

Appendix D

Transportation Impact Study

Alameda Point Transfer, Clinic, and Cemetery Administrative Draft Environmental Assessment

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Prepared for the Department of Veterans Affairs

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August 10, 2012

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- C: Project Travel Demand
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1.0 Introduction

This chapter provides an overview of the study context, scope, and approach as well as the proposed Project location and description.

1.1 Study Context

This analysis has been conducted to assess the potential transportation impacts associated with the implementation of the Alameda Point Transfer, Clinic, and Cemetery, located at Alameda Point in Alameda, California, herein referred to as the proposed Project. This Transportation Impact Study (TIS) has been prepared in order to support the NEPA document, the Environmental Assessment, currently being prepared for the Project. Three NEPA alternatives, including the No Action Alternative, were retained for detailed traffic analysis and the results are summarized in this TIS. As such, the following transportation topics were addressed:

- Traffic conditions;
- Transit conditions;
- Pedestrian conditions;
- Bicycle conditions;
- Parking conditions;
- Loading conditions;
- Construction conditions; and
- Traffic Safety conditions.

1.2 Project Location

The proposed development site is located on the western half of the Naval Air Station (NAS) Alameda site. The NAS Alameda base closed on April 25, 1997. The site is bordered on the eastern side by Monarch Street. The Project location and vicinity is illustrated in **Figure 1**.

1.3 Project Alternatives

Currently under consideration are two build alternatives, Alternative 1 and Alternative 2, and a No Action Alternative. Alternatives 1 and 2 would both include an outpatient clinic, a cemetery, and a conservation management office. Both alternatives would be built in several phases; the first to be completed and operational in Year 2017, the second to be completed and operational in 2027, the third to be completed and operational in 2037, and the remaining eight phases to be completed in 10-year increments through 2116.

The following provides a more detailed description of each alternative:

Alternative 1 would include the transfer of 549.4-acres of land from the Navy to VA. Development of VA facilities would be built on approximately 111 acres of the transfer parcel and would include the following components:

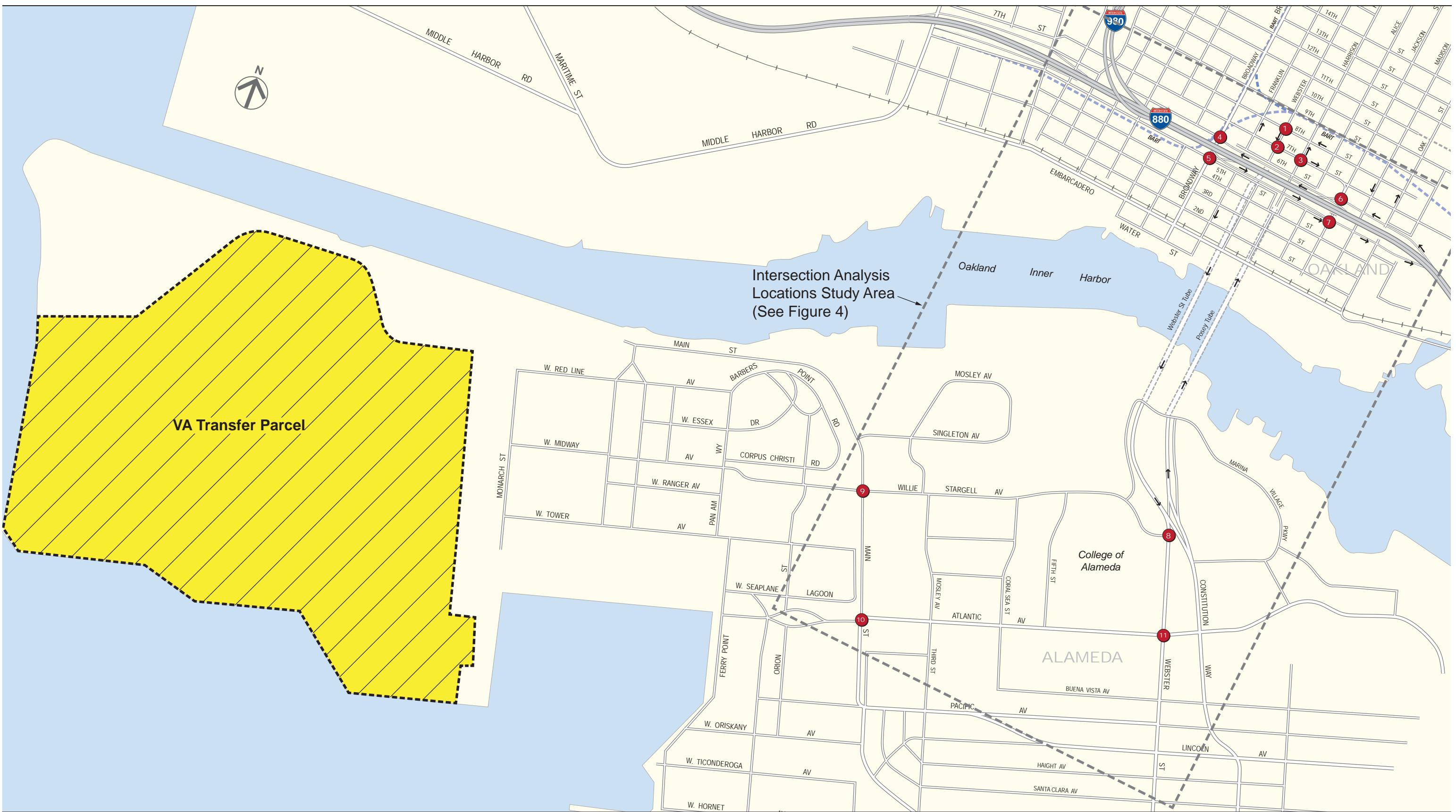


Figure 1 Project Vicinity Map

- A 158,000-square-foot Outpatient Clinic (clinic) building, which would also house behavioral health facilities, a Veterans Benefits Administration (VBA) outreach office, and a National Cemetery Administration (NCA) public information center and offices;
- A NCA cemetery on 80 acres, including administrative and maintenance facilities located within the clinic building;
- A 2,500-square-foot conservation management office to support management of the California Least Tern colony on the VA Transfer Parcel; and
- On- and off-site utilities and roadways (including upgrades) necessary to serve the above-listed facilities.

