assumed between general retail and general office. Trip generation rates associated with Land Use 820 'Shopping Center" were cited for the approximately 102,355-square-foot retail space, and trip generation rates associated with Land Use 710 "General Office" were cited for the approximately 102,354-square-foot office space.

For the residential and office components of the proposed development, ITE provides data for "Dense Multi-Use Urban" settings/locations, which feature diverse and interacting complementary land uses, good pedestrian connectivity, and convenient and frequent transit. Trip generation adjustments to account for urban infill and transit use provided in subsequent sections of this report were not applied to these two (2) land uses.

MIXED-USE DEVELOPMENT TRIP GENERATION (INTERNAL CAPTURE)

Chapter 6 of ITE's Trip Generation Handbook, 3rd Edition, states that 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 a resident visiting the retail uses. Utilizing the published data, internal trips were calculated

between the proposed uses during the weekday morning and weekday evening peak-hours. The internal capture portion of the site-generated traffic is shown in **Table 2**, which results in an outside generated trip reduction of 30 trips (15 entering, 15 exiting) and 268 trips (134 entering, 134 exiting) during the weekday morning and weekday evening peak hours, respectively. Detailed internal capture calculations sheets are provided within the Technical Appendix.

URBAN INFILL DEVELOPMENT TRIP GENERATION

As stated within Chapter 7 of the Trip Generation Handbook, a separate approach is recommended for estimating the vehicle trip generation for development and redevelopment in compact, urbanized, mostly developed areas where walking, bicycling, and transit are viable modes of transportation, also referred to as "infill development." Based on the characteristics of the subject site and the surrounding area, the subject property embodies the qualities of an infill site.

Infill development trip generation rates were calculated in accordance with the guidelines set forth by the ITE within the Trip Generation Handbook. Infill and baseline mode share and vehicle occupancy rates for each of the proposed uses were based on data provided within Table B.1 and Table B.2 within Appendix B, Table C.9 and Table C.10 within Appendix C, and Table D.6 and Table D.7 within Appendix D of the Trip Generation Handbook. These tables provide mode share and vehicle occupancy rates for other similar infill developments and for non-infill (baseline) developments. Trip generation calculations with respect to urban infill are provided within the Technical Appendix, which result in a reduction of 63 trips (36 entering, 27 exiting) and 239 trips (119 entering, 120 exiting) trips during the weekday morning and weekday evening peak hours, respectively.

TRIP GENERATION ADJUSTMENT FOR TRANSIT USE

As stated within Chapter 2 of the Trip Generation Handbook, nearly all data presented in the current Trip Generation Manual data volumes have been collected at low-density, single-use, homogenous, general urban or suburban developments with little or no public transit service and little or no convenient pedestrian access. Further, the ITE Trip Generation Handbook states that the data published for Urban Infill calculations is limited and only represents a start on an infill trip generation database. As such, a transit trip generation reduction is appropriate for the "general urban/suburban" data utilized within this analysis to account for transit use.

The location of the proposed development is particularly suited to provide transit options for its occupants as it is located within a two (2)-minute walk to Harrison Station which serves PATH trains and provides direct service to New York City, Jersey City, and Newark, as well as connections to Hoboken and other transit options. The site is located adjacent to NJ Transit bus route 40, which provides service to Kearny, Newark International Airport, IKEA, and the Mills and Jersey Gardens. These available transit options within walking

distance of the proposed development would reduce vehicular travel by residents to and from the subject property. Based on American Community Survey data provided by the U.S. Census Bureau, approximately 47% of Harrison residents living in Census Tract 139, where the subject site is located, use public transportation, walk, or use means other than single-passenger vehicles to commute to work. As such, a conservative transit trip reduction of 25% was applied to the site generated trips originating and departing from the hotel and retail uses, which results in a reduction of 28 trips (18 entering, 10 exiting) and 72 trips (38 entering, 35 exiting) trips during the weekday morning and weekday evening peak hours, respectively. It is noted that the transit trip credit amounts to an assumption that approximately 0.5% and 1.4% of PATH riders that embark and disembark at the Harrison PATH stop would utilize this site in the morning peak hour and evening peak hour respectively.

PASS-BY TRAFFIC

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 retail uses associated with the proposed site 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 the published ITE data for Land Use 820 "Shopping Center," 34% of the site-generated traffic during the weekday evening peak hour is comprised of pass-by traffic. It is noted that this reflects as assumption that approximately 1% of all drivers on Frank E. Rodgers Boulevard today would utilize the services on the during the evening peak hour.

ADJUSTED TRIP GENERATION PROJECTIONS

Adjustment factors associated with internal trip capture, urban infill development, transit use, and pass-by traffic were applied to the unadjusted trip generation projections for the proposed development, in this specific order. **Table 2** provides the unadjusted site generated traffic and the adjustment factors applied to determine the weekday morning and weekday evening trip generation of the subject site.

TABLE 2 – PROPOSED TRIP GENERATION

Land Use Code	Land Use	Amount	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
222	Multifamily Housing (High-Rise)	898 Units	23	166	189	120	51	171
310	Hotel	200 Rooms	55	39	94	61	59	120
710	General Office	102,354 SF	73	12	85	15	74	89
820	Shopping Center	102,355 SF	60	36	96	265	288	553
Unadjusted ITE Trip Generation Total			**211**	**253**	**464**	**461**	**472**	**933**
Internal Capture Trip Reduction (All Uses)			-15	-15	-30	-134	-134	-268
Urban Infill Trip Reduction (Hotel, Retail)			-36	-27	-63	-119	-120	-239
Transit Trip Reduction (Hotel, Retail)			-18	-10	-28	-38	-35	-72
Pass-By Trip Reduction (Retail)			0	0	0	-28	-28	-56
Total New Vehicular Trips			**142**	**201**	**343**	**142**	**155**	**298**

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 existing travel patterns, location of major arterial roadways, and the access management plan of the site. It is noted the trip distribution is similar to the distribution utilized in the Traffic Impact Study performed by Jacobs Engineering for Phase I of the multi-phase development plan. The "New" Site-Generated Traffic Volumes are illustrated on **Figure 7** and the "Pass-By" Site-Generated Traffic Volumes expected to access the site are depicted on **Figure 8**.

2022 BUILD TRAFFIC VOLUMES

The site-generated trips were added to the 2022 No-Build Traffic Volumes to calculate the 2022 Build Traffic Volumes and are shown on appended **Figure 9**.

2022 BUILD LOS/CAPACITY ANALYSIS

A Level of Service and Volume/Capacity analysis was also conducted for the 2022 Build Condition during the weekday morning and weekday evening 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 overall intersection Levels of Service at the signalized intersection of Frank E. Rodgers Boulevard South and Bergen Street are calculated to operate generally consistently with the findings of the No-Build

Condition. The Level of Service of the westbound left-turn approach would continue to operate under capacity constraints during each of the peak hours studied, and the Level of Service of the northbound left-turn approach would continue to operate under capacity constraints during the weekday morning peak hour.

The signalized intersection of Bergen Street and 5th Street is calculated to operate generally consistently with the findings of the No-Build Condition at acceptable overall Level of Service B during each of the peak hours studied. The individual turning movements at the intersection would continue to operate at acceptable Level of Service C or better during each of the peak hours.

The signalized intersection of Essex Street and 5th Street is calculated to operate at acceptable overall Level of Service B during each of the peak hours studied. The individual turning movements at the intersection would continue to operate at acceptable Level of Service B or better during each of the peak hours.

The signalized intersection of Frank E. Rodgers Boulevard and Angelo Cifelli Drive is calculated to operate at acceptable overall Level of Service D during the weekday morning peak hour and at overall Level of Service E during the weekday evening peak hour. The eastbound left-turn/through movement would operate under capacity constraints during each of the peak hours studied. The westbound left-turn/through movement would operate under capacity constraints during the weekday morning peak hour. The northbound through movement would operate under capacity constraints during the weekday evening peak hour.

RECOMMENDED MITIGATION

In order to mitigate the impacts of the proposed development at the surrounding signalized intersections, minor signal timing modifications are recommended. The recommended retiming would result in Levels of Service at critical intersections generally consistent with the 2022 No-Build Condition.

At the intersection of Frank E. Rodgers Boulevard and Bergen Street, the following modifications are recommended:

1. Reallocation of one (1) second of green time from the north/south phase of Frank E. Rodgers Boulevard to the east/west phase of Bergen Street – *without this one (1)-second reallocation, the average queue lengths along Bergen Street would be approximately 1 vehicle longer for the westbound approach and generally unchanged for the eastbound approach during both peak hours studied*; and
2. Reallocation of three (3) seconds of green time from the southbound phase of Frank E. Rodgers Boulevard to the northbound lead left-turn phase.

At the intersection of Frank E. Rodgers Boulevard and Angelo Cifelli Drive, the previously approved signal timing and phasing as part of the original approval of Phase 1 are recommended to be revised to better consider

the impacts of the amended Phase 2 development plan and the impacts of adjacent developments in the vicinity of the site. The Technical Appendix provides the approved signal timing and phasing under the Build Condition and the recommended signal timing and phasing under the Build (Mitigation) Condition. The proposed mitigation includes a reduction in green time for the left-turn phases from Frank E. Rodgers Boulevard and an increase in green time for the Angelo Cifelli Drive and Frank E. Rodgers Boulevard through phases.

The Frank E. Rodgers Boulevard-Angelo Cifelli Drive intersection is under the jurisdiction of Hudson County and the Frank E. Rodgers Boulevard Bergen Street is under the jurisdiction of the Town of Harrison; the recommended retiming of the intersections is subject to the relevant jurisdictional review.

SITE CIRCULATION & ACCESS

A review was conducted of the proposed mixed-use development using the Floor Plans prepared by Architectura dated April 14, 2020 and the Site Plan prepared by MidAtlantic Engineering Partners, LLC last revised on May 19, 2020. In completing this review, particular attention was focused on the site access, circulation, and parking supply.

Access is proposed via one (1) full-movement signalized driveway which would serve as the fourth leg to the intersection of Frank E. Rodgers Boulevard South and Angelo Cifelli Drive and one (1) driveway which would connect to the southerly terminus of South 5th Street adjacent to the Bank of America driveway. Angelo Cifelli Drive and South 5th Street would continue within the site as public rights-of-way and would intersect to create a four (4)-leg intersection. Each roadway would provide one (1) lane of travel in each direction and a right-of-way width of 60 feet. Driveway connections to the proposed public rights-of-way would be provided serving Phase 1 and Phase 2 of the proposed development.

The proposed phase 2 of the multi-phase development would consist of a 26-story mixed-use building "Building B" and a 17-story mixed-use building "Building C." Building B would be located on the southerly side of Angelo Cifelli Drive east of its intersection with Frank E. Rodgers Boulevard and consist of 620 residential dwelling units, a 648-space automated parking garage, a 200-room hotel, and 130,526 square feet of retail/commercial space. A drive aisle and parking area would be located on to the southeasterly side of the building and a drive aisle through the middle of the building on the ground level would provide access to Angelo Cifelli Drive. Building C would be located on the easterly side of South 5th Street with its intersection of the Bank of America driveway and consist of 278 residential dwelling units, a 571-space automated parking garage, and 74,183 square feet of retail/commercial space. Drive aisles and parking areas would be located on the southerly and easterly sides of the building with a drive aisle on the northerly side of the building providing access to South 5th Street. Two-way vehicular circulation throughout the site would be facilitated by drive aisles with a minimum width of 24 feet. Standard parking spaces would be a minimum of 8.5 feet wide by 18 feet

deep and compact parking spaces would be a minimum of eight (8) feet wide by 16 feet deep in accordance with the Development Plan and industry standards.

PARKING SUPPLY

Regarding the parking requirement for the proposed development, the Amended Harrison Waterfront Redevelopment Plan 2012 ("Redevelopment Plan") provides the following parking requirements:

1. One (1) parking space per residential unit,
2. One (1) parking space per hotel room plus one (1) parking space per 1,000 square feet of conference space, and
3. One (1) parking space per 1,000 square feet of commercial space.

For the proposed mixed-use development consisting of 898 residential units, 200-room hotel with 7,603 square feet of conference space, and 204,709 square feet of retail/commercial space, this equates to 1,313 required spaces. The site would provide 1,350 total parking spaces, inclusive of 1,219 automated parking spaces and 131 surface parking spaces, which meets the parking requirement and would be sufficient to support this project's parking demand.

Under the proposed development plan, the site would provide a mix of uses which experience peak parking demand at different times of throughout the day. Typically, residential and hotel uses experience a peak parking demand overnight and retail/commercial uses experience a peak parking demand during the midday and afternoon periods. As such, the peak parking demand for the land uses on site would not overlap which would lower the site's overall peak parking demand. The on-site parking supply would serve residents, employees, and guests of the proposed development; the parking supply would not be utilized as a commuter parking area for Harrison Station.

CONCLUSIONS

This report was prepared to examine the potential traffic impact of Phase 2 of the proposed Harrison Yards mixed-use development. The analysis findings, which have been based on industry-standard guidelines, indicate that with the recommended mitigation measures at the adjacent signalized intersections, the proposed development would not have a significant impact on the traffic operations of the adjacent roadway network. It should be noted that capacity constraints, or vehicle delays are not uncommon in dense multi-use urban environments and would help reduce automobile use and promote walking, biking, and transit use. The site driveways and on-site layout have been designed to provide for effective access to and from the subject property. The site's proximity to the Harrison Station and the walkability of the surrounding neighborhood would contribute to a reduction in automobile use and reduce the need for automobile ownership by residents. The parking supply meets the Town's requirement and based on shared parking characteristics of the site and

the urban, walkable, and transit-friendly characteristics of the immediate surrounding area, the parking supply would be sufficient to support this project.

S:\2019\S-19146 Eastone Capital LLC - 700 Frank E. Rodgers Boulevard South, Harrison, NJ\Calculations & Reports\Traffic\Reports\2020-03 TIS\2020-03 TIS_rev2.docx

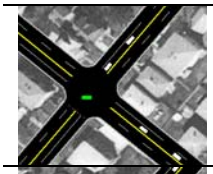
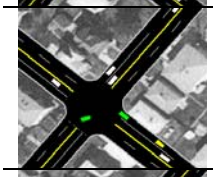
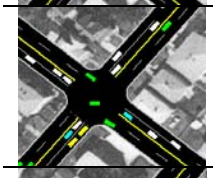
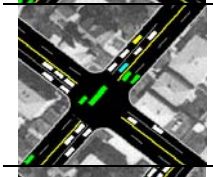
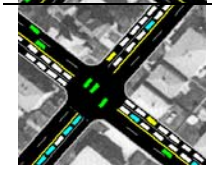
TECHNICAL APPENDIX

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

Town of Harrision, Hudson County, New Jersey

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

		2019 Existing Condition		2022 No-Build Condition		2022 Build Condition		2022 Mitigation Condition	
Intersection	**Lane Group**	**AM Peak LOS (Delay)**	**PM Peak LOS (Delay)**	**AM Peak LOS (Delay)**	**PM Peak LOS (Delay)**	**AM Peak LOS (Delay)**	**PM Peak LOS (Delay)**	**AM Peak LOS (Delay)**	**PM Peak LOS (Delay)**
Frank E Rodgers Blvd S (N/S) & Bergen Street (E/W)	EB Left/Through/Right	D (42.3)	D (40.9)	D (43.3)	D (42.6)	D (43.7)	D (43.3)	D (42.6)	D (42.1)
	WB Left	E (70.9)	E (55.1)	F (89.2)	F (99.6)	F (94.4)	F (113.9)	F (85.5)	F (101.0)
	WB Through/Right	D (42.4)	D (44.6)	D (43.1)	D (46.7)	D (44.3)	D (48.0)	D (43.1)	D (46.5)
	NB Left	E (61.6)	B (14.8)	F (100.2)	B (18.2)	F (120.2)	C (20.6)	F (103.7)	C (22.2)
	NB Through/Right	A (7.8)	B (11.3)	A (8.3)	B (12.1)	A (8.7)	B (12.8)	A (9.2)	B (13.5)
	SB Left/Through	C (31.8)	B (18.7)	D (35.2)	B (19.8)	D (38.1)	C (20.7)	D (51.5)	C (24.4)
	SB Right	B (12.1)	B (12.0)	B (12.1)	B (12.0)	B (12.1)	B (12.0)	B (14.0)	B (13.9)
	Overall	**D (35.7)**	**C (21.6)**	**D (44.2)**	**C (28.2)**	**D (48.0)**	**C (30.4)**	**D (50.3)**	**C (30.4)**
S. 5th Street (N/S) & Bergen Street (E/W)	EB Left/Through/Right	C (27.8)	C (30.6)	C (28.0)	C (30.9)	C (28.2)	C (31.2)		
	WB Left/Through/Right	C (27.0)	C (26.3)	C (27.1)	C (26.3)	C (27.1)	C (26.4)		
	NB Left/Through/Right	B (10.3)	A (9.5)	B (10.7)	B (10.2)	B (11.9)	B (10.7)		
	SB Left/Through/Right	A (9.3)	A (9.0)	A (9.3)	A (9.1)	A (9.6)	A (9.3)		
	Overall	**B (16.8)**	**B (19.2)**	**B (16.8)**	**B (18.8)**	**B (16.8)**	**B (18.4)**		
S. 5th Street (N/S) & Essex Street (W)	WB Left/Through/Right	A (8.5)	A (7.0)	A (9.0)	A (7.5)	A (9.1)	A (7.6)		
	NB Left/Through	B (16.9)	B (17.6)	B (17.0)	B (17.6)	B (18.4)	B (18.8)		
	SB Through/Right	B (17.5)	B (17.2)	B (17.6)	B (17.3)	B (18.3)	B (18.0)		
	Overall	**A (9.4)**	**A (9.3)**	**A (9.8)**	**A (9.5)**	**B (11.8)**	**B (11.5)**		
Frank E Rodgers Blvd S (N/S) & Angello Cifelli Dr (E/W)	EB Left	E (60.3)	D (46.5)						
	EB Left/Through			E (71.7)	E (71.6)	F (109.9)	F (105.3)	E (78.7)	E (78.9)
	EB Right	D (38.3)	D (37.0)	D (54.8)	D (49.7)	E (55.9)	D (51.7)	E (56.4)	D (52.6)
	WB Left/Through			E (67.1)	E (67.1)	F (85.3)	E (72.5)	E (79.1)	E (75.8)
	WB Right			E (60.2)	E (56.8)	D (51.7)	D (50.6)	D (54.6)	E (58.0)
	NB Left	B (14.4)	B (13.4)	C (31.0)	C (32.1)	C (34.4)	D (37.3)	D (40.3)	C (33.8)
	NB Through	B (10.1)	B (18.8)	C (26.9)	D (51.8)	C (34.7)	F (88.0)	C (33.3)	D (54.8)
	SB Left			C (24.5)	D (54.6)	C (30.6)	E (55.6)	C (31.9)	E (63.9)
	SB Through/Right	C (26.1)	C (21.0)	D (35.4)	C (32.8)	D (37.7)	C (34.2)	D (37.6)	C (32.8)
	Overall	**C (22.2)**	**C (22.0)**	**D (35.1)**	**D (45.9)**	**D (42.2)**	**E (67.3)**	**D (40.5)**	**D (49.4)**

TURNING MOVEMENT COUNT DATA

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070
201.340.4468 t. 201.340.4472 f.

Intersection of Bergen Street (E/W)
and Frank E. Rodgers Boulevard South (N/S)
Harrison, Hudson County, New Jersey
Wednesday, September 11, 2019

File Name : S-19146
Site Code : 00019146
Start Date : 9/11/2019
Page No : 1

Groups Printed- Auto - HV - B/SB

	Bergen Street Eastbound					Bergen Street Westbound					Frank E. Rodgers Boulevard Northbound					Frank E. Rodgers Boulevard 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	1	5	9	0	15	50	29	0	0	79	73	83	9	1	166	0	230	6	1	237	497
07:15 AM	3	6	8	0	17	75	40	2	1	118	82	96	16	0	194	2	224	4	0	230	559
07:30 AM	5	9	17	0	31	63	27	0	0	90	81	96	19	0	196	0	227	7	0	234	551
07:45 AM	4	7	15	0	26	52	28	1	0	81	66	97	18	0	181	0	247	6	0	253	541
Total	13	27	49	0	89	240	124	3	1	368	302	372	62	1	737	2	928	23	1	954	2148
08:00 AM	2	4	14	0	20	44	31	1	0	76	62	94	13	0	169	1	180	8	0	189	454
08:15 AM	6	12	23	0	41	75	37	1	0	113	71	94	30	0	195	4	249	10	1	264	613
08:30 AM	3	4	13	0	20	66	41	1	0	108	76	75	21	0	172	2	204	2	0	208	508
08:45 AM	5	10	22	2	39	44	21	1	0	66	59	84	15	0	158	4	211	15	1	231	494
Total	16	30	72	2	120	229	130	4	0	363	268	347	79	0	694	11	844	35	2	892	2069
*** BREAK ***																					
04:00 PM	2	9	7	0	18	51	33	12	0	96	94	164	49	0	307	6	144	8	0	158	579
04:15 PM	3	12	11	0	26	47	29	11	0	87	84	159	39	1	283	7	117	6	1	131	527
04:30 PM	2	12	5	0	19	52	26	10	0	88	55	126	44	0	225	10	117	6	0	133	465
04:45 PM	5	11	10	0	26	34	17	7	0	58	51	126	28	0	205	12	109	3	0	124	413
Total	12	44	33	0	89	184	105	40	0	329	284	575	160	1	1020	35	487	23	1	546	1984
05:00 PM	4	12	7	0	23	40	22	7	0	69	36	127	33	0	196	10	97	2	0	109	397
05:15 PM	2	12	4	0	18	42	26	11	0	79	51	139	28	2	220	9	137	12	0	158	475
05:30 PM	2	7	2	0	11	51	22	6	0	79	82	138	50	1	271	8	149	5	0	162	523
05:45 PM	3	8	3	0	14	53	38	12	1	104	53	117	37	0	207	12	120	11	0	143	468
Total	11	39	16	0	66	186	108	36	1	331	222	521	148	3	894	39	503	30	0	572	1863
06:00 PM	5	17	1	0	23	37	16	10	1	64	49	124	24	0	197	10	125	10	0	145	429
06:15 PM	1	8	3	0	12	45	25	5	0	75	60	132	30	1	223	13	105	3	0	121	431
06:30 PM	2	7	4	0	13	56	27	12	0	95	53	114	39	0	206	17	116	11	0	144	458
06:45 PM	5	13	5	0	23	30	23	7	0	60	66	134	42	0	242	5	140	7	0	152	477
Total	13	45	13	0	71	168	91	34	1	294	228	504	135	1	868	45	486	31	0	562	1795
Grand Total	65	185	183	2	435	1007	558	117	3	1685	1304	2319	584	6	4213	132	3248	142	4	3526	9859
Apprch %	14.9	42.5	42.1	0.5		59.8	33.1	6.9	0.2		31	55	13.9	0.1		3.7	92.1	4	0.1		
Total %	0.7	1.9	1.9	0	4.4	10.2	5.7	1.2	0	17.1	13.2	23.5	5.9	0.1	42.7	1.3	32.9	1.4	0	35.8	
Auto	64	185	182	2	433	961	541	108	3	1613	1269	2288	577	6	4140	130	3205	136	4	3475	9661
% Auto	98.5	100	99.5	100	99.5	95.4	97	92.3	100	95.7	97.3	98.7	98.8	100	98.3	98.5	98.7	95.8	100	98.6	98
HV	1	0	0	0	1	44	12	6	0	62	33	16	7	0	56	2	32	5	0	39	158
% HV	1.5	0	0	0	0.2	4.4	2.2	5.1	0	3.7	2.5	0.7	1.2	0	1.3	1.5	1	3.5	0	1.1	1.6
B/SB	0	0	1	0	1	2	5	3	0	10	2	15	0	0	17	0	11	1	0	12	40
% B/SB	0	0	0.5	0	0.2	0.2	0.9	2.6	0	0.6	0.2	0.6	0	0	0.4	0	0.3	0.7	0	0.3	0.4

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070
201.340.4468 t. 201.340.4472 f.

Intersection of Bergen Street (E/W)
and Frank E. Rodgers Boulevard South (N/S)
Harrison, Hudson County, New Jersey
Wednesday, September 11, 2019

File Name : S-19146
Site Code : 00019146
Start Date : 9/11/2019
Page No : 2

	Bergen Street Eastbound					Bergen Street Westbound					Frank E. Rodgers Boulevard Northbound					Frank E. Rodgers Boulevard 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 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	5	9	17	0	31	63	27	0	0	90	81	96	19	0	196	0	227	7	0	234	551
07:45 AM	4	7	15	0	26	52	28	1	0	81	66	97	18	0	181	0	247	6	0	253	541
08:00 AM	2	4	14	0	20	44	31	1	0	76	62	94	13	0	169	1	180	8	0	189	454
08:15 AM	6	12	23	0	41	75	37	1	0	113	71	94	30	0	195	4	249	10	1	264	613
Total Volume	17	32	69	0	118	234	123	3	0	360	280	381	80	0	741	5	903	31	1	940	2159
% App. Total	14.4	27.1	58.5	0		65	34.2	0.8	0		37.8	51.4	10.8	0		0.5	96.1	3.3	0.1		
PHF	.708	.667	.750	.000	.720	.780	.831	.750	.000	.796	.864	.982	.667	.000	.945	.313	.907	.775	.250	.890	.881
Auto	16	32	69	0	117	230	122	3	0	355	273	374	79	0	726	5	893	30	1	929	2127
% Auto	94.1	100	100	0	99.2	98.3	99.2	100	0	98.6	97.5	98.2	98.8	0	98.0	100	98.9	96.8	100	98.8	98.5
HV	1	0	0	0	1	4	1	0	0	5	7	4	1	0	12	0	6	0	0	6	24
% HV	5.9	0	0	0	0.8	1.7	0.8	0	0	1.4	2.5	1.0	1.3	0	1.6	0	0.7	0	0	0.6	1.1
B/SB	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	4	1	0	5	8
% B/SB	0	0	0	0	0	0	0	0	0	0	0	0.8	0	0	0.4	0	0.4	3.2	0	0.5	0.4
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	2	9	7	0	18	51	33	12	0	96	94	164	49	0	307	6	144	8	0	158	579
04:15 PM	3	12	11	0	26	47	29	11	0	87	84	159	39	1	283	7	117	6	1	131	527
04:30 PM	2	12	5	0	19	52	26	10	0	88	55	126	44	0	225	10	117	6	0	133	465
04:45 PM	5	11	10	0	26	34	17	7	0	58	51	126	28	0	205	12	109	3	0	124	413
Total Volume	12	44	33	0	89	184	105	40	0	329	284	575	160	1	1020	35	487	23	1	546	1984
% App. Total	13.5	49.4	37.1	0		55.9	31.9	12.2	0		27.8	56.4	15.7	0.1		6.4	89.2	4.2	0.2		
PHF	.600	.917	.750	.000	.856	.885	.795	.833	.000	.857	.755	.877	.816	.250	.831	.729	.845	.719	.250	.864	.857
Auto	12	44	33	0	89	169	100	37	0	306	277	568	158	1	1004	35	477	21	1	534	1933
% Auto	100	100	100	0	100	91.8	95.2	92.5	0	93.0	97.5	98.8	98.8	100	98.4	100	97.9	91.3	100	97.8	97.4
HV	0	0	0	0	0	15	5	3	0	23	6	2	2	0	10	0	9	2	0	11	44
% HV	0	0	0	0	0	8.2	4.8	7.5	0	7.0	2.1	0.3	1.3	0	1.0	0	1.8	8.7	0	2.0	2.2
B/SB	0	0	0	0	0	0	0	0	0	0	1	5	0	0	6	0	1	0	0	1	7
% B/SB	0	0	0	0	0	0	0	0	0	0	0.4	0.9	0	0	0.6	0	0.2	0	0	0.2	0.4

Stonefield Engineering & Design, LLC

92 Park Avenue, Rutherford, NJ 07070
201.340.4468 t. 201.340.4472 f.

Intersection of Bergen Street (E/W)
and Frank E. Rodgers Boulevard South (N/S)
Harrison, Hudson County, New Jersey
Saturday, September 14, 2019

File Name : S-19146_SAT
Site Code : 00019146
Start Date : 9/14/2019
Page No : 1

Groups Printed- Auto - HV - B/SB

	Bergen Street Eastbound					Bergen Street Westbound					Frank E. Rodgers Boulevard Northbound					Frank E. Rodgers Boulevard 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	2	6	4	0	12	32	21	3	0	56	70	89	25	0	184	6	107	8	2	123	375
11:15 AM	2	7	9	0	18	28	22	2	0	52	74	77	24	0	175	7	103	9	0	119	364
11:30 AM	0	5	1	0	6	38	30	4	0	72	80	93	20	0	193	4	116	13	0	133	404
11:45 AM	2	4	4	0	10	46	14	5	0	65	85	113	29	1	228	6	133	9	0	148	451
Total	6	22	18	0	46	144	87	14	0	245	309	372	98	1	780	23	459	39	2	523	1594
12:00 PM	1	6	4	0	11	39	21	1	0	61	85	98	23	0	206	10	108	12	0	130	408
12:15 PM	2	1	9	0	12	37	17	8	0	62	90	115	18	1	224	7	93	7	0	107	405
12:30 PM	2	13	10	0	25	34	11	4	0	49	94	113	24	0	231	3	99	20	0	122	427
12:45 PM	2	8	2	0	12	52	21	1	0	74	74	84	18	0	176	6	118	4	0	128	390
Total	7	28	25	0	60	162	70	14	0	246	343	410	83	1	837	26	418	43	0	487	1630
01:00 PM	3	6	4	0	13	38	22	2	1	63	92	116	45	0	253	7	90	9	1	107	436
01:15 PM	4	3	8	0	15	43	24	2	0	69	96	103	31	0	230	9	126	5	1	141	455
01:30 PM	6	9	9	0	24	69	34	3	0	106	122	201	31	1	355	14	186	23	0	223	708
01:45 PM	11	21	24	0	56	64	37	12	0	113	80	197	53	0	330	38	232	34	0	304	803
Total	24	39	45	0	108	214	117	19	1	351	390	617	160	1	1168	68	634	71	2	775	2402
Grand Total	37	89	88	0	214	520	274	47	1	842	1042	1399	341	3	2785	117	1511	153	4	1785	5626
Apprch %	17.3	41.6	41.1	0		61.8	32.5	5.6	0.1		37.4	50.2	12.2	0.1		6.6	84.6	8.6	0.2		
Total %	0.7	1.6	1.6	0	3.8	9.2	4.9	0.8	0	15	18.5	24.9	6.1	0.1	49.5	2.1	26.9	2.7	0.1	31.7	
Auto	37	89	87	0	213	518	273	46	1	838	1018	1396	338	3	2755	117	1501	152	4	1774	5580
% Auto	100	100	98.9	0	99.5	99.6	99.6	97.9	100	99.5	97.7	99.8	99.1	100	98.9	100	99.3	99.3	100	99.4	99.2
HV	0	0	1	0	1	2	1	1	0	4	24	2	3	0	29	0	7	1	0	8	42
% HV	0	0	1.1	0	0.5	0.4	0.4	2.1	0	0.5	2.3	0.1	0.9	0	1	0	0.5	0.7	0	0.4	0.7
B/SB	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	4
% B/SB	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0.2	0	0	0.2	0.1

	Bergen Street Eastbound					Bergen Street Westbound					Frank E. Rodgers Boulevard Northbound					Frank E. Rodgers Boulevard 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 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	3	6	4	0	13	38	22	2	1	63	92	116	45	0	253	7	90	9	1	107	436
01:15 PM	4	3	8	0	15	43	24	2	0	69	96	103	31	0	230	9	126	5	1	141	455
01:30 PM	6	9	9	0	24	69	34	3	0	106	122	201	31	1	355	14	186	23	0	223	708
01:45 PM	11	21	24	0	56	64	37	12	0	113	80	197	53	0	330	38	232	34	0	304	803
Total Volume	24	39	45	0	108	214	117	19	1	351	390	617	160	1	1168	68	634	71	2	775	2402
% App. Total	22.2	36.1	41.7	0		61	33.3	5.4	0.3		33.4	52.8	13.7	0.1		8.8	81.8	9.2	0.3		
PHF	.545	.464	.469	.000	.482	.775	.791	.396	.250	.777	.799	.767	.755	.250	.823	.447	.683	.522	.500	.637	.748
Auto	24	39	45	0	108	214	117	19	1	351	386	617	160	1	1164	68	633	71	2	774	2397
% Auto	100	100	100	0	100	100	100	100	100	100	99.0	100	100	100	99.7	100	99.8	100	100	99.9	99.8
HV	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	4
% HV	0	0	0	0	0	0	0	0	0	0	1.0	0	0	0	0.3	0	0	0	0	0	0.2
B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% B/SB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0.1	0.0

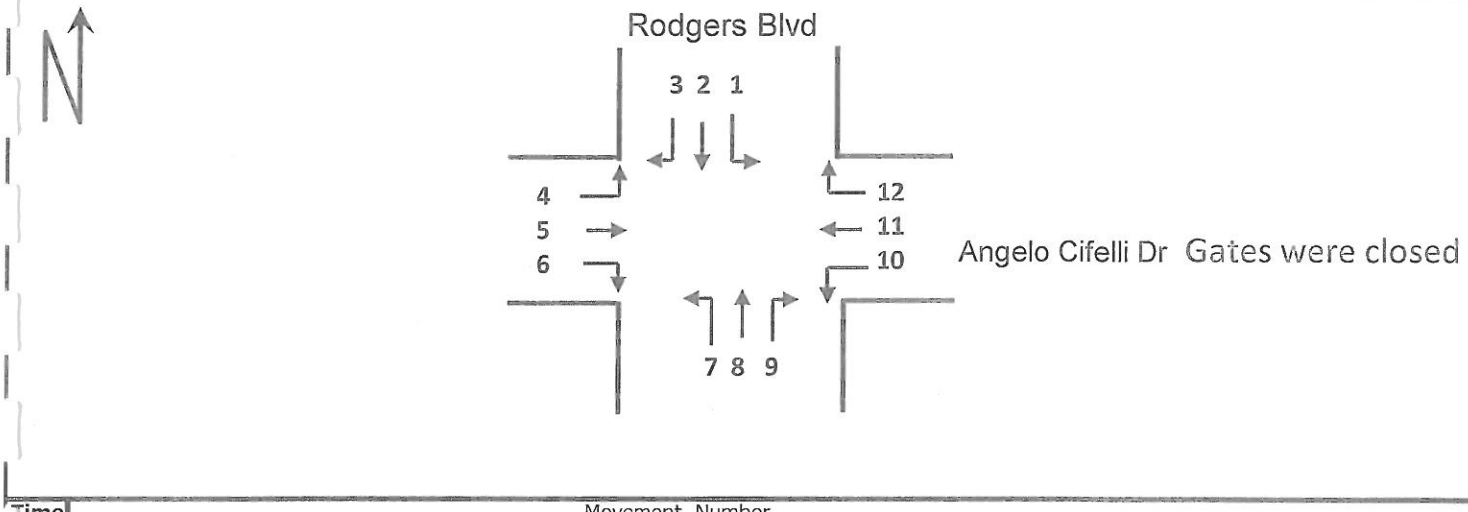
AMERICAN TRAFFIC INFORMATION, INC.

TURNING MOVEMENT/CLASSIFICATION COUNTS

(ATI#15127)

Location: # 1 Rodgers Blvd & Angelo Cifelli Drive

Surveyors: _____ Date: 8/6/2015



Time End	Class	Movement Number 1	2	3	4	5	6	7	8	9	10	11	12
7:15	Auto	0	183	0	43	0	20	0	140	0	0	0	0
	L.Truck	0	6	0	1	0	1	0	18	0	0	0	0
	H.Truck	0	1	0	0	0	0	0	4	0	0	0	0
7:30	Auto	0	211	0	17	0	21	0	125	0	0	0	0
	L.Truck	0	2	0	0	0	0	0	16	0	0	0	0
	H.Truck	0	1	0	0	0	0	0	6	0	0	0	0
7:45	Auto	0	233	1	16	0	22	0	185	0	0	0	0
	L.Truck	0	5	0	0	0	1	0	6	0	0	0	0
	H.Truck	0	3	0	0	0	0	0	2	0	0	0	0
8:00	Auto	0	209	0	12	0	31	0	145	0	0	0	0
	L.TruckBus	0	1	0	0	0	0	0	8	0	0	0	0
	H.Truck Bus	0	2	0	0	0	1	0	3	0	0	0	0
:15	Auto	0	219	0	30	0	34	0	155	0	0	0	0
	L.Truck	0	6	0	1	0	1	0	11	0	0	0	0
	H.Truck	0	5	0	0	0	0	0	2	0	0	0	0
:30	Auto	0	216	0	15	0	39	0	154	0	0	0	0
	L.Truck	0	2	0	0	0	2	0	14	0	0	0	0
	H.Truck	0	1	0	0	0	2	0	6	0	0	0	0
	Class	1	2	3	4	5	6	7	8	9	10	11	12

Time End	Class	Movement Number 1	2	3	4	5	6	7	8	9	10	11	12
8:45	Auto	0	228	0	18	0	27	0	125	0	0	0	0
	L.Truck	0	3	0	2	0	5	0	4	0	0	0	0
	H.Truck	0	6	0	0	0	1	0	2	0	0	0	0
9:00	Auto	0	173	0	15	0	27	0	124	0	0	0	0
	L.Truck	0	3	0	0	0	0	0	10	0	0	0	0
	H.Truck	0	5	0	0	0	1	0	7	0	0	0	0
9:15	Auto	0	206	0	15	0	46	0	123	0	0	0	0
	L.Truck	0	7	0	0	0	4	0	9	0	0	0	0
	H.Truck	0	3	0	0	0	1	0	5	0	0	0	0
9:30	Auto	0	128	0	11	0	23	0	123	0	0	0	0
	L.Truck	0	5	0	0	0	2	0	8	0	0	0	0
	H.Truck	0	3	0	0	0	1	0	1	0	0	0	0
4:15	Auto	0	147	0	15	0	25	0	253	0	0	0	0
	L.Truck	0	8	0	0	0	2	0	8	0	0	0	0
	H.Truck	0	3	0	0	0	1	0	3	0	0	0	0
4:30	Auto	0	150	0	10	0	38	0	260	0	0	0	0
	L.Truck	0	2	0	0	0	3	0	7	0	0	0	0
	H.Truck	0	0	0	5	0	1	0	3	0	0	0	0
4:45	Auto	0	147	0	26	0	43	0	298	0	0	0	0
	L.Truck	0	2	0	1	0	0	0	5	0	0	0	0
	H.Truck	0	3	0	0	0	1	0	5	0	0	0	0
5:00	Auto	0	130	0	13	0	35	0	272	0	0	0	0
	L.Truck	0	6	0	1	0	1	0	3	0	0	0	0
	H.Truck	0	4	0	0	0	2	0	6	0	0	0	0
5:15	Auto	0	138	0	30	0	36	0	291	0	0	0	0
	L.Truck	0	4	0	0	0	2	0	6	0	0	0	0
	H.Truck	0	4	0	1	0	1	0	1	0	0	0	0
5:30	Auto	0	182	0	25	0	54	0	255	0	0	0	0
	L.Truck	0	4	0	0	0	0	0	5	0	0	0	0
	H.Truck	0	3	0	0	0	1	0	5	0	0	0	0
	Class	1	2	3	4	5	6	7	8	9	10	11	12

Time End	Class	Movement Number 1	2	3	4	5	6	7	8	9	10	11	12
5:45	Auto	0	166	0	38	0	27	0	299	0	0	0	0
	L.Truck	0	1	0	0	0	2	0	4	0	0	0	0
	H.Truck	0	2	0	1	0	0	0	7	0	0	0	0
6:00	Auto	0	155	0	25	0	44	0	324	0	0	0	0
	L.Truck	0	1	0	1	0	1	0	5	0	0	0	0
	H.Truck	0	3	0	0	0	2	0	4	0	0	0	0
6:15	Auto	0	152	0	41	0	37	0	211	0	0	0	0
	L.Truck	0	5	0	0	0	3	0	3	0	0	0	0
	H.Truck	0	1	0	1	0	1	0	3	0	0	0	0
6:30	Auto	0	119	0	50	0	32	0	234	0	0	0	0
	L.Truck	0	1	0	2	0	0	0	3	0	0	0	0
	H.Truck	0	3	0	0	0	2	0	4	0	0	0	0
	Class	1	2	3	4	5	6	7	8	9	10	11	12

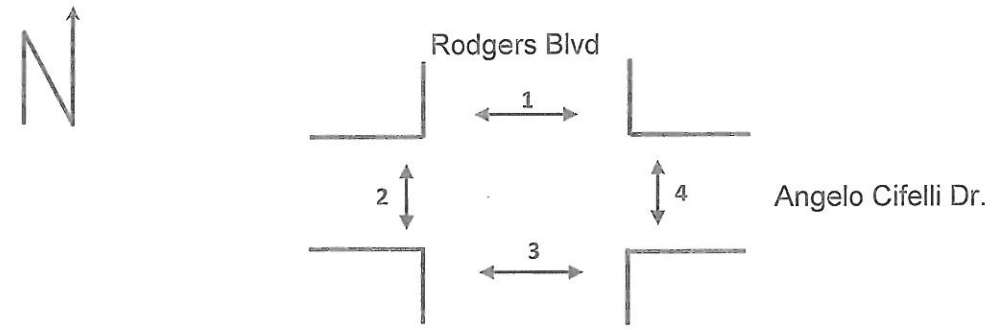
AMERICAN TRAFFIC INFORMATION, INC.

PEDESTRIAN COUNTS

[DOT #15127]

Location: # 1 Rodgers Blvd & Angelo Cifelli Dr

Surveyors: _____ Day/Date: 6/8/15



	Movement Number											
Time	1	2	3	4	5	6	7	8	9	10	11	12
7:15	1	97	5	4								
7:30	4	84	12	13								
7:45	6	103	15	16								
8:00	6	101	10	13								
8:15	10	188	24	25								
8:30	19	149	12	13								
8:45	15	136	18	19								
9:00	9	85	11	14								
9:15	10	123	19	19								
9:30	8	74	13	14								
4:15	5	46	3	7								
4:30	5	77	5	3								
4:45	17	191	10	14								
5:00	11	123	2	9								
5:15	15	130	1	6								
5:30	14	174	6	14								
5:45	12	241	19	29								
6:00	16	156	27	46								
6:15	17	251	25	32								
6:30	10	168	22	42								
Time	1	2	3	4	5	6	7	8	9	10	11	12

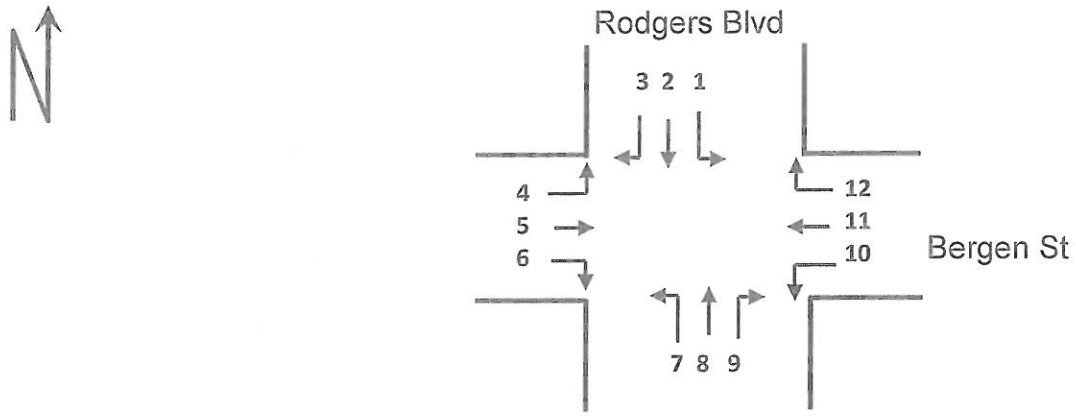
AMERICAN TRAFFIC INFORMATION, INC.

TURNING MOVEMENT/CLASSIFICATION COUNTS

(ATI#15127)

Location: # 2 Rodgers Blvd & Bergen St

Surveyors: _____ Date: 8/6/2015



Time End	Class	Movement Number 1	2	3	4	5	6	7	8	9	10	11	12
7:15	Auto	5	122	3	0	3	4	73	45	11	43	38	0
	L.Truck	0	2	0	0	0	0	10	6	2	4	2	0
	H.Truck	0	3	0	0	0	0	3	1	1	0	0	0
7:30	Auto	0	164	7	2	10	8	73	60	10	31	38	0
	L.Truck	1	4	0	0	0	0	10	10	0	2	3	0
	H.Truck	0	2	0	0	0	0	2	0	0	0	0	0
7:45	Auto	2	155	17	0	10	5	95	63	14	45	42	1
	L.Truck	0	1	2	0	0	0	1	7	0	4	1	1
	H.Truck	0	2	0	0	0	0	1	1	0	0	0	0
8:00	Auto	0	154	6	1	6	6	87	57	26	40	30	2
	L.TruckBus	0	2	0	0	0	0	2	3	2	2	4	1
	H.Truck Bus	0	0	0	0	0	0	2	2	0	1	1	0
8:15	Auto	2	132	5	4	6	9	65	58	23	46	35	1
	L.Truck	0	4	1	1	1	1	1	4	0	2	1	0
	H.Truck	1	1	0	0	0	0	1	2	0	1	0	1
8:30	Auto	1	150	9	2	14	9	72	60	20	47	31	0
	L.Truck	0	1	0	0	0	0	3	8	1	2	2	0
	H.Truck	0	0	0	0	0	0	2	1	0	1	0	0
	Class	1	2	3	4	5	6	7	8	9	10	11	12

Time End	Class	Movement Number 1	2	3	4	5	6	7	8	9	10	11	12
:45	Auto	3	172	14	3	7	7	74	55	20	32	31	0
	L.Truck	0	6	1	0	0	0	3	3	0	3	1	0
	H.Truck	0	2	0	0	0	0	1	3	0	3	1	1
9:00	Auto	4	130	11	0	17	12	67	57	22	37	26	1
	L.Truck	0	5	0	0	0	0	5	4	1	4	3	0
	H.Truck	0	4	0	0	0	0	1	3	0	1	1	0
:15	Auto	2	133	5	0	14	2	61	46	12	38	39	1
	L.Truck	0	3	1	0	0	0	2	7	0	0	3	1
	H.Truck	1	3	0	0	0	0	3	1	0	1	0	1
:30	Auto	4	120	9	2	28	8	72	45	22	33	24	5
	L.Truck	0	7	0	0	0	0	4	4	0	3	1	0
	H.Truck	0	0	1	0	0	0	0	1	0	0	1	0
:15	Auto	10	96	6	4	2	0	117	118	44	34	30	5
	L.Truck	1	5	0	0	0	0	3	4	0	4	1	1
	H.Truck	0	3	1	0	0	0	2	1	0	3	0	0
4:30	Auto	9	107	9	0	4	1	98	129	49	28	30	1
	L.Truck	0	7	0	0	0	0	2	2	0	0	0	0
	H.Truck	0	0	0	0	0	0	5	0	1	2	0	1
:45	Auto	7	98	10	3	7	1	103	133	48	42	20	4
	L.Truck	0	8	0	0	0	0	3	2	0	1	0	0
	H.Truck	0	0	0	0	0	0	1	1	0	2	0	0
:00	Auto	4	80	23	0	0	0	132	133	52	37	19	5
	L.Truck	0	3	0	0	0	0	3	4	2	4	0	0
	H.Truck	0	2	0	0	0	0	1	0	0	4	1	0
5:15	Auto	7	116	17	0	0	0	111	141	40	36	21	6
	L.Truck	0	5	1	0	0	0	1	2	0	4	1	0
	H.Truck	0	2	0	0	0	0	1	0	0	3	0	0
5:30	Auto	10	91	27	1	0	0	101	131	50	30	18	4
	L.Truck	0	2	0	0	0	0	2	3	0	4	1	0
	H.Truck	0	0	0	0	0	0	2	1	0	2	3	2
	Class	1	2	3	4	5	6	7	8	9	10	11	12

me End	Class	Movement Number 1	2	3	4	5	6	7	8	9	10	11	12
:45	Auto	3	121	27	1	0	0	89	136	39	36	19	6
	L.Truck	0	2	0	0	0	0	1	1	2	1	0	0
	H.Truck	0	1	1	0	0	0	4	1	0	1	0	0
6:00	Auto	8	108	16	0	1	0	119	129	58	30	15	8
	L.Truck	0	2	0	0	0	0	2	4	0	1	0	0
	H.Truck	0	2	0	0	0	0	1	0	0	1	1	0
6:15	Auto	4	72	24	0	0	0	81	145	46	37	18	6
	L.Truck	0	0	0	0	0	0	4	0	0	5	0	0
	H.Truck	0	0	0	0	0	0	0	1	1	2	0	0
:30	Auto	7	78	18	0	1	0	102	122	47	37	20	4
	L.Truck	0	1	0	0	0	0	0	3	3	1	0	1
	H.Truck	0	0	0	0	0	2	1	3	1	3	0	0
	Class	1	2	3	4	5	6	7	8	9	10	11	12

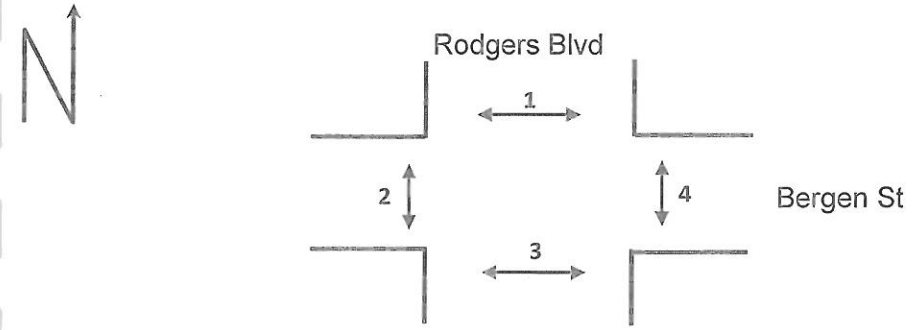
AMERICAN TRAFFIC INFORMATION, INC.