The site plan for Alternative 1 is illustrated in **Figure 2**.

Alternative 2 would include transfer of 623.7-acres of land from the Navy to VA. Development of VA facilities would include the same buildings as listed under Alternative 1. However, under Alternative 2, the VA Development Area would be 112.4 acres, located further north at Alameda Point and extend into an area referred to as the Northwest Territories. In addition, the cemetery, clinic, conservation management office, and access road would have a different configuration compared to that of Alternative 1.

The site plan for Alternative 2 is illustrated in **Figure 3**.

For **Alternative 3 (No Action)**, the federal-to-federal transfer would not take place and no VA facilities would be constructed on the site.

There are several key common components of the two build alternatives which are discussed below.

Shuttle: A shuttle that is owned and operated by VA would transport Veterans and staff between the 12th Street Oakland City Center Bay Area Rapid Transit (BART) station and the Project site. The shuttle would operate seven days a week with 60-minute headways and a capacity of up to 24-passengers.

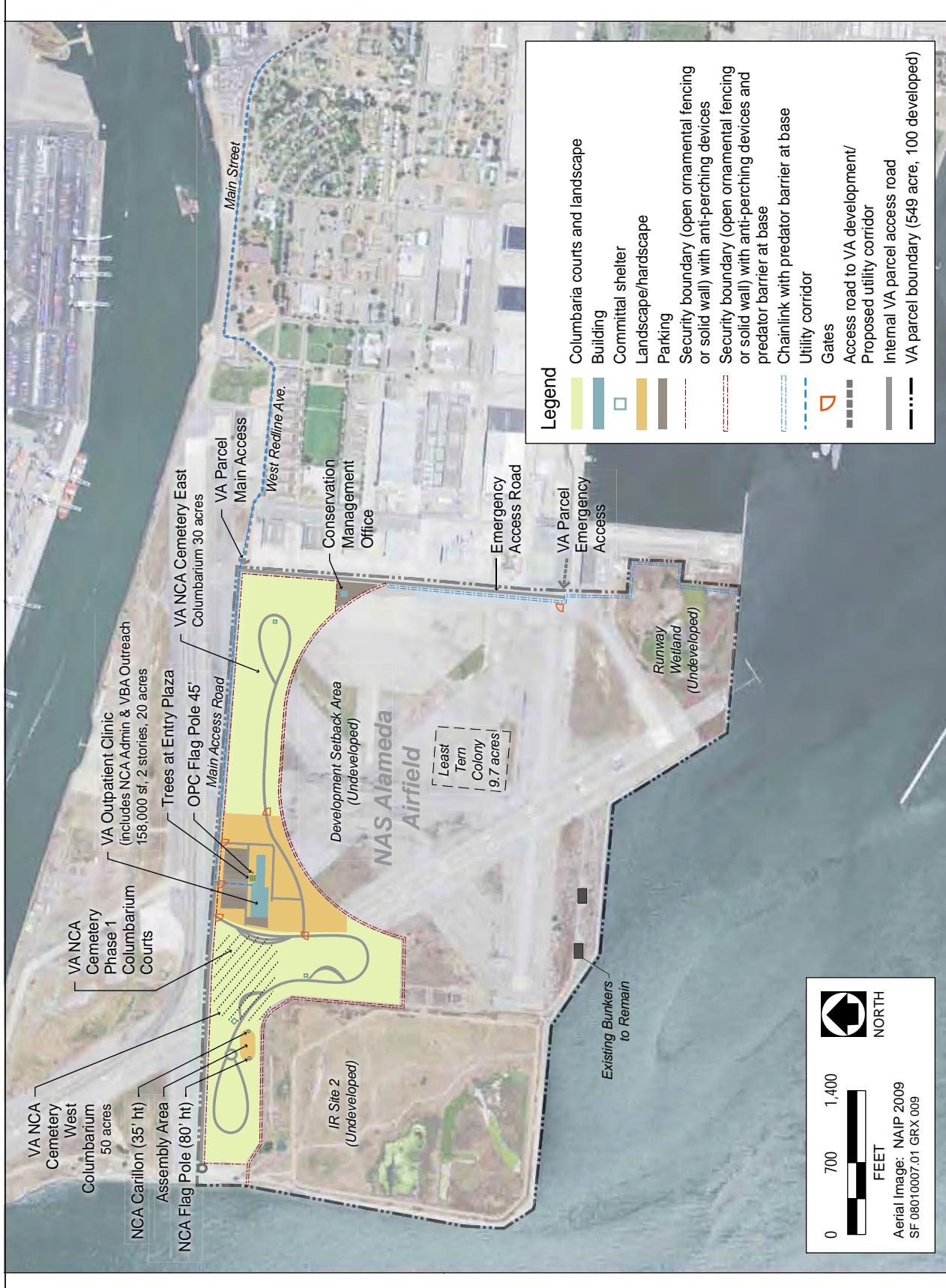
Phasing: The Project would be built in eleven phases for both alternatives. The details of construction and subsequent expansion during each phase are outlined below:

Phase 1 consists of the following development activity:

- Full build-out of the 158,000-square-foot clinic building and associated parking, access road and utilities infrastructure; and
- Up to 25,000 columbarium niches¹ and support facilities, including two committal service shelters, internal roads, assembly area, and landscaping.

Phase 2 would include construction and the operation of an additional 25,000 columbarium niches. The rest of the cemetery area would remain undeveloped until there is a need for additional columbarium niches. Build-out of the cemetery is anticipated to occur at the rate of 25,000 columbarium niches every 10 years through 2116.

¹ A columbarium niche is an indoor or outdoor recessed wall designed to hold urns.



Project Site Plan - Alt 1 rev 1.a

Figure 2
Project Site Plan - Alternative 1



Project Site Plan - Alt2.a1

Figure 3
Project Site Plan - Alternative 2

Pedestrian Access: Pedestrian access for visitors would be provided within the Project site. There would be a sidewalk provided on the south side of the proposed main access road located along the northern boundary of the Project site, which would allow pedestrians to access the facilities.

There would also be pathways linking the clinic to the cemetery. Additionally, committal service shelters in the form of a covered pavilion-like structure that would provide protection from weather during inurnment services would be provided at the cemetery.

Vehicular Parking and Access: Vehicular access within the Project site would be provided via a proposed main access road located along the northern boundary of the Project site and that would connect with the existing City of Alameda intersection of Red Line Avenue / Monarch Street. There would be no parking allowed along the proposed main access road.

The Project proposes to provide 630 parking spaces adjacent to the clinic. A shuttle drop-off/pick-up area used by Veterans and staff would be located at the curb directly in front of the entrance to the clinic. Additionally, a small parking area is proposed adjacent to each of the three proposed committal service shelters to accommodate a funeral cortege. A funeral cortege refers to a train of attendants, i.e., funeral procession. These parking areas would typically accommodate approximately 30 vehicles (arranged in two rows of approximately 15 vehicles), with an open center lane for traffic circulation. Furthermore, a small parking area with approximately 10 parking spaces is proposed adjacent to the conservation management office.

Loading and Access: The Project would provide loading bays for individual building needs within the Project site. Delivery vehicles would enter the site via the proposed main access road.

Bicycle Access: Bicycle access to the Project site would be available for site users, including Veterans and staff, along the proposed main access roadway.

1.4 Study Scope and Approach

The following scenarios were evaluated to identify the potential transportation impacts of the Project:

- Existing (2011) Conditions;
- Phase 1 (2017) Conditions:
 - No Project (Alternative 3);
 - Plus Project (Alternative 1, Phase 1); and
 - Plus Project (Alternative 2, Phase 1).
- Cumulative (2035) Conditions:
 - No Project (Alternative 3);
 - Plus Project (Alternative 1 Phase 1-11); and
 - Plus Project (Alternative 2 Phase 1-11).

The Existing (2011) Conditions was analyzed to describe the current conditions in Year 2011. The Phase 1 (2017) Conditions was analyzed to describe conditions when the first phase of the Project would be operational. The trip generation for Phase 2 of the Project was calculated, but no quantitative analysis was conducted for this scenario. The trip generation for Phase 2 was needed because each subsequent phase would generate the same amount of Project trips. The Year 2035 was chosen for analysis as this is the same year as the forecast year for the regional travel demand model. A conservative analysis was completed for the Cumulative (2035) Plus Project Conditions. All the trips generated for every phase of the Project was added to the Cumulative (2035) No Project Conditions, even though the Project would not be fully built out till

Year 2116. In addition, this approach for Cumulative Conditions was used to be consistent with other VA documents for cemeteries.

Intersections: Existing, 2017 and 2035 peak hour traffic conditions were evaluated at the intersections that would most likely be impacted by the Project. The study intersections are located in the Cities of Alameda and Oakland. The following study intersections were selected for analysis with the jurisdiction indicated in parenthesis:

1. 8th Street / Webster Street (City of Oakland)
2. 7th Street / Webster Street (City of Oakland)
3. 7th Street / Harrison Street (City of Oakland)
4. 6th Street / Broadway (City of Oakland)
5. 5th Street / Broadway (City of Oakland)
6. 6th Street / Jackson Street (City of Oakland)
7. 5th Street / Jackson Street (City of Oakland)
8. Willie Stargell Avenue / Webster Street (City of Alameda)
9. Willie Stargell Avenue / Main Street (City of Alameda)
10. Atlantic Avenue / Main Street (City of Alameda)
11. Atlantic Avenue / Webster Street (City of Alameda)

The location of these study intersections surrounding the Project are illustrated in **Figure 4**.

Traffic conditions at the intersections were analyzed during the weekday AM and PM peak traffic hours and the Saturday peak traffic generation hour of the Project. The weekday AM peak period is typically between 7:00 and 9:00 AM, while the weekday PM peak period is typically between 4:00 and 6:00 PM. The Saturday peak traffic generation period is typically between 10:00 AM and 12:00 PM. This report focuses on the highest volume traffic hour for each intersection during the weekday AM, weekday PM, and Saturday peak periods.

Roadway Segments: Existing, 2017 and 2035 peak hour traffic conditions were evaluated only at the regional roadway segments that would generate trips onto the Congestion Management Program (CMP) Network or the Metropolitan Transportation System (MTS). The CMP Network is a designated roadway system that includes all interstate highways, state routes, and portions of the street and roadway system operated and maintained by the local jurisdictions. The MTS is a broader designated system that includes the entire CMP Network and transit services, rail, maritime ports, airports and transfer hubs. The entire MTS and the CMP Network are defined in the Alameda County Transportation Commission's (ACTC) *Congestion Management Program*. The following roadway segments were selected for analysis:

1. SR 260 (Posey tube) south of I-880
2. SR 260 (Webster tube) south of I-880
3. I-880 between 7th Street and Union Street
4. I-880 between 5th Street and 10th Avenue
5. I-880 between 10th Avenue and Embarcadero
6. I-880 between 6th Street and I-980

7. I-880 between I-980 and 5th Street
8. I-880 between 5th Street and Union Street
9. I-880 between Embarcadero and 22nd Avenue

Traffic conditions at the roadway segments were analyzed during the weekday AM and PM peak traffic. The weekday AM peak period is typically between 7:00 and 9:00 AM, while the weekday PM peak period is typically between 4:00 and 6:00 PM. The Saturday peak traffic generation period was not analyzed because roadway volumes are typically higher on weekdays than weekend days and therefore, more traffic impacts would occur on weekdays. This report focuses on the highest volume traffic hour for each roadway segment during the weekday AM and PM peak periods.