PEDESTRIAN COUNTS

[DOT #15127]

Location: # 2 F.E. Rodgers Blvd & Bergen St

Surveyors: _____ Day/Date: 6/8/15



	Movement Number											
Time	1	2	3	4	5	6	7	8	9	10	11	12
7:15	1	15	1	5								
7:30	1	37	1	9								
7:45	4	71	2	11								
8:00	1	31	2	10								
8:15	3	67	2	11								
8:30	5	73	1	9								
8:45	6	74	4	13								
9:00	3	26	2	8								
9:15	4	28	2	13								
9:30	1	27	0	6								
4:15	2	25	2	4								
4:30	1	15	2	12								
4:45	8	80	4	16								
5:00	2	44	3	13								
5:15	21	72	7	23								
5:30	7	57	6	12								
5:45	17	89	4	8								
6:00	11	60	11	21								
6:15	11	74	2	3								
6:30	17	52	3	18								
Time	1	2	3	4	5	6	7	8	9	10	11	12

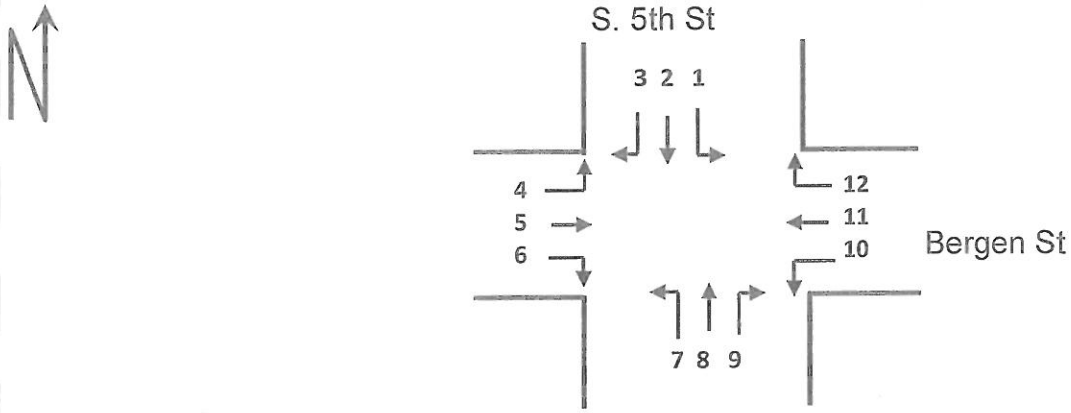
AMERICAN TRAFFIC INFORMATION, INC.

TURNING MOVEMENT/CLASSIFICATION COUNTS

(ATI#15127)

Location: # 3 Bergen St & S. 5th St

Surveyors: _____ Date: 8/6/2015



me nd	Class	Movement Number 1	2	3	4	5	6	7	8	9	10	11	12
7:15	Auto	5	6	16	2	14	4	23	7	1	0	33	1
	L.Truck	0	0	0	0	1	1	3	0	1	0	2	1
	H.Truck	0	0	0	0	0	0	0	1	0	0	0	0
7:30	Auto	7	5	29	2	9	0	16	3	2	0	31	5
	L.Truck	0	0	0	0	1	0	4	0	1	0	1	0
	H.Truck	0	0	0	0	1	0	0	0	0	0	0	0
7:45	Auto	12	4	20	4	21	0	22	16	4	2	21	4
	L.Truck	0	0	0	0	1	0	2	2	0	0	0	0
	H.Truck	0	0	0	0	0	0	1	2	0	0	1	0
8:00	Auto	13	4	16	3	23	0	22	17	0	0	17	2
	L.TruckBus	0	0	0	0	2	0	4	0	3	0	0	0
	H.Truck Bus	0	0	0	0	0	0	2	0	0	0	0	0
8:15	Auto	13	6	23	9	27	3	30	7	1	0	26	0
	L.Truck	0	0	0	0	2	0	3	0	1	0	2	0
	H.Truck	0	0	0	1	0	0	1	0	0	0	0	0
8:30	Auto	11	5	16	3	26	2	21	15	4	4	19	4
	L.Truck	0	0	0	0	1	0	1	0	0	0	1	1
	H.Truck	0	0	0	0	0	0	2	0	0	0	0	0
	Class	1	2	3	4	5	6	7	8	9	10	11	12

me End	Class	Movement Number 1	2	3	4	5	6	7	8	9	10	11	12
:45	Auto	9	5	16	8	21	2	13	13	4	0	16	3
	L.Truck	0	0	0	0	2	0	4	1	0	0	1	0
	H.Truck	0	0	0	0	0	0	3	0	0	0	0	0
9:00	Auto	9	4	10	6	20	0	17	5	1	0	14	0
	L.Truck	0	0	0	0	1	0	2	0	0	0	2	0
	H.Truck	0	0	0	0	0	0	1	0	0	0	0	0
9:15	Auto	2	1	26	4	22	3	11	6	4	1	31	0
	L.Truck	0	0	1	0	0	0	2	1	0	0	2	0
	H.Truck	0	0	0	0	1	0	1	0	1	0	0	0
:30	Auto	9	2	18	4	21	2	9	9	4	0	17	1
	L.Truck	0	0	1	0	0	0	2	0	0	0	0	0
	H.Truck	0	0	0	0	0	0	0	0	1	0	0	0
:15	Auto	9	5	16	11	37	2	11	6	4	1	30	0
	L.Truck	0	0	0	1	0	0	4	1	1	0	3	0
	H.Truck	0	0	0	0	0	0	2	0	0	0	1	0
4:30	Auto	8	2	12	14	33	2	21	12	8	1	15	2
	L.Truck	0	0	0	0	0	0	0	0	0	0	0	0
	H.Truck	0	0	0	0	0	0	2	0	0	0	0	0
4:45	Auto	11	0	13	23	45	0	10	12	6	0	24	4
	L.Truck	0	0	0	0	0	0	1	2	1	0	1	0
	H.Truck	0	0	0	0	0	0	2	0	0	0	0	0
:00	Auto	14	3	12	12	41	0	11	12	4	0	23	7
	L.Truck	1	0	0	0	0	0	2	0	0	0	1	0
	H.Truck	0	0	0	0	0	0	4	0	0	0	0	0
:15	Auto	17	5	15	15	30	2	14	10	7	1	19	2
	L.Truck	0	0	1	1	1	0	1	1	0	0	2	0
	H.Truck	0	0	0	0	0	0	4	0	0	0	0	0
5:30	Auto	12	7	20	14	38	1	15	17	8	0	17	4
	L.Truck	0	0	0	0	0	0	4	0	0	0	1	0
	H.Truck	0	0	0	0	1	0	6	0	1	0	0	0
	Class	1	2	3	4	5	6	7	8	9	10	11	12

ime End	Class	Movement Number 1	2	3	4	5	6	7	8	9	10	11	12
:45	Auto	11	4	21	22	36	3	17	17	5	0	22	2
	L.Truck	0	0	0	0	2	0	0	0	0	0	0	0
	H.Truck	0	0	0	1	0	0	1	0	1	0	0	0
6:00	Auto	9	2	15	12	48	2	22	14	7	0	13	3
	L.Truck	0	0	0	0	0	0	1	1	0	0	1	0
	H.Truck	0	0	0	0	0	0	1	0	0	0	1	0
6:15	Auto	9	5	21	16	41	0	17	24	9	0	18	2
	L.Truck	1	0	1	0	1	0	5	0	0	0	1	0
	H.Truck	0	0	0	0	1	0	2	0	0	0	0	0
:30	Auto	8	7	8	14	33	0	14	20	10	0	14	2
	L.Truck	0	0	0	0	3	0	0	0	0	0	0	0
	H.Truck	0	0	0	0	1	0	2	0	0	0	0	0
	Class	1	2	3	4	5	6	7	8	9	10	11	12

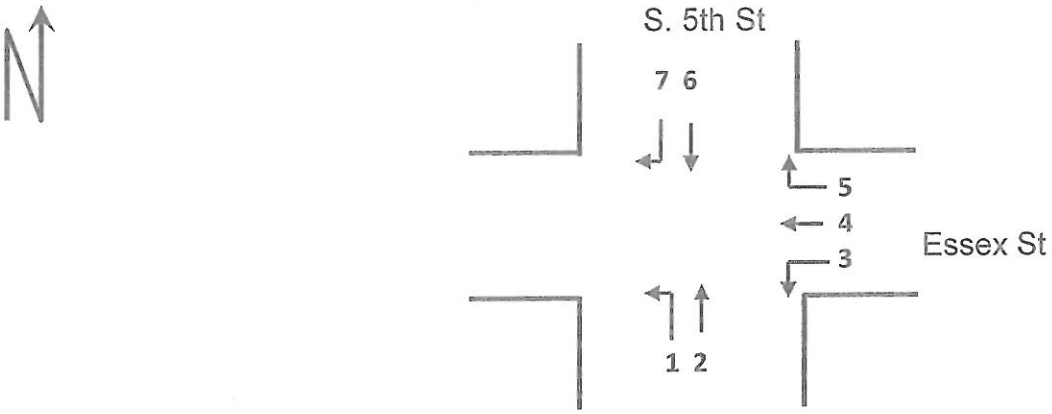
AMERICAN TRAFFIC INFORMATION, INC.

TURNING MOVEMENT/CLASSIFICATION COUNTS

(ATI#15127)

Location: # 4 - Essex St & S. 5th St

Surveyors: _____ Date: 8/6/2015



Time End	Class	Movement Number 1	2	3	4	5	6	7	8	9	10	11	12
7:15	Auto	0	0	1	2	31	1	4					
	L.Truck	0	0	0	2	2	0	0					
	H.Truck	0	0	0	0	2	0	0					
7:30	Auto	0	1	1	5	32	1	3					
	L.Truck	0	0	0	0	8	0	0					
	H.Truck	0	0	0	1	0	0	0					
7:45	Auto	0	1	2	4	34	1	2					
	L.Truck	0	0	0	0	4	0	0					
	H.Truck	0	0	0	0	1	0	0					
8:00	Auto	0	0	5	9	43	2	3					
	L.TruckBus	0	0	0	1	8	0	0					
	H.Truck Bus	0	0	0	0	4	0	0					
8:15	Auto	0	1	4	7	43	1	7					
	L.Truck	0	0	0	2	3	0	0					
	H.Truck	0	0	0	2	2	0	0					
8:30	Auto	0	0	5	5	37	1	4					
	L.Truck	0	0	0	1	1	0	0					
	H.Truck	0	0	0	0	2	0	0					
	Class	1	2	3	4	5	6	7	8	9	10	11	12

Time End	Class	Movement Number 1	2	3	4	5	6	7	8	9	10	11	12
:45	Auto	0	2	3	2	25	3	5					
	L.Truck	0	0	0	0	8	0	0					
	H.Truck	0	0	0	0	2	0	0					
9:00	Auto	0	2	6	10	35	3	3					
	L.Truck	0	0	0	0	2	0	0					
	H.Truck	0	0	0	0	1	0	0					
9:15	Auto	1	0	1	18	23	1	3					
	L.Truck	0	0	0	0	2	0	0					
	H.Truck	0	0	0	1	4	0	0					
:30	Auto	0	0	4	14	25	4	1					
	L.Truck	0	0	0	1	2	0	0					
	H.Truck	0	0	0	2	1	0	0					
:15	Auto	0	2	4	9	20	5	2					
	L.Truck	0	0	0	0	7	0	0					
	H.Truck	0	0	0	0	2	0	0					
4:30	Auto	0	6	5	7	28	4	0					
	L.Truck	0	0	0	1	0	0	0					
	H.Truck	0	0	0	0	2	0	0					
4:45	Auto	0	6	2	5	29	0	0					
	L.Truck	0	0	0	0	3	0	0					
	H.Truck	0	0	0	0	2	0	0					
:00	Auto	0	0	6	8	25	3	0					
	L.Truck	0	0	0	0	2	0	0					
	H.Truck	0	0	0	0	4	0	0					
:15	Auto	0	7	4	7	27	5	4					
	L.Truck	0	0	0	0	3	0	0					
	H.Truck	0	0	0	1	4	0	0					
5:30	Auto	0	4	2	7	29	6	1					
	L.Truck	0	0	0	1	4	0	0					
	H.Truck	0	0	0	0	6	0	0					
	Class	1	2	3	4	5	6	7	8	9	10	11	12

ime End	Class	Movement Number 1	2	3	4	5	6	7	8	9	10	11	12
:45	Auto	0	6	2	7	38	3	1					
	L.Truck	0	0	0	0	1	0	0					
	H.Truck	0	0	0	0	1	0	0					
6:00	Auto	0	12	5	12	40	2	1					
	L.Truck	0	0	0	0	2	0	0					
	H.Truck	0	0	0	0	1	0	0					
6:15	Auto	0	11	5	13	28	4	1					
	L.Truck	0	0	0	0	6	0	0					
	H.Truck	0	0	0	0	2	0	0					
:30	Auto	0	12	4	7	39	6	2					
	L.Truck	0	0	0	0	0	0	0					
	H.Truck	0	0	0	0	2	0	0					
	Class	1	2	3	4	5	6	7	8	9	10	11	12

INTERNAL TRIP CAPTURE CALCULATIONS

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Harrison Yards - Phase II	**Organization:**	SE&D
Project Location:	Harrison, Hudson County, NJ	**Performed By:**	AB
Scenario Description:	S-19146	**Date:**	3/20/2020
Analysis Year:	2022	**Checked By:**	MS
Analysis Period:	**AM Street Peak Hour**	**Date:**	3/23/2020

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	LUC 710	102,354	SF	85	73	12
Retail	LUC 820	102,355	SF	96	60	36
Restaurant				0		
Cinema/Entertainment				0		
Residential	LUC 221 & 222	1,107	Units	231	28	203
Hotel	LUC 310	200	Rooms	94	55	39
All Other Land Uses[2]				0		
				506	216	290

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		3	0	0	0	0
Retail	3		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	2	0	0		0
Hotel	2	2	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	506	216	290
Internal Capture Percentage	6%	7%	5%
External Vehicle-Trips[5]	476	201	275
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	10%	25%
Retail	12%	11%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	4%	2%
Hotel	0%	10%

[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:	Harrison Yards - Phase II
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	73	73	1.00	12	12
Retail	1.00	60	60	1.00	36	36
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	28	28	1.00	203	203
Hotel	1.00	55	55	1.00	39	39

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		3	8	0	0	0
Retail	10		5	0	5	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	4	2	41	0		0
Hotel	29	5	4	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		19	0	0	0	0
Retail	3		0	0	1	0
Restaurant	10	5		0	1	2
Cinema/Entertainment	0	0	0		0	0
Residential	2	10	0	0		0
Hotel	2	2	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	7	66	73	66	0	0
Retail	7	53	60	53	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	27	28	27	0	0
Hotel	0	55	55	55	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	3	9	12	9	0	0
Retail	4	32	36	32	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	4	199	203	199	0	0
Hotel	4	35	39	35	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:	Harrison Yards - Phase II	**Organization:**	SE&D
Project Location:	Harrison, Hudson County, NJ	**Performed By:**	AB
Scenario Description:	S-19146	**Date:**	3/20/2020
Analysis Year:	2022	**Checked By:**	MS
Analysis Period:	**PM Street Peak Hour**	**Date:**	3/23/2020

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	LUC 710	102,354	SF	89	15	74
Retail	LUC 820	102,355	SF	553	265	288
Restaurant				0		
Cinema/Entertainment				0		
Residential	LUC 221 & 222	1,107	Units	209	147	62
Hotel	LUC 310	200	Rooms	120	61	59
All Other Land Uses[2]				0		
				971	488	483

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		15	0	0	1	0
Retail	5		0	0	68	10
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	26	0	0		2
Hotel	0	5	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	971	488	483
Internal Capture Percentage	28%	27%	28%
External Vehicle-Trips[5]	703	354	349
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	47%	22%
Retail	17%	29%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	47%	48%
Hotel	20%	8%

[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 made to Tables 5-P, 9-P (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-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:	Harrison Yards - Phase II
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	15	15	1.00	74	74
Retail	1.00	265	265	1.00	288	288
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	147	147	1.00	62	62
Hotel	1.00	61	61	1.00	59	59

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		15	3	0	1	0
Retail	6		84	12	75	14
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	26	13	0		2
Hotel	0	9	40	0	1	

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		21	0	0	6	0
Retail	5		0	0	68	10
Restaurant	5	133		0	24	43
Cinema/Entertainment	1	11	0		6	1
Residential	9	27	0	0		7
Hotel	0	5	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	7	8	15	8	0	0
Retail	46	219	265	219	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	69	78	147	78	0	0
Hotel	12	49	61	49	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	16	58	74	58	0	0
Retail	83	205	288	205	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	30	32	62	32	0	0
Hotel	5	54	59	54	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.

URBAN INFILL TRP GENERATION CALCULATIONS

Urban Infill Trip Reduction General Equation

$$Infill\ Site\ Vehicle\ Trips = Baseline\ Vehicle\ Trips\ x\ \frac{Infill\ Site\ Vehicle\ Mode\ Share}{Baseline\ Vehicle\ Mode\ Share}\ X\ \frac{Baseline\ Vehicle\ Occupancy}{Infill\ Site\ Vehicle\ Occupancy}$$

Total Trips (After Internal Capture)

		Weekday Morning Peak Hour			Weekday Evening Peak Hour		
ITE Code	**Land Use**	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**
ITE LUC 222	Multifamily Housing (High-Rise)	22	162	184	51	21	72
ITE LUC 310	Hotel	55	35	90	49	54	103
ITE LUC 710	Office	66	9	75	8	58	66
ITE LUC 820	Shopping Center	53	32	85	219	205	424
	Total	**196**	**238**	**434**	**327**	**338**	**665**

Multifamily Housing (High-Rise) & Office Land Uses:

Infill site trip reduction was not applied to the residential or office trips as the ITE trip generation rates for "Dense Multi-Use Urban" settings/locations were utilized for these two uses. Dense Multi-Use Urban settings account for the urban nature of the site including transit and walkability.

Hotel:

	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	Enter	**Exit**	**Enter**	**Exit**
Baseline Modeshare	93.3%	99.0%	98.7%	98.0%
Infill Site Modeshare	55.0%	55.0%	55.0%	55.0%
Baseline Vehicle Occupancy	1.26	1.26	1.31	1.30
Infill Site Vehicle Occupancy	1.26	1.26	1.31	1.30
Trip Reduction	-23	-16	-22	-24

Shopping Center:

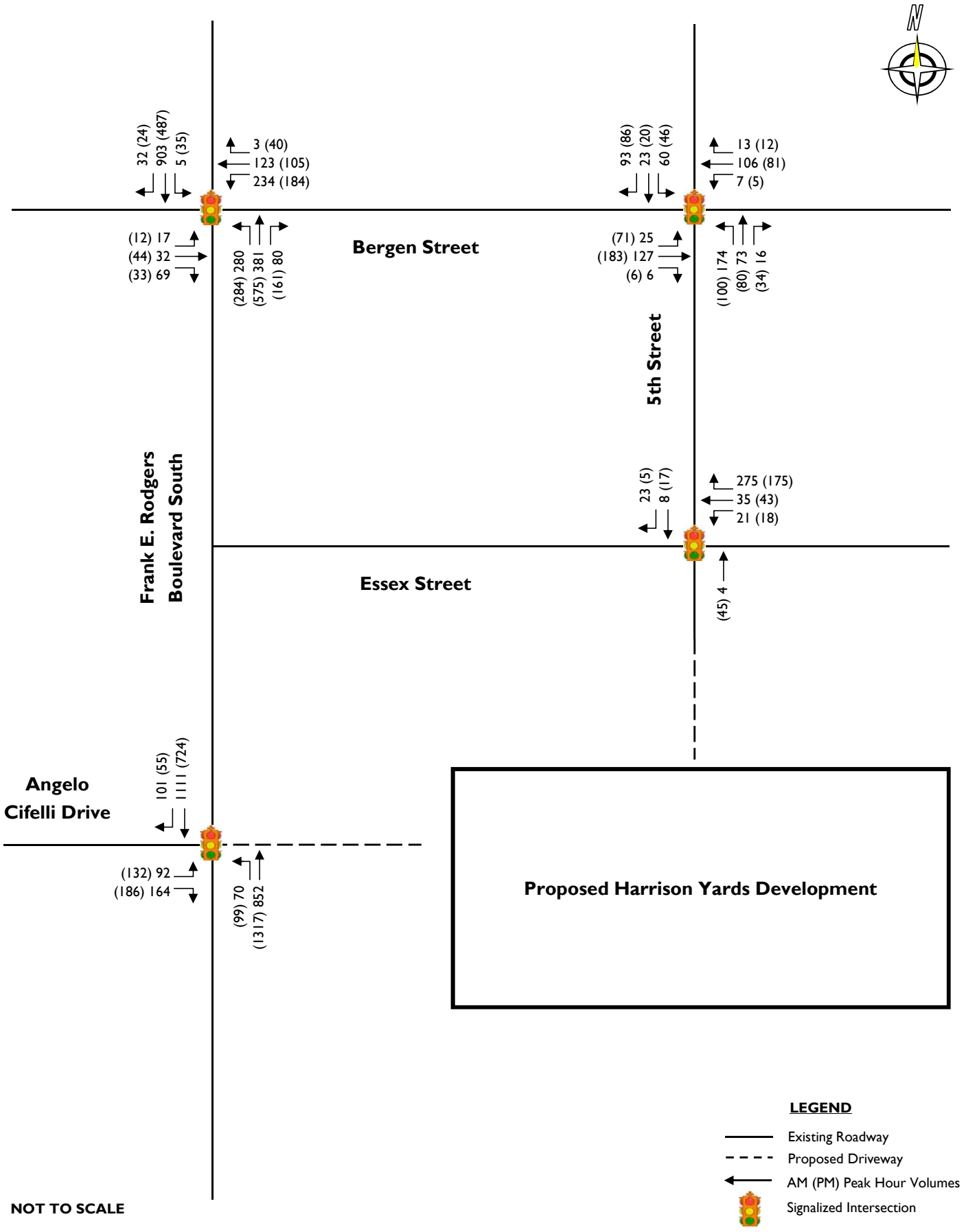
	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	Enter	**Exit**	**Enter**	**Exit**
Baseline Modeshare	100.0%	100.0%	100.0%	99.8%
Infill Site Modeshare	73.0%	63.5%	60.0%	60.0%
Baseline Vehicle Occupancy	1.17	1.16	1.21	1.18
Infill Site Vehicle Occupancy	1.14	1.14	1.3	1.33
Trip Reduction	-13	-11	-97	-96

Total Adjusted Trips

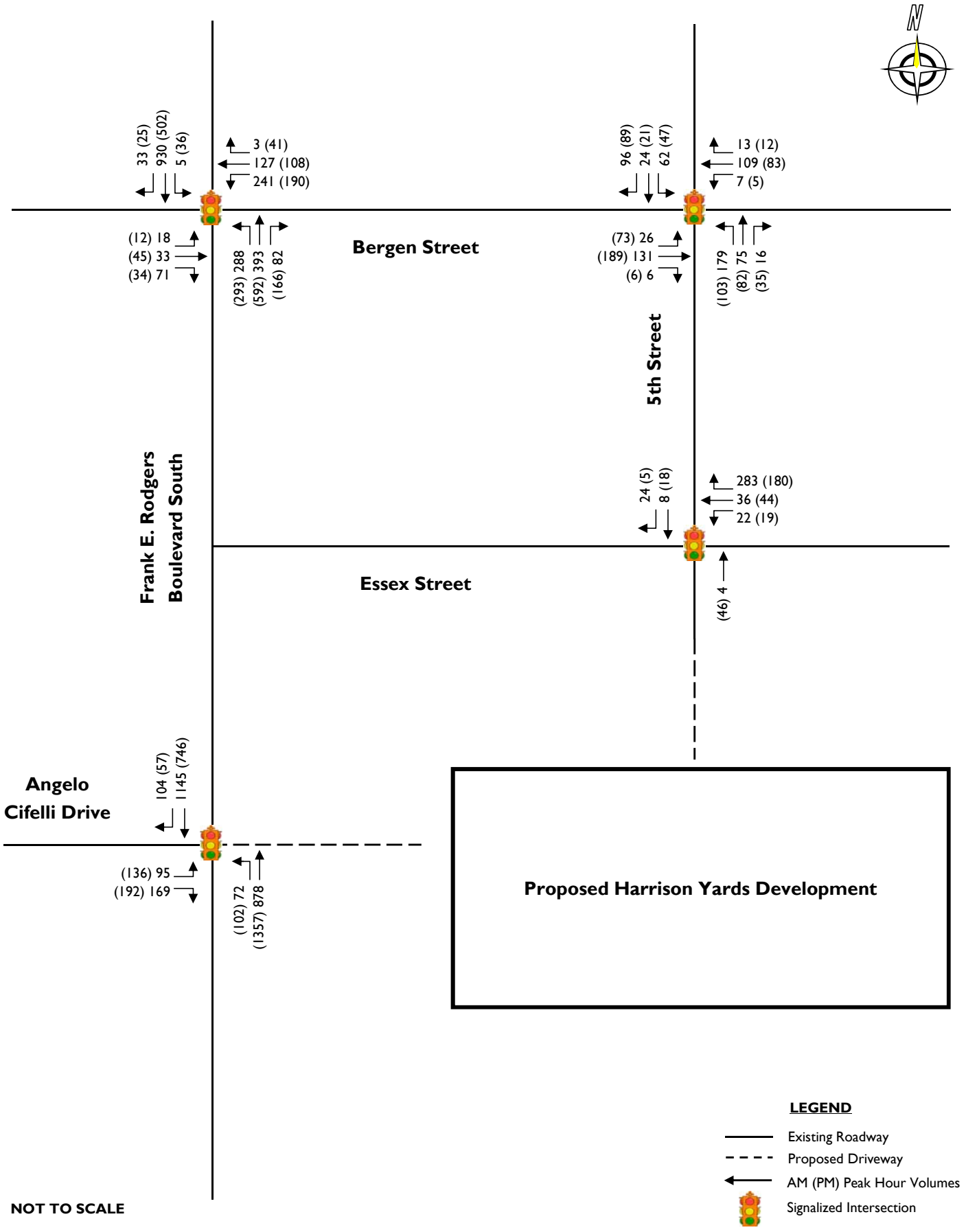
		Weekday Morning Peak Hour			Weekday Evening Peak Hour		
ITE Code	**Land Use**	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**
ITE LUC 222	Multifamily Housing (High-Rise)	22	162	184	51	21	72
ITE LUC 310	Hotel	32	19	51	27	30	57
ITE LUC 710	Office	66	9	75	8	58	66
ITE LUC 820	Shopping Center	40	21	61	122	109	231
	Total	**160**	**211**	**371**	**208**	**218**	**426**