Transit: Impacts to transit operations and facilities as a result of Project-generated trips were qualitatively assessed.

Pedestrians: Pedestrian conditions throughout the study area were qualitatively assessed, including the number of new pedestrian trips that would be added to the existing pedestrian network. The adequacy of pedestrian connections to nearby transit routes was also determined. Furthermore, potential pedestrian safety issues were identified, including potential conflicts between vehicular traffic and pedestrian circulation. Impacts to pedestrian conditions as a result of Project-generated activities, including Project-generated traffic, were also qualitatively assessed.

Bicycles: Bicycle conditions throughout the study area were evaluated qualitatively as they relate to the Project study area – including safety and right-of-way issues – and existing and potential new bicycle facilities were noted. Impacts to bicycle conditions as a result of Project-generated activities, including Project-generated traffic and driveway movements, were also qualitatively assessed.

Parking: Parking supply and occupancy for on- and off-street public parking facilities in the study area were obtained via field observations. The Project's proposed supply of parking was evaluated against City of Alameda *Municipal Code* requirements.

Loading: There are no existing loading conditions at the Project site. The Project's proposed loading spaces were evaluated against City of Alameda *Municipal Code* requirements.



Figure 4
Study Intersection Locations

2.0 Existing Conditions

This section provides a description of the existing transportation conditions in the study area. Included in this chapter are descriptions of the existing roadway, transit, pedestrian, and bikeway networks, and documentation of the existing traffic, transit, pedestrian, bicycle, emergency vehicle access, parking, and loading conditions.

2.1 Roadway Network

The Project area is served by the following regional and local roadways:

Regional Access

Regional access to and from the Project site is provided by Interstate 880 (I-880), Interstate 980 (I-980) and the Webster Street Tube / Posey Tube. I-880 provides access to the south and to the north, with connections to I-80 and San Francisco via the Bay Bridge. I-980 provides access to the northeast, connecting with I-580 and State Route (SR) 24. The Webster Street Tube / Posey Tube, also known as SR 260 and SR 61², are two parallel underwater tunnels operating as a one-way couplet connecting the cities of Oakland and Alameda, California, running beneath the Alameda-Oakland estuary. The Webster Tube serves southbound traffic into Alameda, while the Posey Tube operates in the northbound direction. The Webster Street Tube / Posey Tube is designated as part of the ACTC CMP network.

Local Access

Local access to and from the Project site is provided by major arterial streets, which include the following.

Atlantic Avenue (Ralph Apuzzato Memorial Parkway) is an east-west arterial in Alameda that runs between Ferry Point and Triumph Drive. Atlantic Street is two-lanes wide in each direction with a curb and gutter along both sides of the roadway. Atlantic Avenue is designated as part of the CMP network between Webster Street and Main Street. The posted speed limit is 35 mph and 25 mph in the school zone when children are present. Parking is prohibited along both sides of the roadway. The roadway primarily serves residential and institutional development.

Main Street is a north-south local roadway that begins north of Pacific Avenue and extends north of Willie Stargell Avenue. Main Street is two-lanes wide in each direction with a curb, gutter, and sidewalk along both sides of the roadway between Pacific Avenue and Atlantic Avenue. The posted speed limit is 35 mph and parking is prohibited along both sides of the roadway north of Atlantic Avenue. Main Street is designated as a roadway of regional significance within the Metropolitan Transportation Commission (MTC) Metropolitan Transportation System (MTS). The roadway primarily serves residential and institutional development.

Willie Stargell Avenue is an east-west collector that runs between Main Street and Webster Street. Willie Stargell Avenue is one-lane wide in each direction with a curb and gutter along both sides of the roadway, while sidewalks are provided along the south side. The posted speed limit is 25 mph and parking is prohibited along both sides of the roadway. The roadway primarily serves residential and institutional development.

Webster Street is a north-south arterial that begins at 51st Street in the City of Oakland and continues south into the City of Alameda, and operates as a one-way southbound roadway between the Webster Street Tube and Broadway in Oakland. In

² SR 260 and SR 61 share the same roadway alignment along the Webster Street and Posey tubes.

the vicinity of the Project, Webster Street is two-lanes wide in both directions with a curb, gutter, and sidewalk along both sides of the roadway. The posted speed limit is 35 mph and parking is provided on the west side of the roadway. Webster Street is designated as SR 260 and SR 61, and is part of the CMP roadway network, between the Webster Street Tube / Posey Tube and Central Avenue. The roadway primarily serves retail and residential development.

8th Street is an east-west arterial that runs between Fallon Street and Castro Street. 8th Street is one-way westbound with four travel lanes and a curb, gutter, and sidewalk along both sides of the roadway. 8th Street operates as a one-way couplet with 7th Street operating in the eastbound direction and 8th Street operating in the westbound direction. The roadway primarily serves retail and residential development and has a posted speed limit of 25 mph.

7th Street is an east-west arterial that runs between Fallon Street and Navy Roadway, where 7th Street becomes Middle Harbor Road. 7th Street is one-way eastbound between Fallon Street and Castro Street with four travel lanes and a curb, gutter, and sidewalk long both sides of the roadway. 7th Street operates as a one-way couplet with 8th Street operating in the eastbound direction and 7th Street operating in the westbound direction. The roadway primarily serves retail and residential development and has a posted speed limit of 25 mph.

Jackson Street is a north-south collector that runs between Lakeside Drive and First Street. Jackson Street is one-lane wide in each direction with a curb, gutter, and sidewalk along both sides of the roadway. Parking is allowed on both sides of the roadway. The roadway primarily serves residential development.

6th Street is an east-west collector that runs between Fallon Street and Market Street. 6th Street is one-way westbound with two to three travel lanes and a curb, gutter, and sidewalk along the north side of the roadway. The posted speed limit is 25 mph and parking is allowed on both sides of the roadway. 6th Street operates as a one-way couplet with 5th Street operating in the eastbound direction and 6th Street operating in the westbound direction. The roadway primarily serves retail and residential development.

5th Street is an east-west collector that runs between Peralta Street and Oak Street in Oakland. 5th Street is one-way eastbound with one to three travel lanes and a curb, gutter, and sidewalk along the south side of the roadway. The posted speed limit is 25 mph, and parking is allowed on both sides of the roadway. 5th Street operates as a one-way couplet with 6th Street operating in the eastbound direction and 5th Street operating in the westbound direction. The roadway primarily serves industrial development.

Harrison Street is a north-south collector that runs between Monte Vista Avenue and 1st Street. Harrison Street is one-way northbound between 4th Street and 10th Street with three travel lanes and a curb, gutter, and sidewalk along both sides of the roadway. The posted speed limit is 25 mph and parking is allowed on both sides of the roadway. Harrison Street operates as a one-way couplet with Webster Street operating in the eastbound direction and Harrison Street operating in the westbound direction. The roadway primarily serves retail development.

VA Transfer Parcel and VA Development Area

Roadways within the VA Transfer Parcel and VA Development Area are not publically accessible and are old and deteriorating given the closure of NAS Alameda fifteen years ago. Panoramic Drive, an unpaved roadway, enters the site north of its intersection with Avenue A.

2.2 Traffic Conditions

This section discusses the methodology used to analyze the proposed facilities and the existing traffic operations of the proposed facilities.

Level of Service

Level of Service (LOS) is a qualitative indication of the level of delay and congestion experienced by motorists. Levels of Service are designated by the letters A through F, with A corresponding to the lowest level of congestion and F corresponding to the highest level of congestion. The City of Alameda considers an intersection to be operating acceptably at LOS D or better, while the City of Oakland considers an intersection to be operating acceptably at LOS E or better if it is located in the downtown area of Oakland. The following study intersections are within the jurisdiction of the City of Alameda and, per City of Alameda standards, are considered to operate acceptably at LOS D or better:

- Webster Street / Willie Stargell Avenue;
- Main Street / Willie Stargell Avenue;
- Main Street / Atlantic Avenue; and
- Webster Street / Atlantic Avenue.

The following study intersections are within the jurisdiction of the City of Oakland and also lie within the downtown area of Oakland and are, therefore, considered to operate acceptably at LOS E or better:

- 8th Street / Webster Street;
- 7th Street / Webster Street;
- 7th Street / Harrison Street;
- 6th Street / Broadway;
- 5th Street / Broadway;
- 6th Street / Jackson Street; and
- 5th Street / Jackson Street.

In addition, the CMP legislation requires a LOS standard of E for all CMP roadways. All study roadways are CMP roadways and thus, the roadways are considered to operate acceptably at LOS E or better.

Different types of analyses are used for calculating LOS for intersections and roadway segments. The methodologies used for signalized intersections and roadway segments are shown below.

Signalized Intersections

All the study intersections evaluated are signalized.

For signalized intersections, the 2000 *Highway Capacity Manual* (HCM) methodology is utilized to determine the capacity of each lane group approaching the intersection. The LOS is then based on average delay (in seconds per vehicle) for the

various movements within the intersection. A combined weighted average delay and LOS are then presented for the intersection.

Level of Service definitions for signalized intersections are included in Table 1. Since all intersections are signalized, the LOS definitions for unsignalized intersections are not presented.

Table 1: Intersection Level of Service Definitions

LOS	Description	Average Delay (sec / veh)
		Signalized Intersections
A	Little or no delay	< 10.0
B	Short traffic delay	> 10.0 and < 20.0
C	Average traffic delay	> 20.0 and < 35.0
D	Long traffic delay	> 35.0 and < 55.0
E	Very long traffic delay	> 55.0 and < 80.0
F	Extreme traffic delay	> 80.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

Notes:

Delay in seconds per vehicle.

For signalized intersections, average delay represents the average of all approaches.

Roadway Segments

Operations of the roadway segments were assessed using a volume-to-capacity (v/c) ratio methodology. For freeway segments, a per-lane capacity of 2,000 vehicles per hour (vph) was used, consistent with ACTC's 2011 CMP document. Level of Service definitions for roadway segments are included in Table 2.

Table 2: Roadway Segment Level of Service Definitions

LOS	Volume-to-capacity ratio	Description
A	0.00 – 0.60	Represents free flow. Individual users are virtually unaffected by others in the traffic stream.
B	0.61 – 0.70	Stable flow, but the presence of other users in the traffic stream begins to be noticeable.
C	0.71 – 0.80	Stable flow, but the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.
D	0.81 – 0.90	Represents high-density, stable flow.
E	0.91 – 1.00	Represents operating conditions at or near the capacity level.
F	>1.00	Represents forced or breakdown flow.

Source: *Highway Capacity Manual*, Transportation Research Board, 1985.

Existing Traffic Volumes

Signalized Intersections

The existing traffic volume levels in the vicinity of the Project were determined by collecting weekday AM and PM peak period turning movement counts (between 7:00 AM and 9:00 AM and between 4:00 PM and 6:00 PM) and Saturday peak trip generation period turning movement counts (between 10:00 AM and 12:00 PM) at the study intersections. The traffic counts were collected on Wednesday, November 16, 2011 and Saturday, December 3, 2011, while area schools were in session and under clear and dry weather conditions.