FIGURES

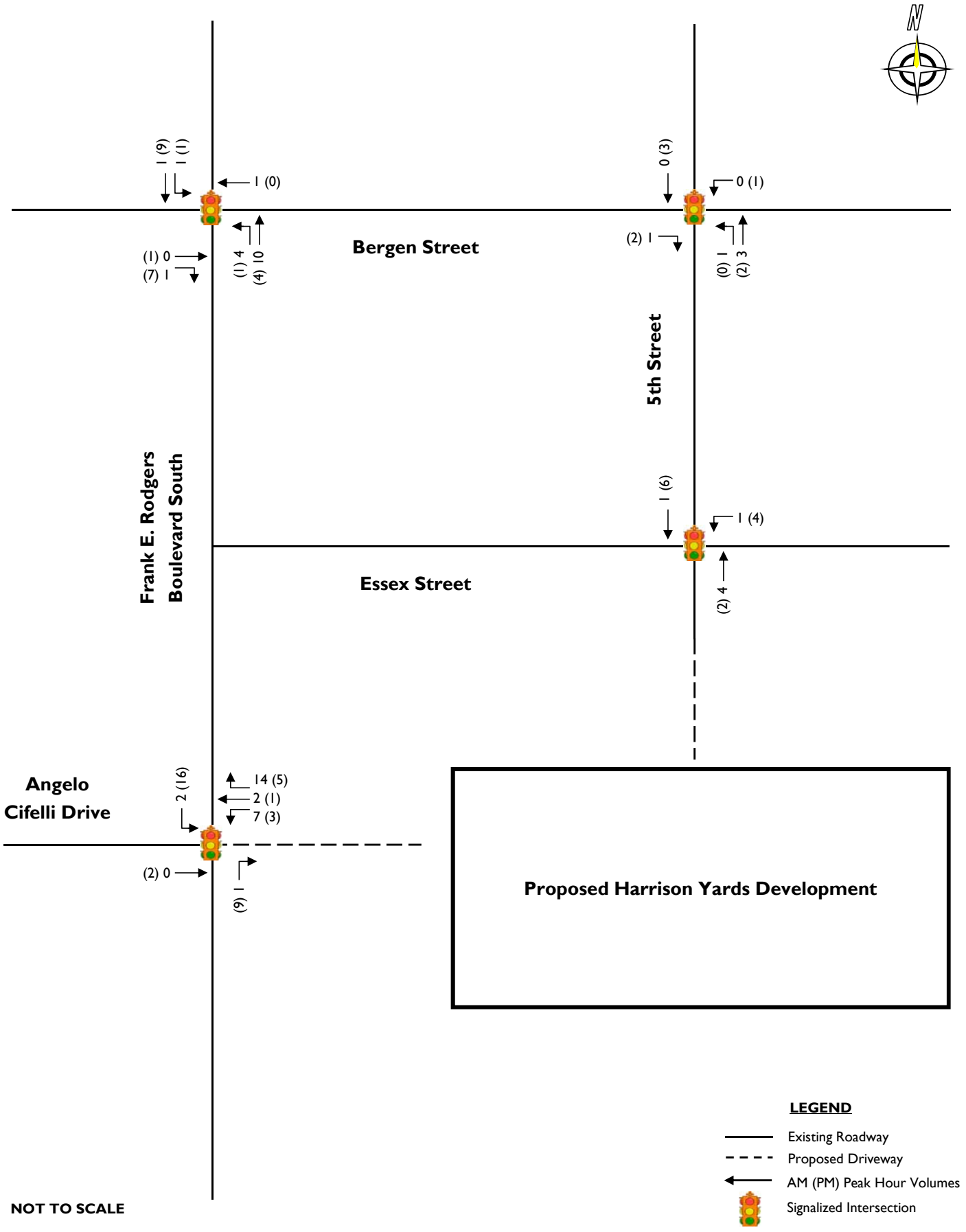
STONEFIELD	**Proposed Mixed-Use Development** **700 Frank E. Rodgers Boulevard South** **Town of Harrison, Hudson County, New Jersey** **Traffic Impact Study (Phase 2)**	**FIGURE 1** **Site Location Map**



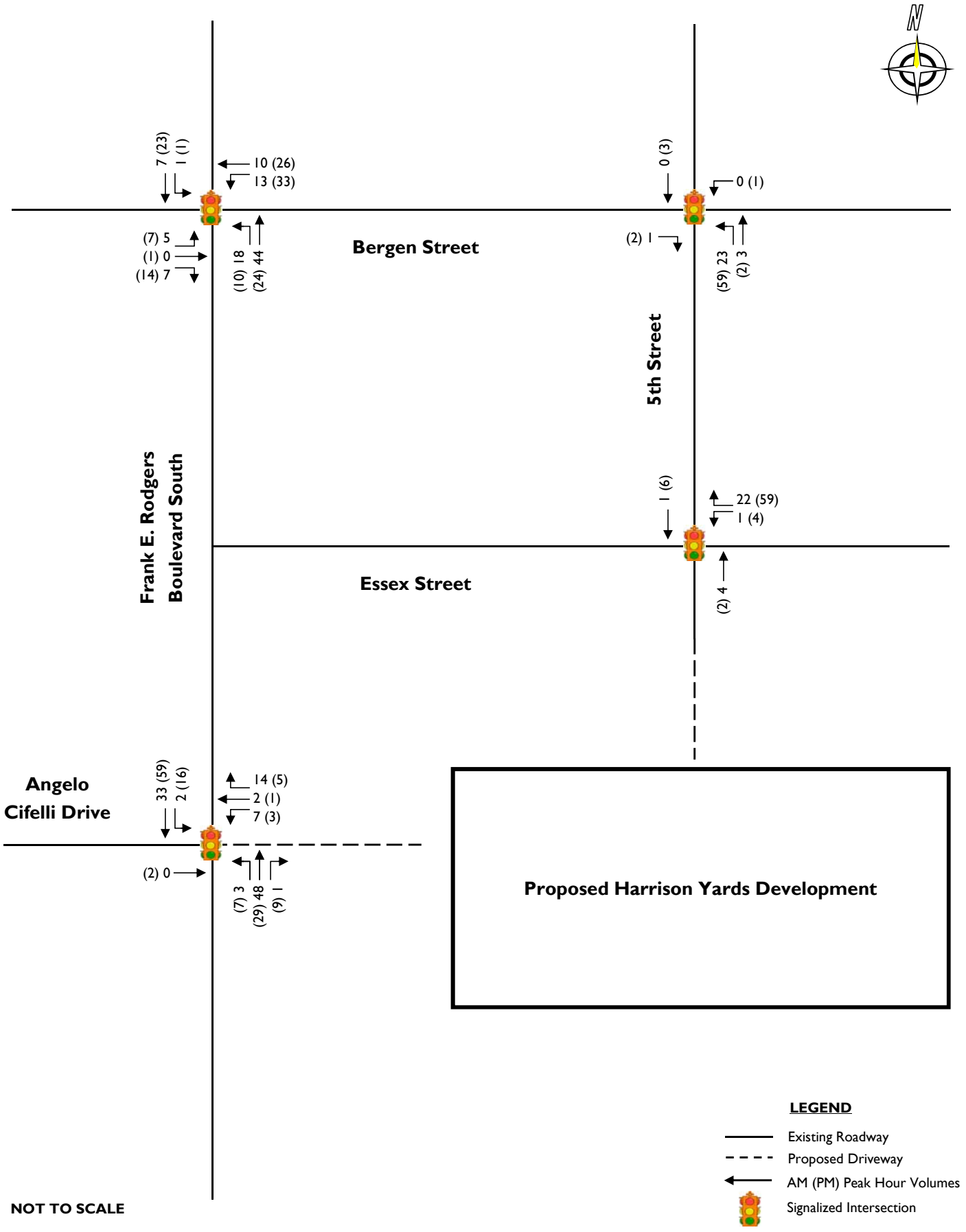
STONEFIELD	**Proposed Mixed-Use Development** **700 Frank E. Rodgers Boulevard South** **Town of Harrison, Hudson County, New Jersey** **Traffic Impact Study (Phase 2)**	**FIGURE 2** **2019 Existing Traffic Volumes**



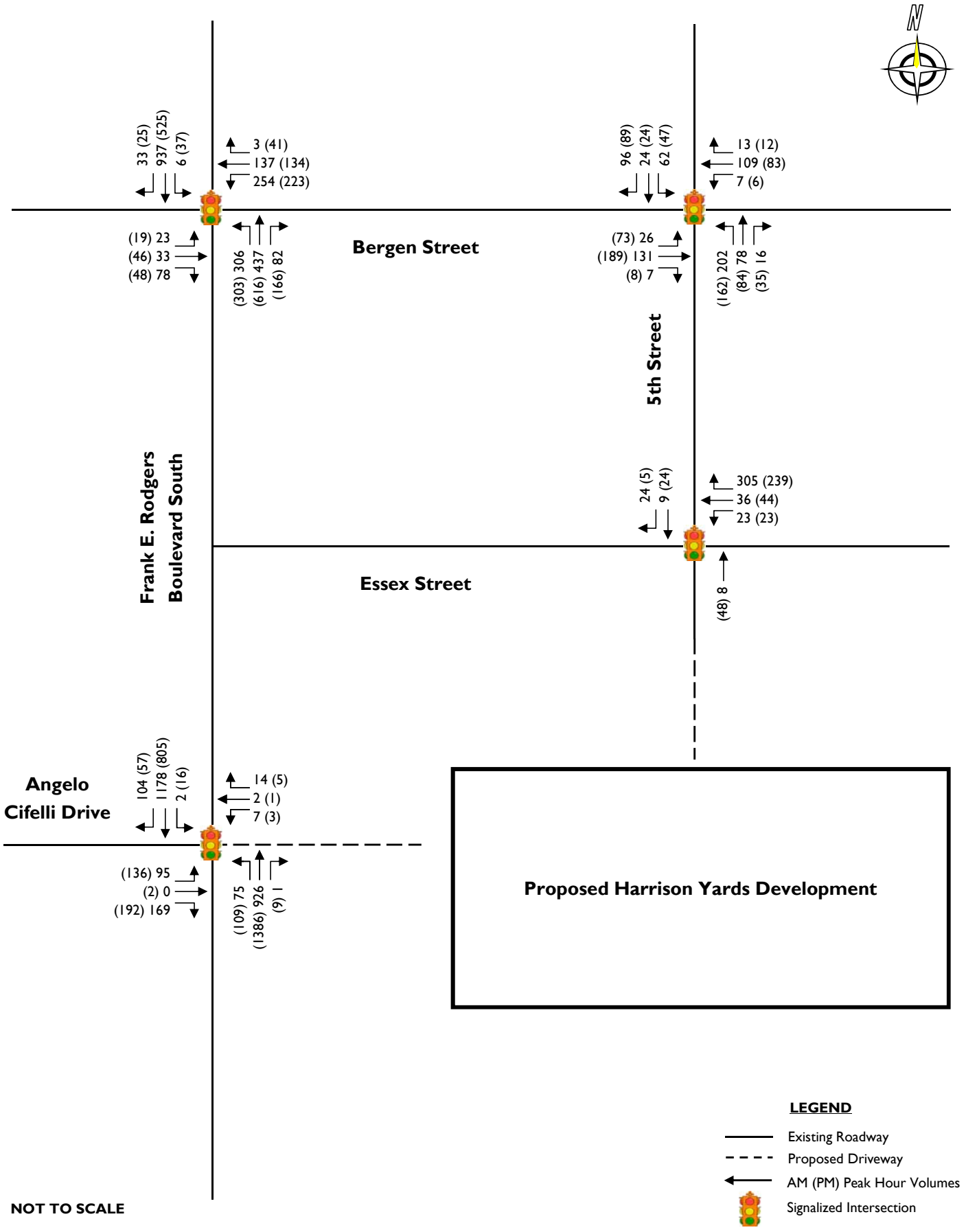
STONEFIELD	**Proposed Mixed-Use Development** **700 Frank E. Rodgers Boulevard South** **Town of Harrison, Hudson County, New Jersey** **Traffic Impact Study (Phase 2)**	**FIGURE 3** **2022 Base Traffic Volumes**



STONEFIELD	**Proposed Mixed-Use Development** **700 Frank E. Rodgers Boulevard South** **Town of Harrison, Hudson County, New Jersey** **Traffic Impact Study (Phase 2)**	**FIGURE 4** **Harrison Yards Phase 1** **Traffic Volumes**



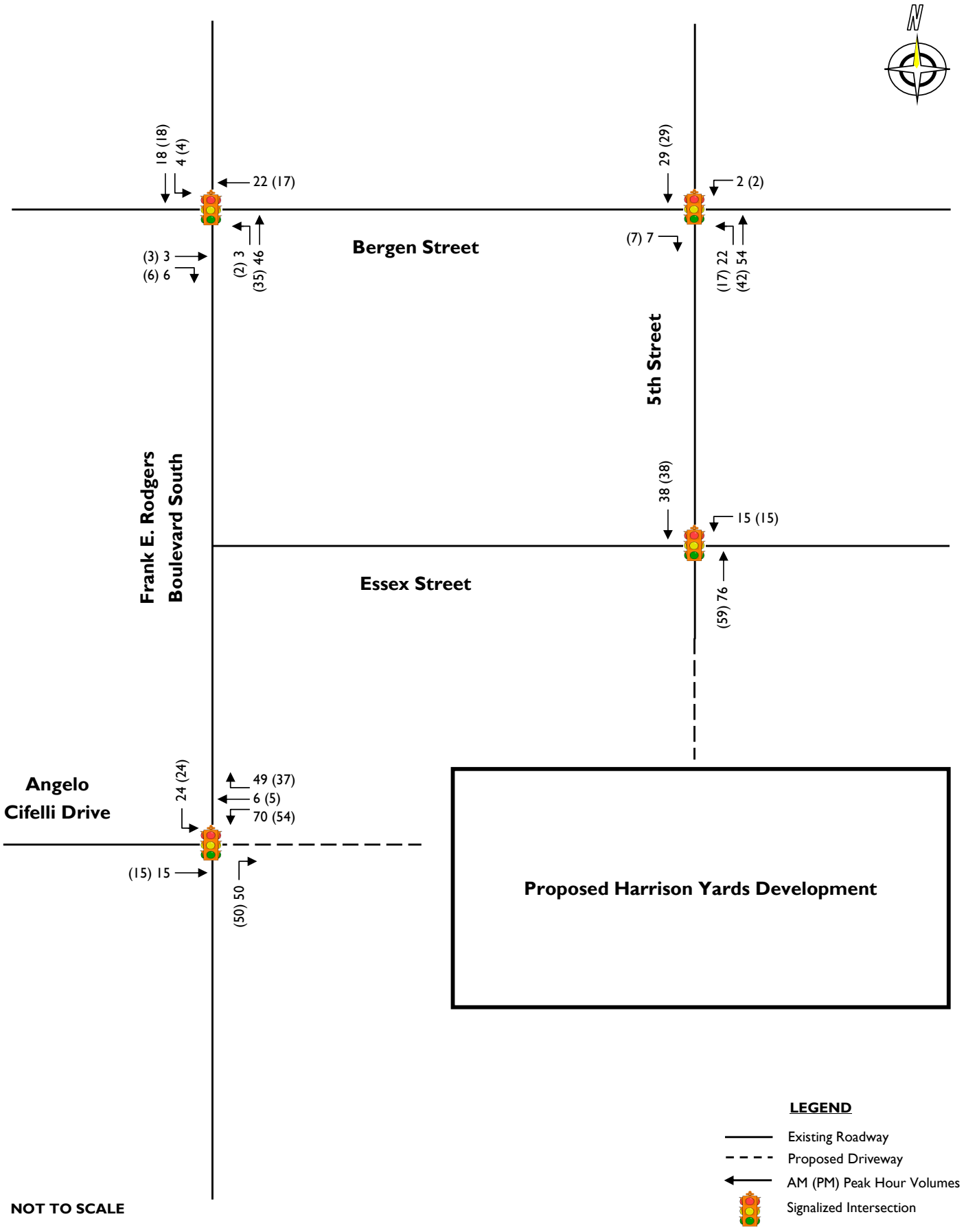
STONEFIELD	**Proposed Mixed-Use Development** **700 Frank E. Rodgers Boulevard South** **Town of Harrison, Hudson County, New Jersey** **Traffic Impact Study (Phase 2)**	**FIGURE 5** **Other Planned Projects** **Future Traffic Volumes**



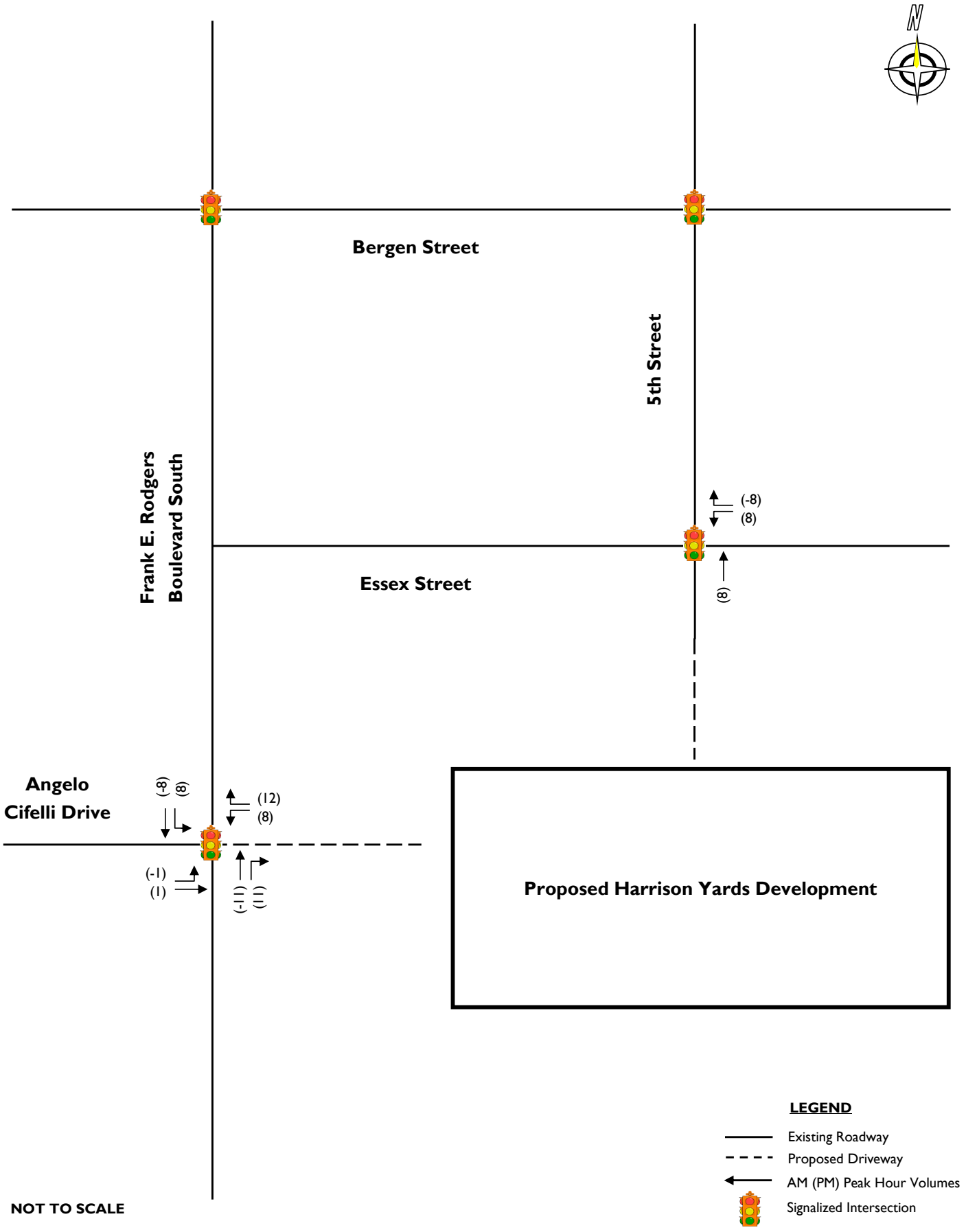
STONEFIELD

Proposed Mixed-Use Development
700 Frank E. Rodgers Boulevard South
Town of Harrison, Hudson County, New Jersey
Traffic Impact Study (Phase 2)

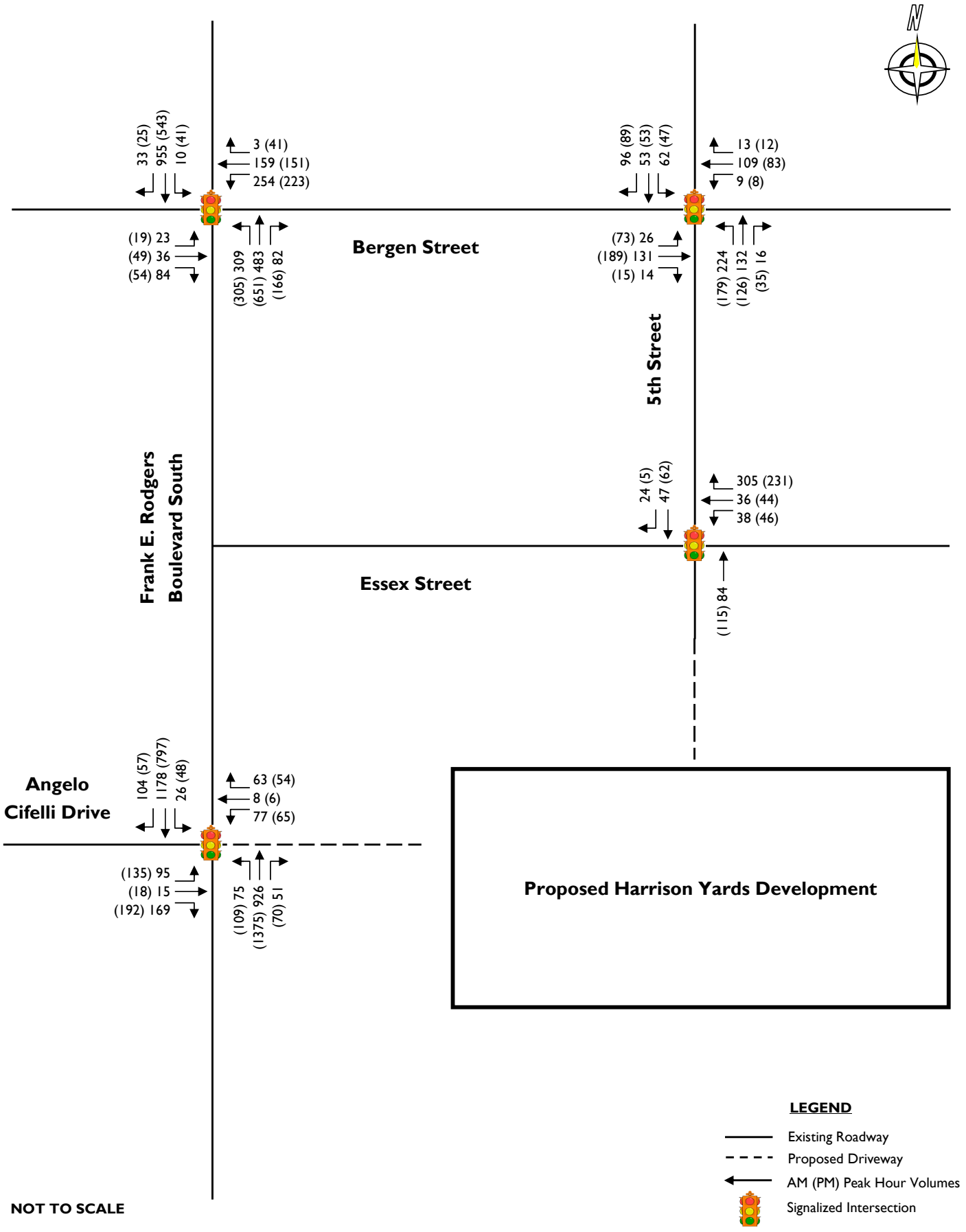
FIGURE 6
2022 No-Build Traffic Volumes



STONEFIELD	**Proposed Mixed-Use Development** **700 Frank E. Rodgers Boulevard South** **Town of Harrison, Hudson County, New Jersey** **Traffic Impact Study (Phase 2)**	**FIGURE 7** **"New" Site-Generated Traffic Volumes**



STONEFIELD	**Proposed Mixed-Use Development** **700 Frank E. Rodgers Boulevard South** **Town of Harrison, Hudson County, New Jersey** **Traffic Impact Study (Phase 2)**	**FIGURE 8** **"Pass-By" Site-Generated Traffic Volumes**



STONEFIELD	**Proposed Mixed-Use Development** **700 Frank E. Rodgers Boulevard South** **Town of Harrison, Hudson County, New Jersey** **Traffic Impact Study (Phase 2)**	**FIGURE 9** **2022 Build Traffic Volumes**

ANGELO CIFELLI DRIVE & FRANK E RODGERS BLVD
PREVIOUSLY APPROVED SIGNAL TIMING DIRECTIVES

120 SECOND BACKGROUND CYCLE
FRANK E. RODGERS BOULEVARD & ANGELO CIFELLI DRIVE

2016-11-16

TOWN OF HARRISON

COUNTY OF HUDSON

SIGNAL INDICATIONS

(WITHOUT PEDESTRIAN ACTUATION)

	Signal Heads	5,14,17	3,10	4,9	11,15,18	2,6	1,7	8,12	13,16	P1, P2	P5, P6	P7, P8	P3, P4	P9, P10	P11, P12	TIME (sec)		
	Movements	Ø2	Ø5	Ø1	Ø6	Ø8	Ø3	Ø4	Ø7	Ø2PED	Ø2PED	Ø8PED	Ø6PED	Ø6PED	Ø4PED	I	II	III
1	ANGELO CIFELLI DRIVE WB R.O.W.	R	R	R	R	R	R	G/G→	G	HAND	MAN	HAND	HAND	HAND	HAND	6 - 10	5 - 11	6 - 10
	CHANGE	R	R	R	R	R	R	Y→	Y	HAND	HAND	HAND	HAND	HAND	HAND	4	4	4
	CLEAR	R	R	R	R	R	R	R	R	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3
2	ANGELO CIFELLI DRIVE EB R.O.W.	R	R	R	R	G/G→	G	R	R	HAND	HAND	HAND	HAND	HAND	HAND	6 - 10	5 - 11	6 - 10
	CHANGE	R	R	R	R	Y→	Y	R	R	HAND	HAND	HAND	HAND	HAND	HAND	4	4	4
	CLEAR	R	R	R	R	R	R	R	R	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3
3	FRANK E. RODGERS BOULEVARD NB R.O.W.	R	R	←G	G	G→	R	R	R	HAND	HAND	HAND	**MAN**	**MAN**	HAND	6 - 10	5 - 11	6 - 10
	CHANGE	R	R	Y	G	Y→	R	R	R	HAND	HAND	HAND	MAN	MAN	HAND	4	4	4
	CLEAR	R	R	R	G	R	R	R	R	HAND	HAND	HAND	MAN	MAN	HAND	3	3	3
4	FRANK E. RODGERS BOULEVARD NB & SB R.O.W.	G	R	R	G	R	R	R	R	**MAN**	**MAN**	HAND	**MAN**	**MAN**	HAND	42 - 28	44 - 24	41 - 28
	PED CLEARANCE	G	R	R	G	R	R	R	R	MAN	MAN	HAND	FLASH HAND COUNT	FLASH HAND COUNT	HAND	10	10	10
	CHANGE	G	R	R	Y	R	R	R	R	**MAN**	**MAN**	HAND	HAND	HAND	HAND	4	4	4
	CLEAR	G	R	R	R	R	R	R	R	MAN	MAN	HAND	HAND	HAND	HAND	3	3	3
5	FRANK E. RODGERS BOULEVARD SB R.O.W.	G	←G/G	R	R	R	R	G→	R	**MAN**	**MAN**	HAND	HAND	HAND	HAND	5-7	6-8	6-7
	PED CLEARANCE	G	←G/G	R	R	R	R	G→	R	FLASH HAND COUNT	FLASH HAND COUNT	HAND	HAND	HAND	HAND	10	10	10
	CHANGE	Y	Y	R	R	R	R	Y→	R	HAND	HAND	HAND	HAND	HAND	HAND	4	4	4
	CLEAR	R	R	R	R	R	R	R	R	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3

(WITH PEDESTRIAN ACTUATION)

6A	FRANK E. RODGERS BOULEVARD South Crosswalk	R	R	R	R	R	G	R	R	**MAN**	HAND	**MAN**	**MAN**	HAND	HAND	14 - 7	14 - 7	14 - 7
	PED CLEARANCE	R	R	R	R	R	G	R	R	FLASH HAND COUNT	HAND	FLASH HAND COUNT	FLASH HAND COUNT	HAND	HAND	12	12	12
	CHANGE	R	R	R	R	R	Y	R	R	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3
	CLEAR	R	R	R	R	R	R	R	R	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3
6B	FRANK E. RODGERS BOULEVARD North Crosswalk	R	R	R	R	R	R	R	G	HAND	**MAN**	HAND	HAND	**MAN**	**MAN**	14 - 7	14 - 7	14 - 7
	PED CLEARANCE	R	R	R	R	R	R	R	G	HAND	FLASH HAND COUNT	HAND	HAND	FLASH HAND COUNT	FLASH HAND COUNT	12	12	12
	CHANGE	R	R	R	R	R	R	R	Y	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3
	CLEAR	R	R	R	R	R	R	R	R	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3
6C	FRANK E. RODGERS BOULEVARD NB & SB Crosswalks	R	R	R	R	R	R	R	R	**MAN**	**MAN**	**MAN**	**MAN**	**MAN**	**MAN**	14 - 7	14 - 7	14 - 7
	PED CLEARANCE	R	R	R	R	R	R	R	R	FLASH HAND COUNT	FLASH HAND COUNT	FLASH HAND COUNT	FLASH HAND COUNT	FLASH HAND COUNT	FLASH HAND COUNT	12	12	12
	CHANGE	R	R	R	R	R	R	R	R	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3
	CLEAR	R	R	R	R	R	R	R	R	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3
	FLASH	Y	Y	Y	Y	R	R	R	R	DARK		DARK		DARK	DARK			

NOTES:

- LOCKING MEMORY OFF FOR ALL PHASES
- VEHICLE INTERVAL IS 2 SECONDS.
- THE CONROLLER SHALL REST IN MOVEMENT 4.
- MOVEMENTS 1, 2 & 3 SHALL BE OMITTED & THEIR TIME PLACED INTO THE MAXIMUM OF MOVEMENT 4 UNLESS VEHICLE IS PRESENT.
  CALL IS PLACED INTO THE CONTROLLER BY THE CORRESPONDING PUSH BUTTON. MIN AND MAX TIME SHALL BE ADJUSTED AND ACCOUNTED FOR GIVEN CYCLE.
- MOVEMENT 6 A/B/C SHALL BE ADDED TO THE CYCLE IN THE EVENT THAT A PEDESTRIAN ACTUATION IS RECEIVED.
  -MOVEMENT 6A SHALL BE CALLED UP IF ONLY FOR ACTUATION INPUT ON PEDESTRIAN PHASE 8 BUT NO OTHER PEDESTRIAN ACTUATION DURING PREVIOUS CYCLE.
- MOVEMENT 6B SHALL BE CALLED UP IF ONLY FOR ACTUATION INPUT ON PEDESTRIAN PHASE 4 BUT NO OTHER PEDESTRIAN ACTUATION DURING PREVIOUS CYCLE.
- MOVEMENT 6C SHALL BE CALLED UP IF ONLY FOR ACTUATION INPUT ON PHASE 4 & 8 DURING PREVIOUS CYCLE.
- MOVEMENTS 1-6 (A/B/C) SHALL RUN AS A FULL PEDESTRIAN CYCLE FOR THE NEXT CYCLE IN THE EVENT OF PEDESTRIAN ACTUATION DURING PERVIOUS CYCLE.
- DURING PEDESTRIAN ACTUATION CYCLE CONTROLLER SHALL BE PERMITTED TO OVER RUN THE CYCLE LENGTH.
- CONTROLLER SHALL RUN COORDINATED FOR CYCLES I & II OFFSET SHALL BE SET FROM START OF YELLOW ON CAPE MAY STREET MAIN LINE
- CONTROLLER SHALL BE SET WITH A MAX PRESENCE TIME OF 5 MIN AND A NO ACTIVITY TIME OF 180 MIN. THE FAIL TIME FOR SIDE STREET SHALL BE 10 SECONDS.
- THE TIMES OF OPERATIONS ARE AS FOLLOWS:

TIME OF OPERATION	CYCLE/OFFSET	
MONDAY - FRIDAY		
5:30 AM - 9:30 AM	120/41	I
3:30 PM - 7:30 PM	120/11	II
9:30 AM - 3:30 PM	120/FREE	III
7:30 PM - 5:30 AM	120/FREE	III

TIME OF OPERATION	CYCLE/OFFSET
SATURDAY & SUNDAY	
ALL OTHER TIMES	III

ANGELO CIFELLI DRIVE & FRANK E RODGERS BLVD
RECOMMENDED SIGNAL TIMING DIRECTIVES

120 SECOND BACKGROUND CYCLE
FRANK E. RODGERS BOULEVARD & ANGELO CIFELLI DRIVE

2016-11-16

TOWN OF HARRISON

COUNTY OF HUDSON

SIGNAL INDICATIONS
(WITHOUT PEDESTRIAN ACTUATION)

	Signal Heads	5,14,17	3,10	4,9	11,15,18	2,6	1,7	8,12	13,16	P1, P2	P5, P6	P7, P8	P3, P4	P9, P10	P11, P12	TIME (sec)		
	Movements	Ø2	Ø5	Ø1	Ø6	Ø8	Ø3	Ø4	Ø7	Ø2PED	Ø2PED	Ø8PED	Ø6PED	Ø6PED	Ø4PED	I	II	III
1	ANGELO CIFELLI DRIVE WB R.O.W.	R	R	R	R	R	R	G/G→	G	HAND	MAN	HAND	HAND	HAND	HAND	6 - 11	5 - 10	6 - 10
	CHANGE	R	R	R	R	R	R	Y→	Y	HAND	HAND	HAND	HAND	HAND	HAND	4	4	4
	CLEAR	R	R	R	R	R	R	R	R	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3
2	ANGELO CIFELLI DRIVE EB R.O.W.	R	R	R	R	G/G→	G	R	R	HAND	HAND	HAND	HAND	HAND	HAND	6 - 14	5 - 19	6 - 10
	CHANGE	R	R	R	R	Y→	Y	R	R	HAND	HAND	HAND	HAND	HAND	HAND	4	4	4
	CLEAR	R	R	R	R	R	R	R	R	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3
3	FRANK E. RODGERS BOULEVARD NB R.O.W.	R	R	←G	G	G→	R	R	R	HAND	HAND	HAND	**MAN**	**MAN**	HAND	5	5 ~~11~~	6 - 10
	CHANGE	R	R	Y	G	Y→	R	R	R	HAND	HAND	HAND	MAN	MAN	HAND	4	4	4
	CLEAR	R	R	R	G	R	R	R	R	HAND	HAND	HAND	MAN	MAN	HAND	3	3	3
4	FRANK E. RODGERS BOULEVARD NB & SB R.O.W.	G	R	R	G	R	R	R	R	**MAN**	**MAN**	HAND	**MAN**	**MAN**	HAND	53 - 33	54 - 33	41 - 28
	PED CLEARANCE	G	R	R	G	R	R	R	R	MAN	MAN	HAND	FLASH HAND COUNT	FLASH HAND COUNT	HAND	10	10	10
	CHANGE	G	R	R	Y	R	R	R	R	~~MAN~~	~~MAN~~	HAND	HAND	HAND	HAND	4	4	4
	CLEAR	G	R	R	R	R	R	R	R	~~MAN~~	~~MAN~~	HAND	HAND	HAND	HAND	3	3	3
5	FRANK E. RODGERS BOULEVARD SB R.O.W.	G	←G/G	R	R	R	R	G→	R	~~MAN~~	~~MAN~~	HAND	HAND	HAND	HAND	5-12	6-8	6-7
	~~PED CLEARANCE~~	~~G~~	~~←G/G~~	~~R~~	~~R~~	~~R~~	~~R~~	~~G→~~	~~R~~	~~FLASH HAND COUNT~~	~~FLASH HAND COUNT~~	~~HAND~~	~~HAND~~	~~HAND~~	~~HAND~~	~~10~~	~~10~~	~~10~~
	CHANGE	Y	Y	R	R	R	R	Y→	R	HAND	HAND	HAND	HAND	HAND	HAND	4	4	4
	CLEAR	R	R	R	R	R	R	R	R	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3

FLASH HAND COUNT

(WITH PEDESTRIAN ACTUATION)

6A	FRANK E. RODGERS BOULEVARD South Crosswalk	R	R	R	R	R	G	R	R	**MAN**	HAND	**MAN**	**MAN**	HAND	HAND	14 - 7	14 - 7	14 - 7
	PED CLEARANCE	R	R	R	R	R	G	R	R	FLASH HAND COUNT	HAND	FLASH HAND COUNT	FLASH HAND COUNT	HAND	HAND	12	12	12
	CHANGE	R	R	R	R	R	Y	R	R	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3
	CLEAR	R	R	R	R	R	R	R	R	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3
6B	FRANK E. RODGERS BOULEVARD North Crosswalk	R	R	R	R	R	R	R	G	HAND	**MAN**	HAND	HAND	**MAN**	**MAN**	14 - 7	14 - 7	14 - 7
	PED CLEARANCE	R	R	R	R	R	R	R	G	HAND	FLASH HAND COUNT	HAND	HAND	FLASH HAND COUNT	FLASH HAND COUNT	12	12	12
	CHANGE	R	R	R	R	R	R	R	Y	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3
	CLEAR	R	R	R	R	R	R	R	R	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3
6C	FRANK E. RODGERS BOULEVARD NB & SB Crosswalks	R	R	R	R	R	R	R	R	**MAN**	**MAN**	**MAN**	**MAN**	**MAN**	**MAN**	14 - 7	14 - 7	14 - 7
	PED CLEARANCE	R	R	R	R	R	R	R	R	FLASH HAND COUNT	FLASH HAND COUNT	FLASH HAND COUNT	FLASH HAND COUNT	FLASH HAND COUNT	FLASH HAND COUNT	12	12	12
	CHANGE	R	R	R	R	R	R	R	R	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3
	CLEAR	R	R	R	R	R	R	R	R	HAND	HAND	HAND	HAND	HAND	HAND	3	3	3
	FLASH	Y	Y	Y	Y	R	R	R	R	DARK		DARK		DARK	DARK			

NOTES:
- LOCKING MEMORY OFF FOR ALL PHASES
- VEHICLE INTERVAL IS 2 SECONDS.
- THE CONROLLER SHALL REST IN MOVEMENT 4.
- MOVEMENTS 1, 2 & 3 SHALL BE OMITTED & THEIR TIME PLACED INTO THE MAXIMUM OF MOVEMENT 4 UNLESS VEHICLE IS PRESENT.
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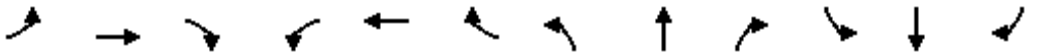
- DURING PEDESTRIAN ACTUATION CYCLE CONTROLLER SHALL BE PERMITTED TO OVER RUN THE CYCLE LENGTH.
- CONTROLLER SHALL RUN COORDINATED FOR CYCLES I & II OFFSET SHALL BE SET FROM START OF YELLOW ON CAPE MAY STREET MAIN LINE
- CONTROLLER SHALL BE SET WITH A MAX PRESENCE TIME OF 5 MIN AND A NO ACTIVITY TIME OF 180 MIN. THE FAIL TIME FOR SIDE STREET SHALL BE 10 SECONDS.
- THE TIMES OF OPERATIONS ARE AS FOLLOWS:

TIME OF OPERATION	CYCLE/OFFSET		TIME OF OPERATION	CYCLE/OFFSET
MONDAY - FRIDAY			**SATURDAY & SUNDAY**	
5:30 AM - 9:30 AM	120/41	I	ALL OTHER TIMES	III
3:30 PM - 7:30 PM	120/11	II		
9:30 AM - 3:30 PM	120/FREE	III		
7:30 PM - 5:30 AM	120/FREE	III		

- MOVEMENT 5 SHOULD ALWAYS FOLLOW MOVEMENT 4

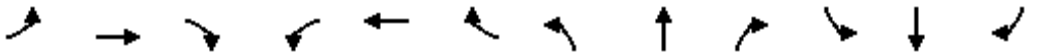
CAPACITY ANALYSIS DETAIL SHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	32	69	234	123	3	280	381	80	5	903	32
Future Volume (veh/h)	17	32	69	234	123	3	280	381	80	5	903	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.85	0.91		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	2184	2184	2184	2067	2084	2167	2051	2067	1985	2000	2084	2051
Adj Flow Rate, veh/h	19	36	78	266	140	3	318	433	91	6	1026	36
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	2	1	1	3	2	2	1	1	3
Cap, veh/h	66	129	228	317	423	9	353	1135	239	32	1159	830
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.12	0.71	0.71	0.56	0.56	0.56
Sat Flow, veh/h	152	620	1095	1266	2031	44	1953	1602	337	3	2075	1487
Grp Volume(v), veh/h	133	0	0	266	0	143	318	0	524	1032	0	36
Grp Sat Flow(s),veh/h/ln	1867	0	0	1266	0	2075	1953	0	1939	2078	0	1487
Q Serve(g_s), s	0.0	0.0	0.0	18.1	0.0	7.0	11.4	0.0	13.0	3.3	0.0	1.3
Cycle Q Clear(g_c), s	6.9	0.0	0.0	25.0	0.0	7.0	11.4	0.0	13.0	52.1	0.0	1.3
Prop In Lane	0.14		0.59	1.00		0.02	1.00		0.17	0.01		1.00
Lane Grp Cap(c), veh/h	423	0	0	317	0	432	353	0	1373	1191	0	830
V/C Ratio(X)	0.31	0.00	0.00	0.84	0.00	0.33	0.90	0.00	0.38	0.87	0.00	0.04
Avail Cap(c_a), veh/h	423	0	0	317	0	432	353	0	1373	1191	0	830
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.3	0.0	0.0	48.2	0.0	40.4	33.5	0.0	7.0	23.2	0.0	12.0
Incr Delay (d2), s/veh	1.9	0.0	0.0	22.7	0.0	2.0	28.1	0.0	0.8	8.6	0.0	0.1
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(50%),veh/ln	3.6	0.0	0.0	10.0	0.0	3.9	8.0	0.0	5.4	27.5	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.3	0.0	0.0	70.9	0.0	42.4	61.6	0.0	7.8	31.8	0.0	12.1
LnGrp LOS	D	A	A	E	A	D	E	A	A	C	A	B
Approach Vol, veh/h		133			409			842			1068	
Approach Delay, s/veh		42.3			60.9			28.1			31.1	
Approach LOS		D			E			C			C	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		90.0		30.0	18.0	72.0		30.0				
Change Period (Y+Rc), s		5.0		5.0	4.0	5.0		5.0				
Max Green Setting (Gmax), s		85.0		25.0	14.0	67.0		25.0				
Max Q Clear Time (g_c+I1), s		15.0		8.9	13.4	54.1		27.0				
Green Ext Time (p_c), s		4.4		0.6	0.1	7.1		0.0				

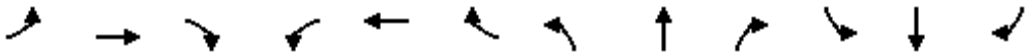
Intersection Summary												
HCM 6th Ctrl Delay			35.7									
HCM 6th LOS			D									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	127	6	7	106	13	174	73	16	60	23	93
Future Volume (veh/h)	25	127	6	7	106	13	174	73	16	60	23	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2184	2184	2184	2184	2184	2184	2116	2116	2116	2184	2184	2184
Adj Flow Rate, veh/h	29	146	7	8	122	15	200	84	18	69	26	107
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0	0	0	0	4	4	4	0	0	0
Cap, veh/h	105	523	23	50	558	66	648	267	54	377	160	550
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	211	1743	78	40	1858	219	980	445	90	548	267	917
Grp Volume(v), veh/h	182	0	0	145	0	0	302	0	0	202	0	0
Grp Sat Flow(s),veh/h/ln	2032	0	0	2118	0	0	1515	0	0	1731	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.4	0.0	0.0	5.1	0.0	0.0	8.1	0.0	0.0	4.5	0.0	0.0
Prop In Lane	0.16		0.04	0.06		0.10	0.66		0.06	0.34		0.53
Lane Grp Cap(c), veh/h	651	0	0	673	0	0	969	0	0	1087	0	0
V/C Ratio(X)	0.28	0.00	0.00	0.22	0.00	0.00	0.31	0.00	0.00	0.19	0.00	0.00
Avail Cap(c_a), veh/h	651	0	0	673	0	0	969	0	0	1087	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	26.7	0.0	0.0	26.3	0.0	0.0	9.5	0.0	0.0	8.9	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.7	0.0	0.0	0.8	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	0.0	2.7	0.0	0.0	3.2	0.0	0.0	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	0.0	0.0	27.0	0.0	0.0	10.3	0.0	0.0	9.3	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	B	A	A	A	A	A
Approach Vol, veh/h		182			145			302			202	
Approach Delay, s/veh		27.8			27.0			10.3			9.3	
Approach LOS		C			C			B			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.0		35.0		65.0		35.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		60.0		30.0		60.0		30.0				
Max Q Clear Time (g_c+I1), s		10.1		8.4		6.5		7.1				
Green Ext Time (p_c), s		2.3		1.0		1.5		0.8				

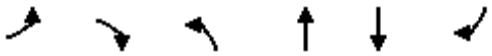
Intersection Summary												
HCM 6th Ctrl Delay			16.8									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	21	35	275	0	4	0	0	8	23
Future Volume (veh/h)	0	0	0	21	35	275	0	4	0	0	8	23
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				2184	2014	2184	2184	2184	0	0	2184	2184
Adj Flow Rate, veh/h				25	42	331	0	5	0	0	10	28
Peak Hour Factor				0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %				0	10	0	0	0	0	0	0	0
Cap, veh/h				62	104	823	0	546	0	0	127	355
Arrive On Green				0.57	0.57	0.57	0.00	0.25	0.00	0.00	0.25	0.25
Sat Flow, veh/h				110	184	1453	0	2184	0	0	507	1421
Grp Volume(v), veh/h				398	0	0	0	5	0	0	0	38
Grp Sat Flow(s),veh/h/ln				1747	0	0	0	2184	0	0	0	1928
Q Serve(g_s), s				7.7	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.9
Cycle Q Clear(g_c), s				7.7	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.9
Prop In Lane				0.06		0.83	0.00		0.00	0.00		0.74
Lane Grp Cap(c), veh/h				990	0	0	0	546	0	0	0	482
V/C Ratio(X)				0.40	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.08
Avail Cap(c_a), veh/h				990	0	0	0	546	0	0	0	482
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				7.3	0.0	0.0	0.0	16.9	0.0	0.0	0.0	17.2
Incr Delay (d2), s/veh				1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
%ile BackOfQ(50%),veh/ln				2.7	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				8.5	0.0	0.0	0.0	16.9	0.0	0.0	0.0	17.5
LnGrp LOS				A	A	A	A	B	A	A	A	B
Approach Vol, veh/h					398			5			38	
Approach Delay, s/veh					8.5			16.9			17.5	
Approach LOS					A			B			B	

Timer - Assigned Phs	2			6		8						
Phs Duration (G+Y+Rc), s	20.0			20.0		40.0						
Change Period (Y+Rc), s	5.0			5.0		6.0						
Max Green Setting (Gmax), s	15.0			15.0		34.0						
Max Q Clear Time (g_c+I1), s	2.1			2.9		9.7						
Green Ext Time (p_c), s	0.0			0.1		3.0						

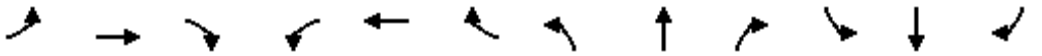
Intersection Summary		
HCM 6th Ctrl Delay	9.4	
HCM 6th LOS	A	



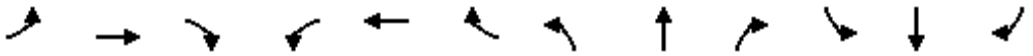
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	92	164	70	852	1111	101
Future Volume (vph)	92	164	70	852	1111	101
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100
Lane Width	11	11	11	11	11	11
Total Lost time (s)	7.0	4.0	4.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frpb, ped/bikes	1.00	0.96	1.00	1.00	0.96	
Flpb, ped/bikes	0.91	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1760	1636	1925	3781	3620	
Flt Permitted	0.95	1.00	0.09	1.00	1.00	
Satd. Flow (perm)	1760	1636	185	3781	3620	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	100	178	76	926	1208	110
RTOR Reduction (vph)	0	141	0	0	6	0
Lane Group Flow (vph)	100	37	76	926	1312	0
Confl. Peds. (#/hr)	26	61	476			476
Heavy Vehicles (%)	0%	1%	0%	2%	1%	0%
Turn Type	Perm	pm+ov	pm+pt	NA	NA	
Protected Phases		3	3	8	4	
Permitted Phases	2	2	8			
Actuated Green, G (s)	10.6	24.6	77.0	77.0	59.0	
Effective Green, g (s)	10.6	24.6	77.0	77.0	59.0	
Actuated g/C Ratio	0.09	0.21	0.65	0.65	0.50	
Clearance Time (s)	7.0	4.0	4.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	157	339	325	2454	1800	
v/s Ratio Prot		0.01	0.03	c0.24	c0.36	
v/s Ratio Perm	c0.06	0.01	0.12			
v/c Ratio	0.64	0.11	0.23	0.38	0.73	
Uniform Delay, d1	52.1	38.1	14.0	9.7	23.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.2	0.1	0.4	0.4	2.6	
Delay (s)	60.3	38.3	14.4	10.1	26.1	
Level of Service	E	D	B	B	C	
Approach Delay (s)	46.2			10.4	26.1	
Approach LOS	D			B	C	