Lane geometries³ for each study intersection are shown in **Figure 5**. The existing weekday AM and PM peak hours and Saturday peak trip generation hour of the Project intersection volumes are shown in **Figure 6**. Intersection turning movement count data is provided in **Appendix A**.

Roadway Segments

The existing roadway segment traffic volumes were collected from the Performance Measurement System (PeMS) website operated by Caltrans. Caltrans collects historical and real-time freeway data from freeways in the State of California. This freeway data is collected from individual detectors installed in the freeways. The historical and real-time freeway data is loaded onto the PeMS website, which can be accessed by anyone.

The roadway segment volumes on I-880 were collected for the AM and PM peak hours during a Wednesday for the peak month of travel in the Year 2011. In addition, the Webster/Posey tubes weekday roadway volumes were collected from the City of Alameda Department of Public Works staff for Year 2010. The volumes for the Webster/Posey tubes were adjusted to account for seasonal variations.

Existing Intersection LOS

Table 3 presents the summary LOS results for the study intersections under Existing Conditions. These results indicate that all the study intersections are currently operating at an acceptable LOS D or better during the weekday AM and PM peak hours and Saturday peak trip generation hour of the Project, as defined by the City of Alameda and City of Oakland LOS standards.

Detailed LOS analysis and worksheets are provided in **Appendix B**.

Existing Roadway Segment LOS

Table 4 presents the summary LOS results for the roadway segments under Existing Conditions. These results indicate that all the roadway segments are currently operating at an acceptable LOS D or better during the weekday AM and PM peak hours, as defined by the CMP LOS standards.

³ The lane geometry is the lane configuration at each approach of an intersection, e.g., left-turn lane, through lane, and right-turn lane.

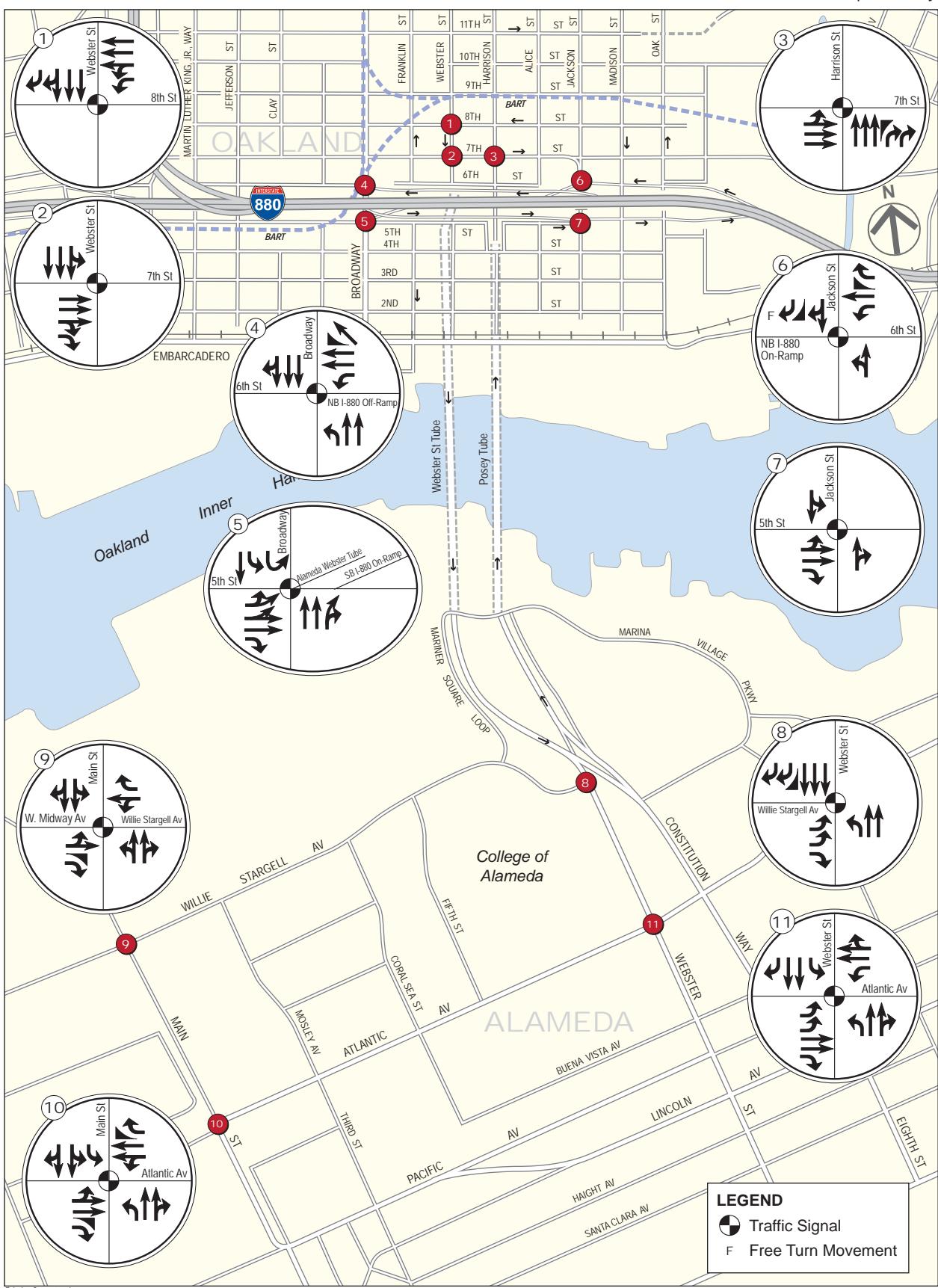
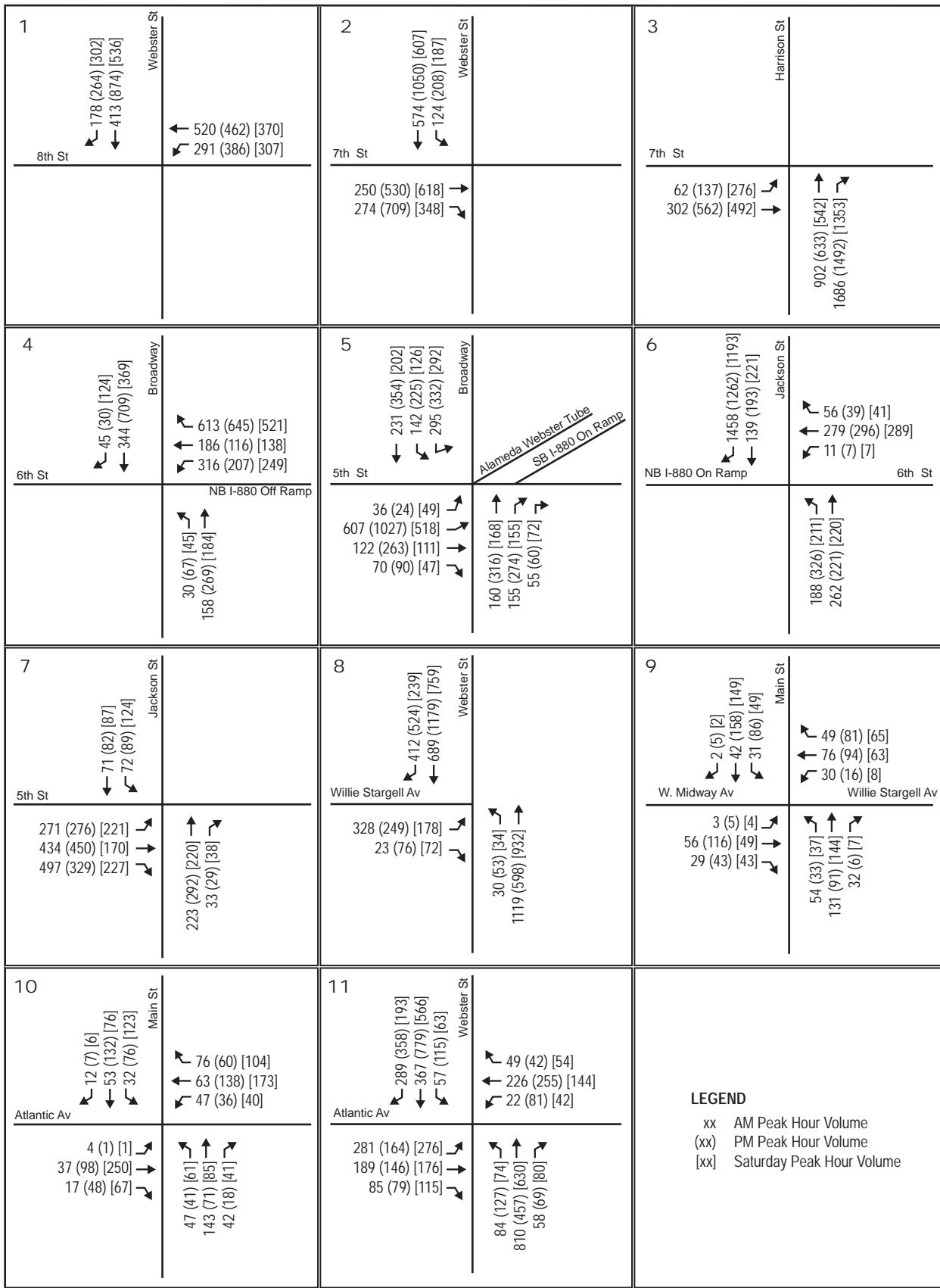