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	118.6	Sum of lost time (s)	19.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



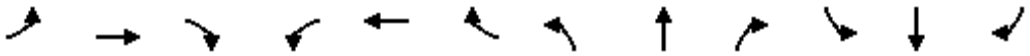
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	44	33	184	105	40	284	575	161	35	487	24
Future Volume (veh/h)	12	44	33	184	105	40	284	575	161	35	487	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.97	1.00		0.88	0.96		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	2184	2184	2184	1969	2018	2099	2051	2084	2000	1985	2067	1953
Adj Flow Rate, veh/h	14	51	38	214	122	47	330	669	187	41	566	28
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	0	8	5	5	3	1	1	2	2	9
Cap, veh/h	64	224	149	324	286	110	591	1075	300	79	997	797
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.12	0.71	0.71	0.56	0.56	0.56
Sat Flow, veh/h	145	1076	714	1227	1374	529	1953	1518	424	84	1786	1428
Grp Volume(v), veh/h	103	0	0	214	0	169	330	0	856	607	0	28
Grp Sat Flow(s),veh/h/ln	1934	0	0	1227	0	1903	1953	0	1942	1870	0	1428
Q Serve(g_s), s	0.0	0.0	0.0	14.0	0.0	9.3	7.5	0.0	27.6	2.2	0.0	1.1
Cycle Q Clear(g_c), s	5.1	0.0	0.0	19.1	0.0	9.3	7.5	0.0	27.6	22.5	0.0	1.1
Prop In Lane	0.14		0.37	1.00		0.28	1.00		0.22	0.07		1.00
Lane Grp Cap(c), veh/h	437	0	0	324	0	396	591	0	1375	1076	0	797
V/C Ratio(X)	0.24	0.00	0.00	0.66	0.00	0.43	0.56	0.00	0.62	0.56	0.00	0.04
Avail Cap(c_a), veh/h	437	0	0	324	0	396	591	0	1375	1076	0	797
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.6	0.0	0.0	44.9	0.0	41.3	11.0	0.0	9.1	16.6	0.0	11.9
Incr Delay (d2), s/veh	1.3	0.0	0.0	10.2	0.0	3.3	3.8	0.0	2.1	2.1	0.0	0.1
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(50%),veh/ln	2.7	0.0	0.0	7.0	0.0	4.8	3.6	0.0	11.6	11.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.9	0.0	0.0	55.1	0.0	44.6	14.8	0.0	11.3	18.7	0.0	12.0
LnGrp LOS	D	A	A	E	A	D	B	A	B	B	A	B
Approach Vol, veh/h		103			383			1186			635	
Approach Delay, s/veh		40.9			50.5			12.3			18.4	
Approach LOS		D			D			B			B	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		90.0		30.0	18.0	72.0		30.0				
Change Period (Y+Rc), s		5.0		5.0	4.0	5.0		5.0				
Max Green Setting (Gmax), s		85.0		25.0	14.0	67.0		25.0				
Max Q Clear Time (g_c+I1), s		29.6		7.1	9.5	24.5		21.1				
Green Ext Time (p_c), s		9.6		0.5	0.4	5.7		0.7				
Intersection Summary												
HCM 6th Ctrl Delay			21.6									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	183	6	5	81	12	100	80	34	46	20	86
Future Volume (veh/h)	71	183	6	5	81	12	100	80	34	46	20	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2184	2184	2184	2167	2167	2167	2184	2184	2184	2184	2184	2184
Adj Flow Rate, veh/h	76	197	6	5	87	13	108	86	37	49	22	92
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	0	0	0
Cap, veh/h	172	439	12	47	542	78	503	399	162	329	167	582
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	420	1465	41	30	1808	260	751	665	270	471	278	970
Grp Volume(v), veh/h	279	0	0	105	0	0	231	0	0	163	0	0
Grp Sat Flow(s),veh/h/ln	1926	0	0	2098	0	0	1686	0	0	1719	0	0
Q Serve(g_s), s	6.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.2	0.0	0.0	3.6	0.0	0.0	5.3	0.0	0.0	3.6	0.0	0.0
Prop In Lane	0.27		0.02	0.05		0.12	0.47		0.16	0.30		0.56
Lane Grp Cap(c), veh/h	624	0	0	667	0	0	1064	0	0	1078	0	0
V/C Ratio(X)	0.45	0.00	0.00	0.16	0.00	0.00	0.22	0.00	0.00	0.15	0.00	0.00
Avail Cap(c_a), veh/h	624	0	0	667	0	0	1064	0	0	1078	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	28.3	0.0	0.0	25.8	0.0	0.0	9.0	0.0	0.0	8.7	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	0.0	1.9	0.0	0.0	2.3	0.0	0.0	1.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.6	0.0	0.0	26.3	0.0	0.0	9.5	0.0	0.0	9.0	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		279			105			231			163	
Approach Delay, s/veh		30.6			26.3			9.5			9.0	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.0		35.0		65.0		35.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		60.0		30.0		60.0		30.0				
Max Q Clear Time (g_c+I1), s		7.3		13.2		5.6		5.6				
Green Ext Time (p_c), s		1.7		1.5		1.2		0.5				

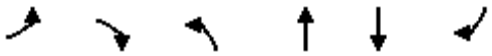
Intersection Summary												
HCM 6th Ctrl Delay			19.2									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	18	43	175	0	45	0	0	17	5
Future Volume (veh/h)	0	0	0	18	43	175	0	45	0	0	17	5
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				2184	2184	2184	2184	2184	0	0	2184	2184
Adj Flow Rate, veh/h				19	46	186	0	48	0	0	18	5
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				82	199	806	0	546	0	0	411	114
Arrive On Green				0.57	0.57	0.57	0.00	0.25	0.00	0.00	0.25	0.25
Sat Flow, veh/h				145	352	1423	0	2184	0	0	1645	457
Grp Volume(v), veh/h				251	0	0	0	48	0	0	0	23
Grp Sat Flow(s),veh/h/ln				1921	0	0	0	2184	0	0	0	2102
Q Serve(g_s), s				3.9	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.5
Cycle Q Clear(g_c), s				3.9	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.5
Prop In Lane				0.08		0.74	0.00		0.00	0.00		0.22
Lane Grp Cap(c), veh/h				1088	0	0	0	546	0	0	0	525
V/C Ratio(X)				0.23	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.04
Avail Cap(c_a), veh/h				1088	0	0	0	546	0	0	0	525
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				6.5	0.0	0.0	0.0	17.3	0.0	0.0	0.0	17.1
Incr Delay (d2), s/veh				0.5	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.5	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				7.0	0.0	0.0	0.0	17.6	0.0	0.0	0.0	17.2
LnGrp LOS				A	A	A	A	B	A	A	A	B
Approach Vol, veh/h					251			48			23	
Approach Delay, s/veh					7.0			17.6			17.2	
Approach LOS					A			B			B	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		20.0				20.0		40.0				
Change Period (Y+Rc), s		5.0				5.0		6.0				
Max Green Setting (Gmax), s		15.0				15.0		34.0				
Max Q Clear Time (g_c+I1), s		3.0				2.5		5.9				
Green Ext Time (p_c), s		0.1				0.0		1.7				

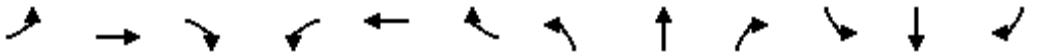
Intersection Summary		
HCM 6th Ctrl Delay	9.3	
HCM 6th LOS	A	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	132	186	99	1317	724	55
Future Volume (vph)	132	186	99	1317	724	55
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100
Lane Width	11	11	11	11	11	11
Total Lost time (s)	7.0	4.0	4.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frpb, ped/bikes	1.00	0.97	1.00	1.00	0.97	
Flpb, ped/bikes	0.93	1.00	0.98	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1675	1625	1890	3781	3624	
Flt Permitted	0.95	1.00	0.24	1.00	1.00	
Satd. Flow (perm)	1675	1625	469	3781	3624	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	143	202	108	1432	787	60
RTOR Reduction (vph)	0	159	0	0	5	0
Lane Group Flow (vph)	143	43	108	1432	842	0
Confl. Peds. (#/hr)	38	20	437			437
Heavy Vehicles (%)	7%	3%	0%	2%	2%	0%
Turn Type	Perm	pm+ov	pm+pt	NA	NA	
Protected Phases		3	3	8	4	
Permitted Phases	2	2	8			
Actuated Green, G (s)	18.6	24.6	66.0	66.0	56.0	
Effective Green, g (s)	18.6	24.6	66.0	66.0	56.0	
Actuated g/C Ratio	0.16	0.21	0.57	0.57	0.48	
Clearance Time (s)	7.0	4.0	4.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	269	345	341	2158	1755	
v/s Ratio Prot		0.01	0.02	c0.38	0.23	
v/s Ratio Perm	c0.09	0.02	0.16			
v/c Ratio	0.53	0.12	0.32	0.66	0.48	
Uniform Delay, d1	44.5	36.8	12.9	17.1	20.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.0	0.2	0.5	1.6	0.9	
Delay (s)	46.5	37.0	13.4	18.8	21.0	
Level of Service	D	D	B	B	C	
Approach Delay (s)	40.9			18.4	21.0	
Approach LOS	D			B	C	

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	115.6	Sum of lost time (s)	19.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

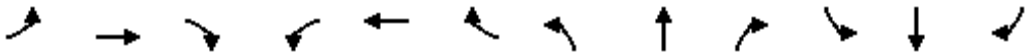
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	33	78	254	137	3	306	437	82	6	937	33
Future Volume (veh/h)	23	33	78	254	137	3	306	437	82	6	937	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.85	0.92		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	2184	2184	2184	2067	2084	2167	2051	2067	1985	2000	2084	2051
Adj Flow Rate, veh/h	26	38	89	289	156	3	348	497	93	7	1065	38
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	2	1	1	3	2	2	1	1	3
Cap, veh/h	76	120	223	305	424	8	333	1164	218	32	1157	830
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.12	0.71	0.71	0.56	0.56	0.56
Sat Flow, veh/h	195	574	1069	1252	2036	39	1953	1643	307	4	2073	1487
Grp Volume(v), veh/h	153	0	0	289	0	159	348	0	590	1072	0	38
Grp Sat Flow(s),veh/h/ln	1838	0	0	1252	0	2076	1953	0	1950	2077	0	1487
Q Serve(g_s), s	0.0	0.0	0.0	17.0	0.0	7.9	14.0	0.0	15.2	9.3	0.0	1.4
Cycle Q Clear(g_c), s	8.0	0.0	0.0	25.0	0.0	7.9	14.0	0.0	15.2	56.4	0.0	1.4
Prop In Lane	0.17		0.58	1.00		0.02	1.00		0.16	0.01		1.00
Lane Grp Cap(c), veh/h	418	0	0	305	0	432	333	0	1381	1190	0	830
V/C Ratio(X)	0.37	0.00	0.00	0.95	0.00	0.37	1.05	0.00	0.43	0.90	0.00	0.05
Avail Cap(c_a), veh/h	418	0	0	305	0	432	333	0	1381	1190	0	830
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.8	0.0	0.0	49.8	0.0	40.7	38.4	0.0	7.3	24.1	0.0	12.0
Incr Delay (d2), s/veh	2.5	0.0	0.0	39.4	0.0	2.4	61.8	0.0	1.0	11.0	0.0	0.1
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(50%),veh/ln	4.2	0.0	0.0	12.2	0.0	4.4	15.3	0.0	6.3	30.3	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.3	0.0	0.0	89.2	0.0	43.1	100.2	0.0	8.3	35.2	0.0	12.1
LnGrp LOS	D	A	A	F	A	D	F	A	A	D	A	B
Approach Vol, veh/h		153			448			938			1110	
Approach Delay, s/veh		43.3			72.9			42.4			34.4	
Approach LOS		D			E			D			C	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		90.0		30.0	18.0	72.0		30.0				
Change Period (Y+Rc), s		5.0		5.0	4.0	5.0		5.0				
Max Green Setting (Gmax), s		85.0		25.0	14.0	67.0		25.0				
Max Q Clear Time (g_c+I1), s		17.2		10.0	16.0	58.4		27.0				
Green Ext Time (p_c), s		5.2		0.7	0.0	5.5		0.0				

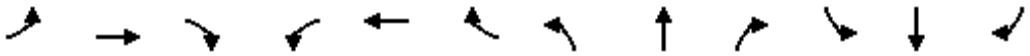
Intersection Summary												
HCM 6th Ctrl Delay			44.2									
HCM 6th LOS			D									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	131	7	7	109	13	202	78	16	62	24	96
Future Volume (veh/h)	26	131	7	7	109	13	202	78	16	62	24	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2184	2184	2184	2184	2184	2184	2116	2116	2116	2184	2184	2184
Adj Flow Rate, veh/h	30	151	8	8	125	15	232	90	18	71	28	110
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0	0	0	0	4	4	4	0	0	0
Cap, veh/h	105	521	26	50	559	64	662	252	48	375	166	547
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	210	1735	86	39	1865	215	1002	420	79	545	276	912
Grp Volume(v), veh/h	189	0	0	148	0	0	340	0	0	209	0	0
Grp Sat Flow(s),veh/h/ln	2031	0	0	2119	0	0	1501	0	0	1732	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.7	0.0	0.0	5.2	0.0	0.0	9.7	0.0	0.0	4.7	0.0	0.0
Prop In Lane	0.16		0.04	0.05		0.10	0.68		0.05	0.34		0.53
Lane Grp Cap(c), veh/h	651	0	0	674	0	0	961	0	0	1088	0	0
V/C Ratio(X)	0.29	0.00	0.00	0.22	0.00	0.00	0.35	0.00	0.00	0.19	0.00	0.00
Avail Cap(c_a), veh/h	651	0	0	674	0	0	961	0	0	1088	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	26.8	0.0	0.0	26.3	0.0	0.0	9.7	0.0	0.0	8.9	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.8	0.0	0.0	1.0	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	0.0	2.8	0.0	0.0	3.8	0.0	0.0	2.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.0	0.0	0.0	27.1	0.0	0.0	10.7	0.0	0.0	9.3	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	B	A	A	A	A	A
Approach Vol, veh/h		189			148			340			209	
Approach Delay, s/veh		28.0			27.1			10.7			9.3	
Approach LOS		C			C			B			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.0		35.0		65.0		35.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		60.0		30.0		60.0		30.0				
Max Q Clear Time (g_c+I1), s		11.7		8.7		6.7		7.2				
Green Ext Time (p_c), s		2.7		1.1		1.5		0.8				

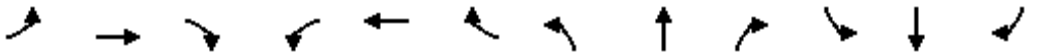
Intersection Summary												
HCM 6th Ctrl Delay			16.8									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	23	36	305	0	8	0	0	9	24
Future Volume (veh/h)	0	0	0	23	36	305	0	8	0	0	9	24
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				2184	2014	2184	2184	2184	0	0	2184	2184
Adj Flow Rate, veh/h				28	43	367	0	10	0	0	11	29
Peak Hour Factor				0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %				0	10	0	0	0	0	0	0	0
Cap, veh/h				63	97	828	0	546	0	0	133	350
Arrive On Green				0.57	0.57	0.57	0.00	0.25	0.00	0.00	0.25	0.25
Sat Flow, veh/h				112	171	1462	0	2184	0	0	531	1401
Grp Volume(v), veh/h				438	0	0	0	10	0	0	0	40
Grp Sat Flow(s),veh/h/ln				1745	0	0	0	2184	0	0	0	1932
Q Serve(g_s), s				8.7	0.0	0.0	0.0	0.2	0.0	0.0	0.0	1.0
Cycle Q Clear(g_c), s				8.7	0.0	0.0	0.0	0.2	0.0	0.0	0.0	1.0
Prop In Lane				0.06		0.84	0.00		0.00	0.00		0.72
Lane Grp Cap(c), veh/h				989	0	0	0	546	0	0	0	483
V/C Ratio(X)				0.44	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.08
Avail Cap(c_a), veh/h				989	0	0	0	546	0	0	0	483
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				7.5	0.0	0.0	0.0	17.0	0.0	0.0	0.0	17.2
Incr Delay (d2), s/veh				1.4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	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
%ile BackOfQ(50%),veh/ln				3.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				9.0	0.0	0.0	0.0	17.0	0.0	0.0	0.0	17.6
LnGrp LOS				A	A	A	A	B	A	A	A	B
Approach Vol, veh/h					438			10			40	
Approach Delay, s/veh					9.0			17.0			17.6	
Approach LOS					A			B			B	

Timer - Assigned Phs	2			6		8						
Phs Duration (G+Y+Rc), s	20.0			20.0		40.0						
Change Period (Y+Rc), s	5.0			5.0		6.0						
Max Green Setting (Gmax), s	15.0			15.0		34.0						
Max Q Clear Time (g_c+I1), s	2.2			3.0		10.7						
Green Ext Time (p_c), s	0.0			0.1		3.3						

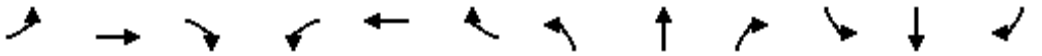
Intersection Summary		
HCM 6th Ctrl Delay	9.8	
HCM 6th LOS	A	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	0	169	7	2	14	75	926	1	2	1178	104
Future Volume (vph)	95	0	169	7	2	14	75	926	1	2	1178	104
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.91		1.00	0.95	1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		0.95	1.00		0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1928	1561		1952	1646	1927	3781		1922	3621	
Flt Permitted		0.95	1.00		0.96	1.00	0.06	1.00		0.24	1.00	
Satd. Flow (perm)		1928	1561		1952	1646	129	3781		493	3621	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	103	0	184	8	2	15	82	1007	1	2	1280	113
RTOR Reduction (vph)	0	0	159	0	0	14	0	0	0	0	4	0
Lane Group Flow (vph)	0	103	25	0	10	1	82	1008	0	2	1389	0
Confl. Peds. (#/hr)	26		61	61		26	476		67	67		476
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	1%	0%
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	6	6	3	2	2	7	3	8		7	4	
Permitted Phases			6			2	8			4		
Actuated Green, G (s)		11.9	19.8		6.1	12.9	71.0	71.0		69.9	69.9	
Effective Green, g (s)		11.9	19.8		6.1	12.9	71.0	71.0		69.9	69.9	
Actuated g/C Ratio		0.08	0.14		0.04	0.09	0.49	0.49		0.48	0.48	
Clearance Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		158	288		82	146	161	1851		304	1745	
v/s Ratio Prot		c0.05	0.00		c0.01	0.00	0.03	c0.27		0.00	c0.38	
v/s Ratio Perm			0.01			0.00	0.22			0.00		
v/c Ratio		0.65	0.09		0.12	0.01	0.51	0.54		0.01	0.80	
Uniform Delay, d1		64.5	54.7		66.9	60.2	30.1	25.7		24.5	31.6	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		7.1	0.0		0.2	0.0	0.9	1.2		0.0	3.9	
Delay (s)		71.7	54.8		67.1	60.2	31.0	26.9		24.5	35.4	
Level of Service		E	D		E	E	C	C		C	D	
Approach Delay (s)		60.8			63.0			27.2			35.4	
Approach LOS		E			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	35.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	34.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

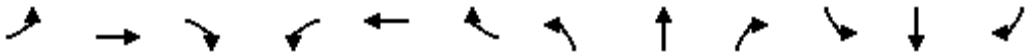
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	46	48	223	134	41	303	616	166	37	525	25
Future Volume (veh/h)	19	46	48	223	134	41	303	616	166	37	525	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.97	1.00		0.88	0.96		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	2184	2184	2184	1969	2018	2099	2051	2084	2000	1985	2067	1953
Adj Flow Rate, veh/h	22	53	56	259	156	48	352	716	193	43	610	29
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	0	8	5	5	3	1	1	2	2	9
Cap, veh/h	69	168	151	267	306	94	557	1085	293	78	992	797
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.12	0.71	0.71	0.56	0.56	0.56
Sat Flow, veh/h	165	808	727	1208	1468	452	1953	1532	413	83	1777	1428
Grp Volume(v), veh/h	131	0	0	259	0	204	352	0	909	653	0	29
Grp Sat Flow(s),veh/h/ln	1701	0	0	1208	0	1920	1953	0	1945	1860	0	1428
Q Serve(g_s), s	0.2	0.0	0.0	13.5	0.0	11.3	8.1	0.0	30.7	6.4	0.0	1.1
Cycle Q Clear(g_c), s	11.5	0.0	0.0	25.0	0.0	11.3	8.1	0.0	30.7	25.8	0.0	1.1
Prop In Lane	0.17		0.43	1.00		0.24	1.00		0.21	0.07		1.00
Lane Grp Cap(c), veh/h	389	0	0	267	0	400	557	0	1378	1070	0	797
V/C Ratio(X)	0.34	0.00	0.00	0.97	0.00	0.51	0.63	0.00	0.66	0.61	0.00	0.04
Avail Cap(c_a), veh/h	389	0	0	267	0	400	557	0	1378	1070	0	797
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.3	0.0	0.0	51.2	0.0	42.1	12.8	0.0	9.6	17.2	0.0	11.9
Incr Delay (d2), s/veh	2.3	0.0	0.0	48.4	0.0	4.6	5.4	0.0	2.5	2.6	0.0	0.1
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(50%),veh/ln	3.6	0.0	0.0	11.5	0.0	5.9	4.1	0.0	13.0	12.3	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.6	0.0	0.0	99.6	0.0	46.7	18.2	0.0	12.1	19.8	0.0	12.0
LnGrp LOS	D	A	A	F	A	D	B	A	B	B	A	B
Approach Vol, veh/h		131			463			1261			682	
Approach Delay, s/veh		42.6			76.3			13.8			19.4	
Approach LOS		D			E			B			B	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		90.0		30.0	18.0	72.0		30.0				
Change Period (Y+Rc), s		5.0		5.0	4.0	5.0		5.0				
Max Green Setting (Gmax), s		85.0		25.0	14.0	67.0		25.0				
Max Q Clear Time (g_c+I1), s		32.7		13.5	10.1	27.8		27.0				
Green Ext Time (p_c), s		10.7		0.5	0.4	6.3		0.0				

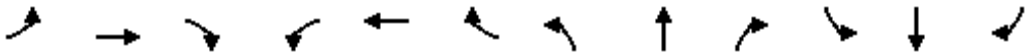
Intersection Summary												
HCM 6th Ctrl Delay			28.2									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	189	8	6	83	12	162	84	35	47	24	89
Future Volume (veh/h)	73	189	8	6	83	12	162	84	35	47	24	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2184	2184	2184	2167	2167	2167	2184	2184	2184	2184	2184	2184
Adj Flow Rate, veh/h	78	203	9	6	89	13	174	90	38	51	26	96
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	0	0	0
Cap, veh/h	170	436	18	50	540	76	596	306	122	327	185	580
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	413	1453	60	39	1800	252	899	511	203	467	308	967
Grp Volume(v), veh/h	290	0	0	108	0	0	302	0	0	173	0	0
Grp Sat Flow(s),veh/h/ln	1926	0	0	2091	0	0	1612	0	0	1742	0	0
Q Serve(g_s), s	6.4	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.8	0.0	0.0	3.8	0.0	0.0	7.8	0.0	0.0	3.8	0.0	0.0
Prop In Lane	0.27		0.03	0.06		0.12	0.58		0.13	0.29		0.55
Lane Grp Cap(c), veh/h	623	0	0	665	0	0	1024	0	0	1092	0	0
V/C Ratio(X)	0.47	0.00	0.00	0.16	0.00	0.00	0.29	0.00	0.00	0.16	0.00	0.00
Avail Cap(c_a), veh/h	623	0	0	665	0	0	1024	0	0	1092	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	28.5	0.0	0.0	25.8	0.0	0.0	9.4	0.0	0.0	8.8	0.0	0.0
Incr Delay (d2), s/veh	2.5	0.0	0.0	0.5	0.0	0.0	0.7	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.0	0.0	2.0	0.0	0.0	3.2	0.0	0.0	1.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.9	0.0	0.0	26.3	0.0	0.0	10.2	0.0	0.0	9.1	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	B	A	A	A	A	A
Approach Vol, veh/h		290			108			302			173	
Approach Delay, s/veh		30.9			26.3			10.2			9.1	
Approach LOS		C			C			B			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.0		35.0		65.0		35.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		60.0		30.0		60.0		30.0				
Max Q Clear Time (g_c+I1), s		9.8		13.8		5.8		5.8				
Green Ext Time (p_c), s		2.3		1.6		1.3		0.6				