Figure 5
Existing Intersection Lane Geometry



Existing Volumes.ai

Figure 6
Existing No Project Intersection Traffic Volumes

Table 3: Intersection Level of Service – Existing Conditions

Intersection	Traffic Control	Peak Hour ⁽¹⁾	Existing Conditions	
			LOS	Delay ⁽²⁾
1 8 th Street / Webster Street	Signalized	Weekday AM	C	24.7
		Weekday PM	C	26.3
		Saturday	C	24.5
2 7 th Street / Webster Street	Signalized	Weekday AM	B	11.6
		Weekday PM	B	16.3
		Saturday	A	8.4
3 7 th Street / Harrison Street	Signalized	Weekday AM	B	15.3
		Weekday PM	C	25.9
		Saturday	B	11.6
4 Broadway / 6 th Street	Signalized	Weekday AM	B	16.2
		Weekday PM	B	18.5
		Saturday	B	16.1
5 Broadway / 5 th Street	Signalized	Weekday AM	C	30.7
		Weekday PM	D	52.4
		Saturday	C	27.0
6 Jackson Street / 6 th Street	Signalized	Weekday AM	A	7.3
		Weekday PM	A	9.3
		Saturday	B	10.6
7 Jackson Street / 5 th Street	Signalized	Weekday AM	B	18.0
		Weekday PM	B	14.0
		Saturday	B	11.8
8 Willie Stargell Avenue / Webster Street	Signalized	Weekday AM	B	12.5
		Weekday PM	B	12.5
		Saturday	A	9.4
9 Willie Stargell Avenue / Main Street	Signalized	Weekday AM	A	4.8
		Weekday PM	A	5.3
		Saturday	A	4.5
10 Atlantic Avenue / Main Street	Signalized	Weekday AM	B	11.1
		Weekday PM	B	11.8
		Saturday	B	12.1
11 Atlantic Avenue / Webster Street	Signalized	Weekday AM	C	29.9
		Weekday PM	C	24.7
		Saturday	C	21.0

Source: AECOM, 2012.

Notes: **Bold** indicates intersection operating at unacceptable levels (LOS F in Downtown Oakland, and LOS E or F in Alameda).¹⁾ "Saturday" indicates Saturday peak trip generation hour of the Project.²⁾ Delay presented in seconds per vehicle.