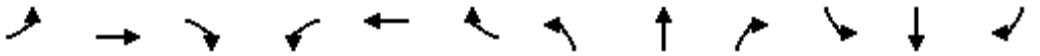
Intersection Summary												
HCM 6th Ctrl Delay			18.8									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	23	44	239	0	48	0	0	24	5
Future Volume (veh/h)	0	0	0	23	44	239	0	48	0	0	24	5
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				2184	2184	2184	2184	2184	0	0	2184	2184
Adj Flow Rate, veh/h				24	47	254	0	51	0	0	26	5
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				80	156	845	0	546	0	0	445	86
Arrive On Green				0.57	0.57	0.57	0.00	0.25	0.00	0.00	0.25	0.25
Sat Flow, veh/h				141	276	1492	0	2184	0	0	1780	342
Grp Volume(v), veh/h				325	0	0	0	51	0	0	0	31
Grp Sat Flow(s),veh/h/ln				1908	0	0	0	2184	0	0	0	2122
Q Serve(g_s), s				5.3	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.7
Cycle Q Clear(g_c), s				5.3	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.7
Prop In Lane				0.07		0.78	0.00		0.00	0.00		0.16
Lane Grp Cap(c), veh/h				1081	0	0	0	546	0	0	0	531
V/C Ratio(X)				0.30	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.06
Avail Cap(c_a), veh/h				1081	0	0	0	546	0	0	0	531
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				6.8	0.0	0.0	0.0	17.3	0.0	0.0	0.0	17.1
Incr Delay (d2), s/veh				0.7	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				7.5	0.0	0.0	0.0	17.6	0.0	0.0	0.0	17.3
LnGrp LOS				A	A	A	A	B	A	A	A	B
Approach Vol, veh/h					325			51			31	
Approach Delay, s/veh					7.5			17.6			17.3	
Approach LOS					A			B			B	

Timer - Assigned Phs	2		6		8			
Phs Duration (G+Y+Rc), s	20.0		20.0		40.0			
Change Period (Y+Rc), s	5.0		5.0		6.0			
Max Green Setting (Gmax), s	15.0		15.0		34.0			
Max Q Clear Time (g_c+I1), s	3.1		2.7		7.3			
Green Ext Time (p_c), s	0.1		0.1		2.3			

Intersection Summary		
HCM 6th Ctrl Delay	9.5	
HCM 6th LOS	A	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	2	192	3	1	5	109	1386	9	16	805	57
Future Volume (vph)	136	2	192	3	1	5	109	1386	9	16	805	57
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97		1.00	0.96	1.00	1.00		1.00	0.97	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	0.99	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		0.95	1.00		0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1810	1628		1957	1659	1913	3777		1928	3622	
Flt Permitted		0.95	1.00		0.96	1.00	0.12	1.00		0.08	1.00	
Satd. Flow (perm)		1810	1628		1957	1659	251	3777		155	3622	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	148	2	209	3	1	5	118	1507	10	17	875	62
RTOR Reduction (vph)	0	0	153	0	0	4	0	0	0	0	3	0
Lane Group Flow (vph)	0	150	56	0	4	1	118	1517	0	17	934	0
Confl. Peds. (#/hr)	38		20	20		38	437		33	33		437
Heavy Vehicles (%)	7%	0%	3%	0%	0%	0%	0%	2%	0%	0%	2%	0%
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	6	6	3	2	2	7	3	8		7	4	
Permitted Phases			6			2	8			4		
Actuated Green, G (s)		17.1	26.8		5.9	16.7	62.0	62.0		63.1	63.1	
Effective Green, g (s)		17.1	26.8		5.9	16.7	62.0	62.0		63.1	63.1	
Actuated g/C Ratio		0.12	0.18		0.04	0.12	0.43	0.43		0.44	0.44	
Clearance Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		213	379		79	191	218	1614		199	1576	
v/s Ratio Prot		c0.08	0.01		c0.00	0.00	0.04	c0.40		0.01	c0.26	
v/s Ratio Perm			0.02			0.00	0.19			0.03		
v/c Ratio		0.70	0.15		0.05	0.00	0.54	0.94		0.09	0.59	
Uniform Delay, d1		61.5	49.5		66.9	56.8	29.4	39.7		54.5	31.2	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		10.1	0.2		0.3	0.0	2.7	12.1		0.2	1.6	
Delay (s)		71.6	49.7		67.1	56.8	32.1	51.8		54.6	32.8	
Level of Service		E	D		E	E	C	D		D	C	
Approach Delay (s)		58.9			61.4			50.4			33.2	
Approach LOS		E			E			D			C	

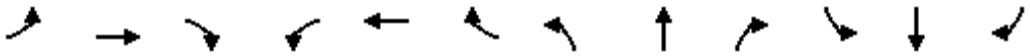
Intersection Summary			
HCM 2000 Control Delay	45.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	34.0
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	36	84	254	159	3	309	483	82	10	955	33
Future Volume (veh/h)	23	36	84	254	159	3	309	483	82	10	955	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.85	0.92		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	2184	2184	2184	2067	2084	2167	2051	2067	1985	2000	2084	2051
Adj Flow Rate, veh/h	26	41	95	289	181	3	351	549	93	11	1085	38
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	2	1	1	3	2	2	1	1	3
Cap, veh/h	72	121	225	299	426	7	319	1187	201	35	1151	830
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.12	0.71	0.71	0.56	0.56	0.56
Sat Flow, veh/h	179	583	1079	1242	2043	34	1953	1675	284	8	2062	1487
Grp Volume(v), veh/h	162	0	0	289	0	184	351	0	642	1096	0	38
Grp Sat Flow(s),veh/h/ln	1841	0	0	1242	0	2077	1953	0	1959	2069	0	1487
Q Serve(g_s), s	0.0	0.0	0.0	16.4	0.0	9.2	14.0	0.0	17.1	17.9	0.0	1.4
Cycle Q Clear(g_c), s	8.6	0.0	0.0	25.0	0.0	9.2	14.0	0.0	17.1	59.5	0.0	1.4
Prop In Lane	0.16		0.59	1.00		0.02	1.00		0.14	0.01		1.00
Lane Grp Cap(c), veh/h	418	0	0	299	0	433	319	0	1388	1186	0	830
V/C Ratio(X)	0.39	0.00	0.00	0.97	0.00	0.43	1.10	0.00	0.46	0.92	0.00	0.05
Avail Cap(c_a), veh/h	418	0	0	299	0	433	319	0	1388	1186	0	830
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.0	0.0	0.0	50.2	0.0	41.3	40.1	0.0	7.6	24.7	0.0	12.0
Incr Delay (d2), s/veh	2.7	0.0	0.0	44.1	0.0	3.0	80.1	0.0	1.1	13.3	0.0	0.1
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(50%),veh/ln	4.5	0.0	0.0	12.5	0.0	5.2	16.3	0.0	7.2	32.3	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.7	0.0	0.0	94.4	0.0	44.3	120.2	0.0	8.7	38.1	0.0	12.1
LnGrp LOS	D	A	A	F	A	D	F	A	A	D	A	B
Approach Vol, veh/h		162			473			993			1134	
Approach Delay, s/veh		43.7			74.9			48.1			37.2	
Approach LOS		D			E			D			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		90.0		30.0	18.0	72.0		30.0				
Change Period (Y+Rc), s		5.0		5.0	4.0	5.0		5.0				
Max Green Setting (Gmax), s		85.0		25.0	14.0	67.0		25.0				
Max Q Clear Time (g_c+I1), s		19.1		10.6	16.0	61.5		27.0				
Green Ext Time (p_c), s		5.9		0.8	0.0	3.9		0.0				

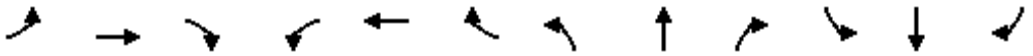
Intersection Summary												
HCM 6th Ctrl Delay			48.0									
HCM 6th LOS			D									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	131	14	9	109	13	224	132	16	62	53	96
Future Volume (veh/h)	26	131	14	9	109	13	224	132	16	62	53	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2184	2184	2184	2184	2184	2184	2116	2116	2116	2184	2184	2184
Adj Flow Rate, veh/h	30	151	16	10	125	15	257	152	18	71	61	110
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0	0	0	0	4	4	4	0	0	0
Cap, veh/h	101	499	49	55	553	63	593	339	39	327	294	478
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	197	1664	164	54	1843	211	893	565	64	467	490	797
Grp Volume(v), veh/h	197	0	0	150	0	0	427	0	0	242	0	0
Grp Sat Flow(s),veh/h/ln	2025	0	0	2108	0	0	1522	0	0	1754	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.1	0.0	0.0	5.3	0.0	0.0	13.8	0.0	0.0	5.5	0.0	0.0
Prop In Lane	0.15		0.08	0.07		0.10	0.60		0.04	0.29		0.45
Lane Grp Cap(c), veh/h	649	0	0	671	0	0	971	0	0	1099	0	0
V/C Ratio(X)	0.30	0.00	0.00	0.22	0.00	0.00	0.44	0.00	0.00	0.22	0.00	0.00
Avail Cap(c_a), veh/h	649	0	0	671	0	0	971	0	0	1099	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.0	0.0	0.0	26.3	0.0	0.0	10.5	0.0	0.0	9.1	0.0	0.0
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.8	0.0	0.0	1.4	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	0.0	2.8	0.0	0.0	5.2	0.0	0.0	2.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.2	0.0	0.0	27.1	0.0	0.0	11.9	0.0	0.0	9.6	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	B	A	A	A	A	A
Approach Vol, veh/h		197			150			427			242	
Approach Delay, s/veh		28.2			27.1			11.9			9.6	
Approach LOS		C			C			B			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.0		35.0		65.0		35.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		60.0		30.0		60.0		30.0				
Max Q Clear Time (g_c+I1), s		15.8		9.1		7.5		7.3				
Green Ext Time (p_c), s		3.6		1.1		1.8		0.8				

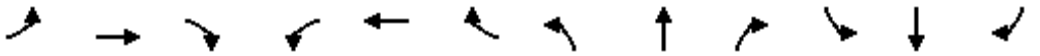
Intersection Summary												
HCM 6th Ctrl Delay			16.8									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	38	36	305	0	84	0	0	47	24
Future Volume (veh/h)	0	0	0	38	36	305	0	84	0	0	47	24
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				2184	2014	2184	2184	2184	0	0	2184	2184
Adj Flow Rate, veh/h				46	43	367	0	101	0	0	57	29
Peak Hour Factor				0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %				0	10	0	0	0	0	0	0	0
Cap, veh/h				100	94	799	0	546	0	0	341	174
Arrive On Green				0.57	0.57	0.57	0.00	0.25	0.00	0.00	0.25	0.25
Sat Flow, veh/h				177	165	1409	0	2184	0	0	1365	694
Grp Volume(v), veh/h				456	0	0	0	101	0	0	0	86
Grp Sat Flow(s),veh/h/ln				1751	0	0	0	2184	0	0	0	2059
Q Serve(g_s), s				9.2	0.0	0.0	0.0	2.2	0.0	0.0	0.0	2.0
Cycle Q Clear(g_c), s				9.2	0.0	0.0	0.0	2.2	0.0	0.0	0.0	2.0
Prop In Lane				0.10		0.80	0.00		0.00	0.00		0.34
Lane Grp Cap(c), veh/h				992	0	0	0	546	0	0	0	515
V/C Ratio(X)				0.46	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.17
Avail Cap(c_a), veh/h				992	0	0	0	546	0	0	0	515
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				7.6	0.0	0.0	0.0	17.7	0.0	0.0	0.0	17.6
Incr Delay (d2), s/veh				1.5	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.2	0.0	0.0	0.0	1.2	0.0	0.0	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				9.1	0.0	0.0	0.0	18.4	0.0	0.0	0.0	18.3
LnGrp LOS				A	A	A	A	B	A	A	A	B
Approach Vol, veh/h					456			101			86	
Approach Delay, s/veh					9.1			18.4			18.3	
Approach LOS					A			B			B	

Timer - Assigned Phs	2			6		8						
Phs Duration (G+Y+Rc), s	20.0			20.0		40.0						
Change Period (Y+Rc), s	5.0			5.0		6.0						
Max Green Setting (Gmax), s	15.0			15.0		34.0						
Max Q Clear Time (g_c+I1), s	4.2			4.0		11.2						
Green Ext Time (p_c), s	0.3			0.3		3.4						

Intersection Summary		
HCM 6th Ctrl Delay		11.8
HCM 6th LOS		B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	15	169	77	8	63	75	926	51	26	1178	104
Future Volume (vph)	95	15	169	77	8	63	75	926	51	26	1178	104
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.92		1.00	0.98	1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1946	1565		1942	1683	1926	3737		1924	3619	
Flt Permitted		0.96	1.00		0.96	1.00	0.07	1.00		0.20	1.00	
Satd. Flow (perm)		1946	1565		1942	1683	149	3737		398	3619	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	103	16	184	84	9	68	82	1007	55	28	1280	113
RTOR Reduction (vph)	0	0	161	0	0	57	0	2	0	0	4	0
Lane Group Flow (vph)	0	119	23	0	93	11	82	1060	0	28	1389	0
Confl. Peds. (#/hr)	26		61	61		26	476		67	67		476
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	1%	0%
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	6	6	3	2	2	7	3	8		7	4	
Permitted Phases			6			2	8			4		
Actuated Green, G (s)		10.1	18.4		9.4	23.0	62.7	62.7		68.0	68.0	
Effective Green, g (s)		10.1	18.4		9.4	23.0	62.7	62.7		68.0	68.0	
Actuated g/C Ratio		0.07	0.13		0.06	0.16	0.43	0.43		0.47	0.47	
Clearance Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		135	274		125	266	166	1615		329	1697	
v/s Ratio Prot		c0.06	0.00		c0.05	0.00	0.03	c0.28		0.01	c0.38	
v/s Ratio Perm			0.01			0.00	0.19			0.03		
v/c Ratio		0.88	0.09		0.74	0.04	0.49	0.66		0.09	0.82	
Uniform Delay, d1		66.9	55.9		66.6	51.7	33.5	32.6		30.6	33.2	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		43.0	0.0		18.7	0.0	0.8	2.1		0.0	4.5	
Delay (s)		109.9	55.9		85.3	51.7	34.4	34.7		30.6	37.7	
Level of Service		F	E		F	D	C	C		C	D	
Approach Delay (s)		77.1			71.1			34.7			37.6	
Approach LOS		E			E			C			D	

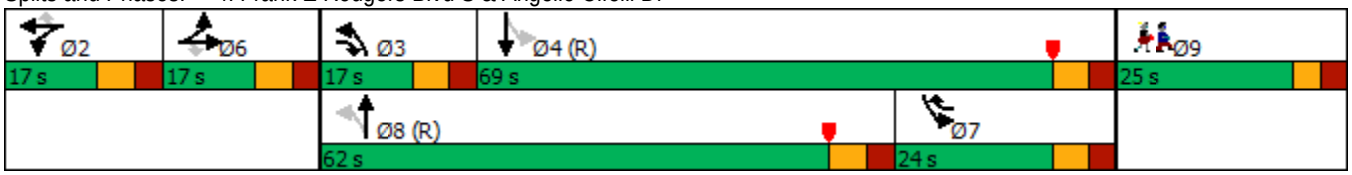
Intersection Summary			
HCM 2000 Control Delay	42.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	34.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	Ø9
Lane Configurations									
Traffic Volume (vph)	15	169	8	63	75	926	26	1178	
Future Volume (vph)	15	169	8	63	75	926	26	1178	
Turn Type	NA	pm+ov	NA	pm+ov	pm+pt	NA	pm+pt	NA	
Protected Phases	6	3	2	7	3	8	7	4	9
Permitted Phases		6		2	8		4		
Detector Phase	6	3	2	7	3	8	7	4	
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	15.0	6.0	55.0	15.0	62.0	19.0
Minimum Split (s)	13.0	13.0	13.0	22.0	13.0	62.0	22.0	69.0	25.0
Total Split (s)	17.0	17.0	17.0	24.0	17.0	62.0	24.0	69.0	25.0
Total Split (%)	11.7%	11.7%	11.7%	16.6%	11.7%	42.8%	16.6%	47.6%	17%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Lead/Lag		Lead		Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?									
Recall Mode	Min	None	Min	None	None	C-Max	None	C-Max	None
Act Effct Green (s)	10.1	18.3	9.4	26.0	65.4	65.4	69.3	69.3	
Actuated g/C Ratio	0.07	0.13	0.06	0.18	0.45	0.45	0.48	0.48	
v/c Ratio	0.88	0.51	0.74	0.15	0.49	0.63	0.08	0.80	
Control Delay	117.3	11.9	98.4	0.7	38.3	36.3	26.9	38.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
Total Delay	117.3	11.9	98.4	0.7	38.3	36.3	26.9	38.5	
LOS	F	B	F	A	D	D	C	D	
Approach Delay	53.3		57.1			36.4		38.3	
Approach LOS	D		E			D		D	

Intersection Summary	
Cycle Length: 145	
Actuated Cycle Length: 145	
Offset: 41 (28%), Referenced to phase 4:SBTL and 8:NBTL, Start of Yellow	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 40.1	Intersection LOS: D
Intersection Capacity Utilization 88.2%	ICU Level of Service E
Analysis Period (min) 15	

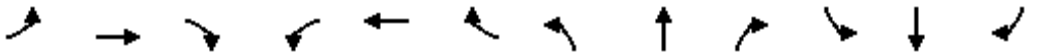
Splits and Phases: 4: Frank E Rodgers Blvd S & Angello Cifelli Dr



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	119	184	93	68	82	1062	28	1393
v/c Ratio	0.88	0.51	0.74	0.15	0.49	0.63	0.08	0.80
Control Delay	117.3	11.9	98.4	0.7	38.3	36.3	26.9	38.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	117.3	11.9	98.4	0.7	38.3	36.3	26.9	38.5
Queue Length 50th (ft)	114	0	87	0	50	453	15	621
Queue Length 95th (ft)	#235	67	#172	0	88	538	35	741
Internal Link Dist (ft)	100		129			206		636
Turn Bay Length (ft)		90					230	
Base Capacity (vph)	135	378	134	456	187	1685	367	1732
Starvation Cap Reductn	0	0	0	0	0	0	0	21
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.49	0.69	0.15	0.44	0.63	0.08	0.81

Intersection Summary

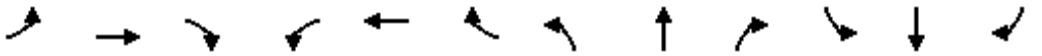
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	49	54	223	151	41	305	651	166	41	543	25
Future Volume (veh/h)	19	49	54	223	151	41	305	651	166	41	543	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.97	1.00		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	2184	2184	2184	1969	2018	2099	2051	2084	2000	1985	2067	1953
Adj Flow Rate, veh/h	22	57	63	259	176	48	355	757	193	48	631	29
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	0	8	5	5	3	1	1	2	2	9
Cap, veh/h	64	164	154	254	316	86	534	1101	281	83	970	797
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.12	0.71	0.71	0.56	0.56	0.56
Sat Flow, veh/h	139	788	740	1197	1515	413	1953	1555	396	91	1737	1428
Grp Volume(v), veh/h	142	0	0	259	0	224	355	0	950	679	0	29
Grp Sat Flow(s),veh/h/ln	1668	0	0	1197	0	1928	1953	0	1951	1828	0	1428
Q Serve(g_s), s	0.2	0.0	0.0	12.3	0.0	12.5	8.2	0.0	33.2	11.0	0.0	1.1
Cycle Q Clear(g_c), s	12.7	0.0	0.0	25.0	0.0	12.5	8.2	0.0	33.2	28.5	0.0	1.1
Prop In Lane	0.15		0.44	1.00		0.21	1.00		0.20	0.07		1.00
Lane Grp Cap(c), veh/h	382	0	0	254	0	402	534	0	1382	1053	0	797
V/C Ratio(X)	0.37	0.00	0.00	1.02	0.00	0.56	0.66	0.00	0.69	0.65	0.00	0.04
Avail Cap(c_a), veh/h	382	0	0	254	0	402	534	0	1382	1053	0	797
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.5	0.0	0.0	51.8	0.0	42.5	14.2	0.0	9.9	17.6	0.0	11.9
Incr Delay (d2), s/veh	2.8	0.0	0.0	62.1	0.0	5.5	6.4	0.0	2.8	3.0	0.0	0.1
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(50%),veh/ln	3.9	0.0	0.0	12.1	0.0	6.6	4.8	0.0	14.1	13.3	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.3	0.0	0.0	113.9	0.0	48.0	20.6	0.0	12.8	20.7	0.0	12.0
LnGrp LOS	D	A	A	F	A	D	C	A	B	C	A	B
Approach Vol, veh/h		142			483			1305			708	
Approach Delay, s/veh		43.3			83.4			14.9			20.3	
Approach LOS		D			F			B			C	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		90.0		30.0	18.0	72.0		30.0				
Change Period (Y+Rc), s		5.0		5.0	4.0	5.0		5.0				
Max Green Setting (Gmax), s		85.0		25.0	14.0	67.0		25.0				
Max Q Clear Time (g_c+I1), s		35.2		14.7	10.2	30.5		27.0				
Green Ext Time (p_c), s		11.5		0.5	0.4	6.7		0.0				

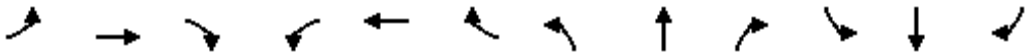
Intersection Summary												
HCM 6th Ctrl Delay			30.4									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	189	15	8	83	12	179	126	35	47	53	89
Future Volume (veh/h)	73	189	15	8	83	12	179	126	35	47	53	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	2184	2184	2184	2167	2167	2167	2184	2184	2184	2184	2184	2184
Adj Flow Rate, veh/h	78	203	16	9	89	13	192	135	38	51	57	96
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	0	0	0
Cap, veh/h	166	425	31	61	525	73	549	382	102	283	330	505
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	403	1417	104	74	1750	242	824	637	170	397	550	841
Grp Volume(v), veh/h	297	0	0	111	0	0	365	0	0	204	0	0
Grp Sat Flow(s),veh/h/ln	1924	0	0	2066	0	0	1631	0	0	1787	0	0
Q Serve(g_s), s	6.8	0.0	0.0	0.0	0.0	0.0	5.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	12.2	0.0	0.0	3.9	0.0	0.0	9.9	0.0	0.0	4.5	0.0	0.0
Prop In Lane	0.26		0.05	0.08		0.12	0.53		0.10	0.25		0.47
Lane Grp Cap(c), veh/h	623	0	0	659	0	0	1033	0	0	1117	0	0
V/C Ratio(X)	0.48	0.00	0.00	0.17	0.00	0.00	0.35	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	623	0	0	659	0	0	1033	0	0	1117	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	28.6	0.0	0.0	25.9	0.0	0.0	9.8	0.0	0.0	8.9	0.0	0.0
Incr Delay (d2), s/veh	2.6	0.0	0.0	0.6	0.0	0.0	0.9	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	0.0	0.0	2.1	0.0	0.0	4.1	0.0	0.0	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	0.0	0.0	26.4	0.0	0.0	10.7	0.0	0.0	9.3	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	B	A	A	A	A	A
Approach Vol, veh/h		297			111			365			204	
Approach Delay, s/veh		31.2			26.4			10.7			9.3	
Approach LOS		C			C			B			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	65.0	35.0	65.0	35.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	60.0	30.0	60.0	30.0
Max Q Clear Time (g_c+I1), s	11.9	14.2	6.5	5.9
Green Ext Time (p_c), s	2.9	1.6	1.5	0.6

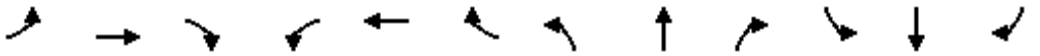
Intersection Summary	
HCM 6th Ctrl Delay	18.4
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	46	44	231	0	115	0	0	62	5
Future Volume (veh/h)	0	0	0	46	44	231	0	115	0	0	62	5
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				2184	2184	2184	2184	2184	0	0	2184	2184
Adj Flow Rate, veh/h				49	47	246	0	122	0	0	66	5
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				156	150	783	0	546	0	0	501	38
Arrive On Green				0.57	0.57	0.57	0.00	0.25	0.00	0.00	0.25	0.25
Sat Flow, veh/h				275	264	1382	0	2184	0	0	2005	152
Grp Volume(v), veh/h				342	0	0	0	122	0	0	0	71
Grp Sat Flow(s),veh/h/ln				1921	0	0	0	2184	0	0	0	2157
Q Serve(g_s), s				5.6	0.0	0.0	0.0	2.7	0.0	0.0	0.0	1.5
Cycle Q Clear(g_c), s				5.6	0.0	0.0	0.0	2.7	0.0	0.0	0.0	1.5
Prop In Lane				0.14		0.72	0.00		0.00	0.00		0.07
Lane Grp Cap(c), veh/h				1089	0	0	0	546	0	0	0	539
V/C Ratio(X)				0.31	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.13
Avail Cap(c_a), veh/h				1089	0	0	0	546	0	0	0	539
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				6.9	0.0	0.0	0.0	17.9	0.0	0.0	0.0	17.4
Incr Delay (d2), s/veh				0.8	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.1	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				7.6	0.0	0.0	0.0	18.8	0.0	0.0	0.0	18.0
LnGrp LOS				A	A	A	A	B	A	A	A	B
Approach Vol, veh/h					342			122			71	
Approach Delay, s/veh					7.6			18.8			18.0	
Approach LOS					A			B			B	

Timer - Assigned Phs	2			6		8						
Phs Duration (G+Y+Rc), s	20.0			20.0		40.0						
Change Period (Y+Rc), s	5.0			5.0		6.0						
Max Green Setting (Gmax), s	15.0			15.0		34.0						
Max Q Clear Time (g_c+I1), s	4.7			3.5		7.6						
Green Ext Time (p_c), s	0.4			0.2		2.5						

Intersection Summary		
HCM 6th Ctrl Delay		11.5
HCM 6th LOS		B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	18	192	65	6	54	109	1375	70	48	797	57
Future Volume (vph)	135	18	192	65	6	54	109	1375	70	48	797	57
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97		1.00	0.97	1.00	1.00		1.00	0.97	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	0.99	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1832	1629		1942	1670	1917	3746		1928	3620	
Flt Permitted		0.96	1.00		0.96	1.00	0.10	1.00		0.09	1.00	
Satd. Flow (perm)		1832	1629		1942	1670	208	3746		173	3620	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	147	20	209	71	7	59	118	1495	76	52	866	62
RTOR Reduction (vph)	0	0	150	0	0	49	0	2	0	0	3	0
Lane Group Flow (vph)	0	167	59	0	78	10	118	1569	0	52	925	0
Confl. Peds. (#/hr)	38		20	20		38	437		33	33		437
Heavy Vehicles (%)	7%	0%	3%	0%	0%	0%	0%	2%	0%	0%	2%	0%
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	6	6	3	2	2	7	3	8		7	4	
Permitted Phases			6			2	8			4		
Actuated Green, G (s)		14.6	24.6		9.9	24.3	56.9	56.9		61.3	61.3	
Effective Green, g (s)		14.6	24.6		9.9	24.3	56.9	56.9		61.3	61.3	
Actuated g/C Ratio		0.10	0.17		0.07	0.17	0.39	0.39		0.42	0.42	
Clearance Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		184	355		132	279	199	1469		247	1530	
v/s Ratio Prot		c0.09	0.01		c0.04	0.00	0.04	c0.42		0.02	c0.26	
v/s Ratio Perm			0.02			0.00	0.19			0.07		
v/c Ratio		0.91	0.17		0.59	0.04	0.59	1.07		0.21	0.60	
Uniform Delay, d1		64.5	51.4		65.6	50.5	32.7	44.0		55.2	32.4	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		40.8	0.2		6.9	0.1	4.7	43.9		0.4	1.8	
Delay (s)		105.3	51.7		72.5	50.6	37.3	88.0		55.6	34.2	
Level of Service		F	D		E	D	D	F		E	C	
Approach Delay (s)		75.5			63.1			84.4			35.4	
Approach LOS		E			E			F			D	

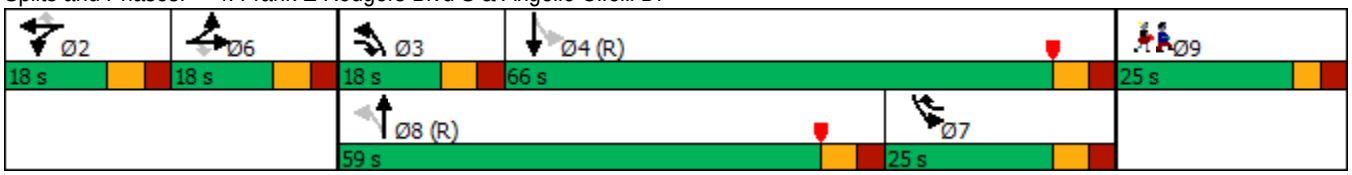
Intersection Summary			
HCM 2000 Control Delay	67.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	34.0
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	Ø9
Lane Configurations									
Traffic Volume (vph)	18	192	6	54	109	1375	48	797	
Future Volume (vph)	18	192	6	54	109	1375	48	797	
Turn Type	NA	pm+ov	NA	pm+ov	pm+pt	NA	pm+pt	NA	
Protected Phases	6	3	2	7	3	8	7	4	9
Permitted Phases		6		2	8		4		
Detector Phase	6	3	2	7	3	8	7	4	
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	16.0	5.0	52.0	16.0	59.0	19.0
Minimum Split (s)	12.0	12.0	12.0	23.0	12.0	59.0	23.0	66.0	25.0
Total Split (s)	18.0	18.0	18.0	25.0	18.0	59.0	25.0	66.0	25.0
Total Split (%)	12.4%	12.4%	12.4%	17.2%	12.4%	40.7%	17.2%	45.5%	17%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Lead/Lag		Lead		Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?									
Recall Mode	Min	None	Min	None	None	C-Max	None	C-Max	None
Act Effct Green (s)	14.6	24.6	9.9	27.5	59.4	59.4	62.5	62.5	
Actuated g/C Ratio	0.10	0.17	0.07	0.19	0.41	0.41	0.43	0.43	
v/c Ratio	0.91	0.49	0.59	0.13	0.60	1.02	0.18	0.59	
Control Delay	109.0	14.2	83.3	0.6	43.3	70.9	41.7	34.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	109.0	14.2	83.3	0.6	43.3	70.9	41.7	34.1	
LOS	F	B	F	A	D	E	D	C	
Approach Delay	56.3		47.7			69.0		34.6	
Approach LOS	E		D			E		C	

Intersection Summary	
Cycle Length: 145	
Actuated Cycle Length: 145	
Offset: 11 (8%), Referenced to phase 4:SBTL and 8:NBTL, Start of Yellow	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 56.0	Intersection LOS: E
Intersection Capacity Utilization 88.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Frank E Rodgers Blvd S & Angello Cifelli Dr

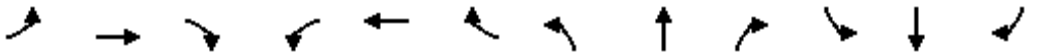


Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	167	209	78	59	118	1571	52	928
v/c Ratio	0.91	0.49	0.59	0.13	0.60	1.02	0.18	0.59
Control Delay	109.0	14.2	83.3	0.6	43.3	70.9	41.7	34.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	109.0	14.2	83.3	0.6	43.3	70.9	41.7	34.1
Queue Length 50th (ft)	~191	22	72	0	76	~927	30	362
Queue Length 95th (ft)	#346	96	129	0	125	#1068	59	435
Internal Link Dist (ft)	100		127			206		636
Turn Bay Length (ft)		90					230	
Base Capacity (vph)	184	436	147	470	209	1538	291	1562
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.48	0.53	0.13	0.56	1.02	0.18	0.59

Intersection Summary

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

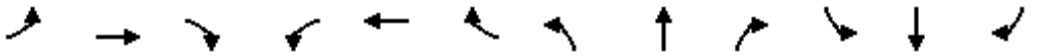
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	36	84	254	159	3	309	483	82	10	955	33
Future Volume (veh/h)	23	36	84	254	159	3	309	483	82	10	955	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.85	0.92		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	2184	2184	2184	2067	2084	2167	2051	2067	1985	2000	2084	2051
Adj Flow Rate, veh/h	26	41	95	289	181	3	351	549	93	11	1085	38
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	2	1	1	3	2	2	1	1	3
Cap, veh/h	74	125	234	310	443	7	337	1172	199	34	1082	772
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.14	0.70	0.70	0.52	0.52	0.52
Sat Flow, veh/h	182	579	1079	1242	2043	34	1953	1675	284	8	2061	1471
Grp Volume(v), veh/h	162	0	0	289	0	184	351	0	642	1096	0	38
Grp Sat Flow(s),veh/h/ln	1840	0	0	1242	0	2077	1953	0	1958	2069	0	1471
Q Serve(g_s), s	0.0	0.0	0.0	17.5	0.0	9.1	17.0	0.0	17.6	24.0	0.0	1.5
Cycle Q Clear(g_c), s	8.5	0.0	0.0	26.0	0.0	9.1	17.0	0.0	17.6	63.0	0.0	1.5
Prop In Lane	0.16		0.59	1.00		0.02	1.00		0.14	0.01		1.00
Lane Grp Cap(c), veh/h	433	0	0	310	0	450	337	0	1371	1117	0	772
V/C Ratio(X)	0.37	0.00	0.00	0.93	0.00	0.41	1.04	0.00	0.47	0.98	0.00	0.05
Avail Cap(c_a), veh/h	433	0	0	310	0	450	337	0	1371	1117	0	772
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.1	0.0	0.0	49.3	0.0	40.4	43.2	0.0	8.0	28.6	0.0	13.9
Incr Delay (d2), s/veh	2.5	0.0	0.0	36.2	0.0	2.7	60.5	0.0	1.2	22.9	0.0	0.1
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(50%),veh/ln	4.4	0.0	0.0	12.0	0.0	5.1	15.4	0.0	7.4	37.7	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.6	0.0	0.0	85.5	0.0	43.1	103.7	0.0	9.2	51.5	0.0	14.0
LnGrp LOS	D	A	A	F	A	D	F	A	A	D	A	B
Approach Vol, veh/h		162			473			993			1134	
Approach Delay, s/veh		42.6			69.0			42.6			50.2	
Approach LOS		D			E			D			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		89.0		31.0	21.0	68.0		31.0				
Change Period (Y+Rc), s		5.0		5.0	4.0	5.0		5.0				
Max Green Setting (Gmax), s		84.0		26.0	17.0	63.0		26.0				
Max Q Clear Time (g_c+I1), s		19.6		10.5	19.0	65.0		28.0				
Green Ext Time (p_c), s		5.9		0.8	0.0	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		50.3
HCM 6th LOS		D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	15	169	77	8	63	75	926	51	26	1178	104
Future Volume (vph)	95	15	169	77	8	63	75	926	51	26	1178	104
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.89		1.00	0.97	1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1946	1525		1942	1665	1927	3737		1924	3619	
Flt Permitted		0.96	1.00		0.96	1.00	0.07	1.00		0.19	1.00	
Satd. Flow (perm)		1946	1525		1942	1665	139	3737		390	3619	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	103	16	184	84	9	68	82	1007	55	28	1280	113
RTOR Reduction (vph)	0	0	161	0	0	59	0	2	0	0	4	0
Lane Group Flow (vph)	0	119	23	0	93	9	82	1060	0	28	1389	0
Confl. Peds. (#/hr)	26		61	61		26	476		67	67		476
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	1%	0%
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	6	6	3	2	2	7	3	8		7	4	
Permitted Phases			6			2	8			4		
Actuated Green, G (s)		12.1	17.8		9.9	19.5	64.2	64.2		68.1	68.1	
Effective Green, g (s)		12.1	17.8		9.9	19.5	64.2	64.2		68.1	68.1	
Actuated g/C Ratio		0.08	0.12		0.07	0.13	0.44	0.44		0.47	0.47	
Clearance Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		162	260		132	223	131	1654		284	1699	
v/s Ratio Prot		c0.06	0.00		c0.05	0.00	0.02	c0.28		0.01	c0.38	
v/s Ratio Perm			0.01			0.00	0.25			0.04		
v/c Ratio		0.73	0.09		0.70	0.04	0.63	0.64		0.10	0.82	
Uniform Delay, d1		64.9	56.4		66.1	54.6	33.7	31.4		31.8	33.1	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		13.8	0.1		13.0	0.0	6.6	1.9		0.1	4.5	
Delay (s)		78.7	56.4		79.1	54.6	40.3	33.3		31.9	37.6	
Level of Service		E	E		E	D	D	C		C	D	
Approach Delay (s)		65.2			68.8			33.8			37.5	
Approach LOS		E			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	40.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	34.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		

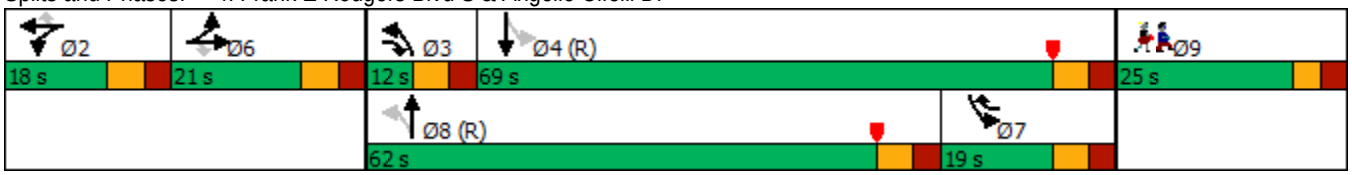
c Critical Lane Group

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	Ø9
Lane Configurations									
Traffic Volume (vph)	15	169	8	63	75	926	26	1178	
Future Volume (vph)	15	169	8	63	75	926	26	1178	
Turn Type	NA	pm+ov	NA	pm+ov	pm+pt	NA	pm+pt	NA	
Protected Phases	6	3	2	7	3	8	7	4	9
Permitted Phases		6		2	8		4		
Detector Phase	6	3	2	7	3	8	7	4	
Switch Phase									
Minimum Initial (s)	6.0	5.0	6.0	6.0	5.0	53.0	6.0	53.0	19.0
Minimum Split (s)	13.0	12.0	13.0	13.0	12.0	62.0	13.0	60.0	25.0
Total Split (s)	21.0	12.0	18.0	19.0	12.0	62.0	19.0	69.0	25.0
Total Split (%)	14.5%	8.3%	12.4%	13.1%	8.3%	42.8%	13.1%	47.6%	17%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Lead/Lag		Lead		Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?									
Recall Mode	Min	None	Min	None	None	C-Max	None	C-Max	None

Intersection Summary

Cycle Length: 145
Actuated Cycle Length: 145
Offset: 41 (28%), Referenced to phase 4:SBTL and 8:NBTL, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated

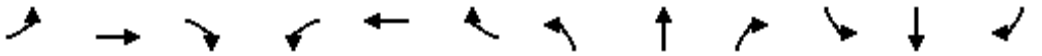
Splits and Phases: 4: Frank E Rodgers Blvd S & Angello Cifelli Dr



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	119	184	93	68	82	1062	28	1393
v/c Ratio	0.73	0.53	0.70	0.17	0.63	0.62	0.09	0.80
Control Delay	90.3	12.5	92.8	1.0	50.4	35.2	27.5	38.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.3	12.5	92.8	1.0	50.4	35.2	27.5	38.7
Queue Length 50th (ft)	111	0	87	0	49	449	15	634
Queue Length 95th (ft)	180	68	#159	0	#120	538	35	741
Internal Link Dist (ft)	100		129			206		636
Turn Bay Length (ft)		90					230	
Base Capacity (vph)	187	350	147	407	131	1722	312	1732
Starvation Cap Reductn	0	0	0	0	0	0	0	5
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.53	0.63	0.17	0.63	0.62	0.09	0.81

Intersection Summary

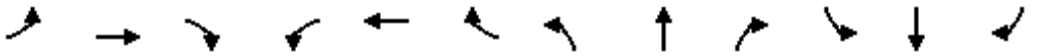
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	49	54	223	151	41	305	651	166	41	543	25
Future Volume (veh/h)	19	49	54	223	151	41	305	651	166	41	543	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.97	1.00		0.88	0.96		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	2184	2184	2184	1969	2018	2099	2051	2084	2000	1985	2067	1953
Adj Flow Rate, veh/h	22	57	63	259	176	48	355	757	193	48	631	29
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	0	8	5	5	3	1	1	2	2	9
Cap, veh/h	66	172	163	265	328	90	539	1088	277	80	911	742
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.14	0.70	0.70	0.52	0.52	0.52
Sat Flow, veh/h	146	795	750	1197	1515	413	1953	1554	396	91	1735	1414
Grp Volume(v), veh/h	142	0	0	259	0	224	355	0	950	679	0	29
Grp Sat Flow(s),veh/h/ln	1691	0	0	1197	0	1929	1953	0	1950	1827	0	1414
Q Serve(g_s), s	0.2	0.0	0.0	13.4	0.0	12.4	8.4	0.0	34.2	15.1	0.0	1.2
Cycle Q Clear(g_c), s	12.6	0.0	0.0	26.0	0.0	12.4	8.4	0.0	34.2	31.4	0.0	1.2
Prop In Lane	0.15		0.44	1.00		0.21	1.00		0.20	0.07		1.00
Lane Grp Cap(c), veh/h	401	0	0	265	0	418	539	0	1365	991	0	742
V/C Ratio(X)	0.35	0.00	0.00	0.98	0.00	0.54	0.66	0.00	0.70	0.69	0.00	0.04
Avail Cap(c_a), veh/h	401	0	0	265	0	418	539	0	1365	991	0	742
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.7	0.0	0.0	51.1	0.0	41.7	16.0	0.0	10.5	20.5	0.0	13.8
Incr Delay (d2), s/veh	2.4	0.0	0.0	49.8	0.0	4.9	6.2	0.0	3.0	3.8	0.0	0.1
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(50%),veh/ln	3.9	0.0	0.0	11.6	0.0	6.5	5.3	0.0	14.7	14.8	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	0.0	0.0	101.0	0.0	46.5	22.2	0.0	13.5	24.4	0.0	13.9
LnGrp LOS	D	A	A	F	A	D	C	A	B	C	A	B
Approach Vol, veh/h		142			483			1305			708	
Approach Delay, s/veh		42.1			75.7			15.9			23.9	
Approach LOS		D			E			B			C	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		89.0		31.0	21.0	68.0		31.0				
Change Period (Y+Rc), s		5.0		5.0	4.0	5.0		5.0				
Max Green Setting (Gmax), s		84.0		26.0	17.0	63.0		26.0				
Max Q Clear Time (g_c+I1), s		36.2		14.6	10.4	33.4		28.0				
Green Ext Time (p_c), s		11.5		0.6	0.6	6.4		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			30.4									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	18	192	65	6	54	109	1375	70	48	797	57
Future Volume (vph)	135	18	192	65	6	54	109	1375	70	48	797	57
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97		1.00	0.93	1.00	1.00		1.00	0.97	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	0.99	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1832	1617		1942	1608	1909	3747		1928	3621	
Flt Permitted		0.96	1.00		0.96	1.00	0.14	1.00		0.07	1.00	
Satd. Flow (perm)		1832	1617		1942	1608	285	3747		143	3621	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	147	20	209	71	7	59	118	1495	76	52	866	62
RTOR Reduction (vph)	0	0	152	0	0	53	0	2	0	0	3	0
Lane Group Flow (vph)	0	167	57	0	78	6	118	1569	0	52	925	0
Confl. Peds. (#/hr)	38		20	20		38	437		33	33		437
Heavy Vehicles (%)	7%	0%	3%	0%	0%	0%	0%	2%	0%	0%	2%	0%
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	6	6	3	2	2	7	3	8		7	4	
Permitted Phases			6			2	8			4		
Actuated Green, G (s)		17.0	23.5		9.3	15.7	63.1	63.1		63.0	63.0	
Effective Green, g (s)		17.0	23.5		9.3	15.7	63.1	63.1		63.0	63.0	
Actuated g/C Ratio		0.12	0.16		0.06	0.11	0.44	0.44		0.43	0.43	
Clearance Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		214	340		124	174	196	1630		140	1573	
v/s Ratio Prot		c0.09	0.01		c0.04	0.00	0.03	c0.42		0.02	c0.26	
v/s Ratio Perm			0.03			0.00	0.23			0.14		
v/c Ratio		0.78	0.17		0.63	0.04	0.60	0.96		0.37	0.59	
Uniform Delay, d1		62.2	52.3		66.2	57.9	28.6	39.8		62.2	31.1	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		16.7	0.2		9.6	0.1	5.1	15.0		1.7	1.6	
Delay (s)		78.9	52.6		75.8	58.0	33.8	54.8		63.9	32.8	
Level of Service		E	D		E	E	C	D		E	C	
Approach Delay (s)		64.2			68.1			53.3			34.4	
Approach LOS		E			E			D			C	

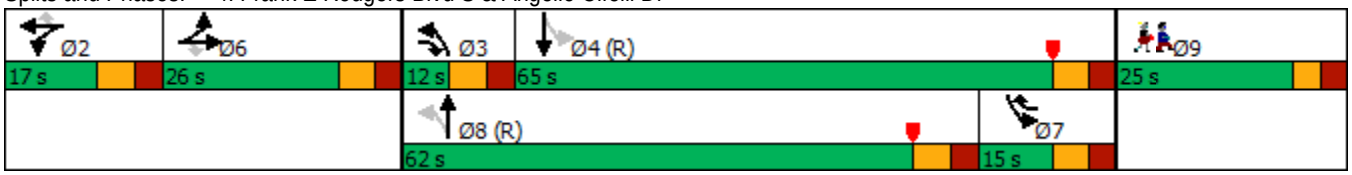
Intersection Summary			
HCM 2000 Control Delay	49.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	34.0
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	Ø9
Lane Configurations									
Traffic Volume (vph)	18	192	6	54	109	1375	48	797	
Future Volume (vph)	18	192	6	54	109	1375	48	797	
Turn Type	NA	pm+ov	NA	pm+ov	pm+pt	NA	pm+pt	NA	
Protected Phases	6	3	2	7	3	8	7	4	9
Permitted Phases		6		2	8		4		
Detector Phase	6	3	2	7	3	8	7	4	
Switch Phase									
Minimum Initial (s)	6.0	4.0	6.0	6.0	4.0	52.0	6.0	56.0	19.0
Minimum Split (s)	13.0	11.0	13.0	13.0	11.0	62.0	13.0	63.0	25.0
Total Split (s)	26.0	12.0	17.0	15.0	12.0	62.0	15.0	65.0	25.0
Total Split (%)	17.9%	8.3%	11.7%	10.3%	8.3%	42.8%	10.3%	44.8%	17%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Lead/Lag		Lead		Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?									
Recall Mode	Min	None	Min	None	None	C-Max	None	C-Max	None

Intersection Summary
Cycle Length: 145
Actuated Cycle Length: 145
Offset: 11 (8%), Referenced to phase 4:SBTL and 8:NBTL, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated

Splits and Phases: 4: Frank E Rodgers Blvd S & Angello Cifelli Dr

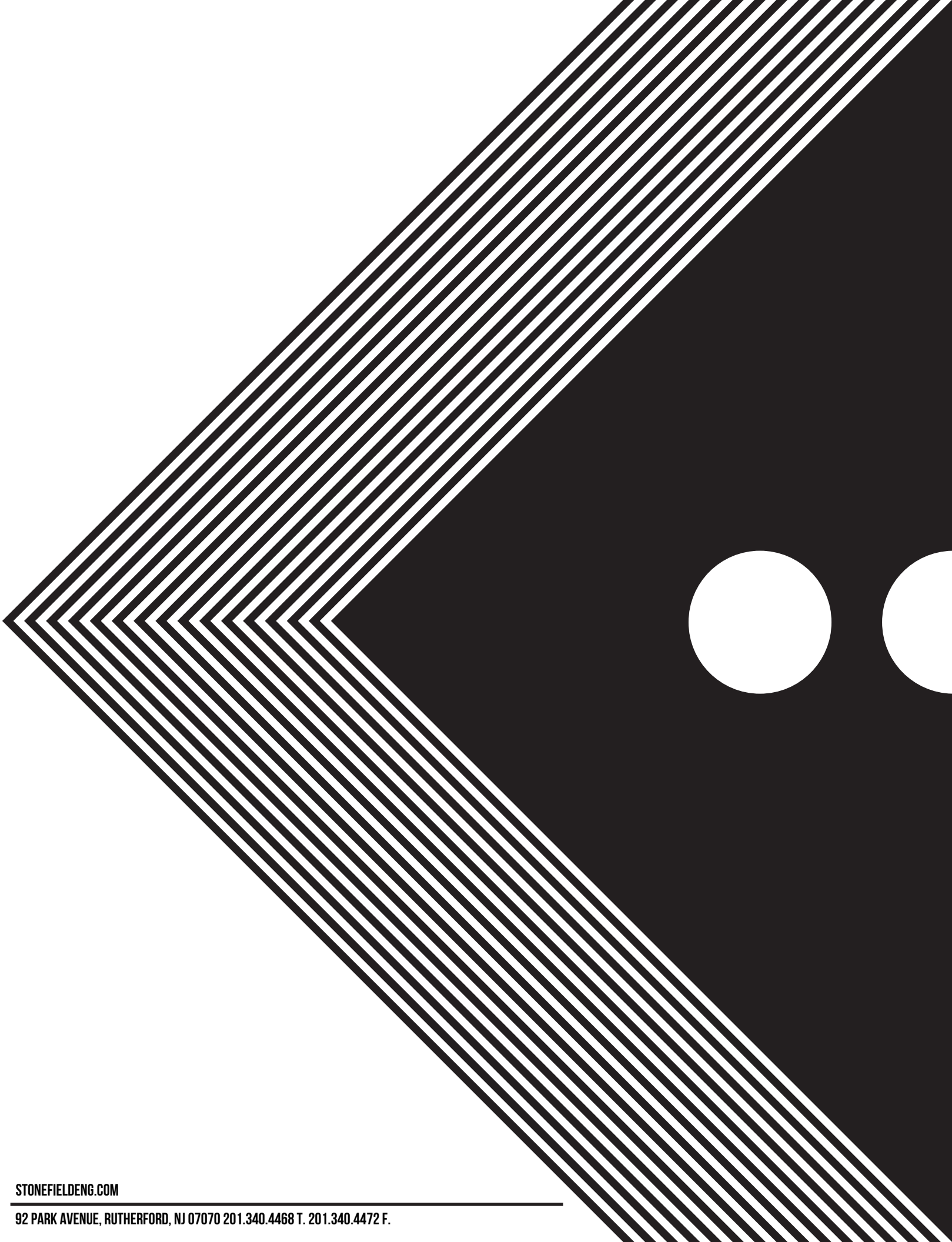


Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	167	209	78	59	118	1571	52	928
v/c Ratio	0.78	0.51	0.63	0.17	0.62	0.92	0.33	0.58
Control Delay	85.9	14.2	88.0	1.0	45.5	49.7	51.1	33.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.9	14.2	88.0	1.0	45.5	49.7	51.1	33.6
Queue Length 50th (ft)	154	21	73	0	73	~881	30	367
Queue Length 95th (ft)	#247	94	#131	0	#152	#1027	59	441
Internal Link Dist (ft)	100		127			206		636
Turn Bay Length (ft)		90					230	
Base Capacity (vph)	240	412	133	354	191	1700	162	1606
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.51	0.59	0.17	0.62	0.92	0.32	0.58

Intersection Summary

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

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



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