Table 4: Roadway Segment Level of Service – Existing Conditions

Roadway Segment	Capacity	Weekday AM Peak Hour			Weekday PM Peak Hour		
		Volume	V/C ratio	LOS	Volume	V/C ratio	LOS
Northbound							
SR 260 Posey Tube	4,000	3,161	0.79	C	2,392	0.60	A
I-880 between 6 th Street and I-980	10,000	3,580	0.36	A	4,285	0.43	A
I-880 between I-980 and 5 th Street	8,000	1,943	0.24	A	2,648	0.33	A
I-880 between 5 th Street and Union Street	6,000	4,901	0.82	D	4,712	0.79	C
I-880 between Union Street and 7 th Street	8,000	3,866	0.48	A	3,802	0.48	A
I-880 between Embarcadero and 22 nd Avenue	6,000	3,302	0.55	A	3,515	0.59	A
Southbound							
SR 260 Webster Tube	4,000	1,985	0.50	A	3,231	0.81	D
I-880 between 7 th Street and Union Street	8,000	3,422	0.43	A	3,564	0.45	A
I-880 between 5 th Street and 10 th Avenue	8,000	3,818	0.48	A	3,491	0.44	A
I-880 between 10 th Avenue and Embarcadero	6,000	3,221	0.54	A	3,135	0.52	A

Source: AECOM 2012 and Caltrans 2011.

Notes: V/C ratio = volume-to-capacity ratio

Bold indicates a roadway segment operating at an unacceptable level (i.e., LOS F)

2.3 Transit Conditions

The primary transit agency that serves the area surrounding the Project site is Alameda-Contra Costa (AC) Transit District. AC Transit provides local and regional bus service within Alameda and Contra Costa Counties and between the East Bay and San Francisco's Transbay Terminal. The AC Transit bus routes in the vicinity of the Project site are summarized in **Table 5** by bus line, including frequency and nearest stop.

Line 851 provides overnight service between Downtown Berkeley and Fruitvale BART. Buses operate every 60 minutes between 12:00 AM and 4:00 AM. The nearest stop to the Project site is located approximately 3.0 miles away at Webster Street and Atlantic Avenue.

The City of Alameda operates two free shuttles:

- City of Alameda Paratransit Shuttle; and
- Estuary Crossing Shuttle.

Table 5: AC Transit Service in the Project Vicinity

Line	Route	Frequency (minutes)		Nearest Stop to the Project Site (miles)
		AM Peak	PM Peak	
31	Alameda Point to MacArthur BART via Midway Ave (Local)	30 minutes	30 minutes	Saratoga Street and W Midway (1.0 miles)
51A	Rockridge BART to Fruitvale BART (Local)	10 minutes	10 minutes	Webster Street and Atlantic Avenue (3.0 miles)
20	Diamond District to Downtown Oakland (Local)	30 minutes	30 minutes	Webster Street and Atlantic Avenue (3.0 miles)
0	Fruitvale BART to Transbay Temporary Terminal (Transbay)	30 minutes	10 – 20 minutes	Webster Street and Atlantic Avenue (3.0 miles)
W	Broadway and Blanding Avenue to Transbay Temporary Terminal (Transbay)	20 minutes (Westbound only)	20 minutes (Eastbound only)	Webster Street and Atlantic Avenue (3.0 miles)

Source: AC Transit, 2012.

The City of Alameda Paratransit Shuttle, which serves Alameda seniors 55 years and older and individuals with disabilities, makes runs every 60 minutes between 9:00 AM and 3:00 PM on Tuesday, Wednesday, and Thursday. A West Loop route operates on Tuesdays, and the nearest stop to the Project site is located approximately 1.5 miles away at West Midway Avenue and Orion Street. The Estuary Crossing Shuttle between Alameda's west end and the Lake Merritt BART Station makes runs every weekday between the Lake Merritt BART Station and two stops near the College of Alameda every 30 minutes between 7:00 AM and 11:30 AM, and between 3:30 PM and 7:00 PM. The shuttle seats 18 passengers and can carry 13 bicycles.

Additionally, VA owns and operates two 12-passenger shuttles and one 6-passenger van. The two 12-passenger vans currently provide shuttle service between the Oakland VA Outpatient Clinic and Martinez VA Outpatient Clinic (four trips per day) and San Francisco VA Medical Center (two trips per day). The 6-passenger van currently provides local trips between the Oakland VA Outpatient Clinic and Oakland VA Behavioral Health Clinic. The transportation is provided free of charge to accommodate Veterans with scheduled appointments. Veterans must make reservations in advance to schedule shuttle service. Once the proposed Project clinic is operational, the Oakland VA Outpatient Clinic and Oakland VA Behavioral Health Clinic would be closed. The shuttle service would be re-routed from the Oakland clinics to the Project site and is expected to continue between the Project site and Martinez and San Francisco.

BART provides local and regional rail service throughout the Bay Area. The Lake Merritt BART Station is the closest station to the Project site(approximately 4.5 miles away) and can be accessed via bus or shuttle. AC Transit bus lines 11, 62, 88, and 611 all have bus stops at the Lake Merritt Station. In addition, the City of Alameda's Estuary Crossing Shuttle also has a stop at the Lake Merritt Station. Three BART lines serve the Lake Merritt Station (Richmond to Fremont, Daly City to Fremont, and Daly City to Dublin Pleasanton). Service to / from the Lake Merritt Station generally operates every 15 minutes or less during the weekday peak periods.

The Alameda / Oakland Ferry is a public transit ferry service connecting the Cities of Alameda and Oakland to San Francisco by crossing the San Francisco Bay. The City of Alameda, which runs this public service together with the Port of Oakland, contracts the privately run Blue & Gold Fleet to provide the service. The Alameda (Main Street) Ferry Terminal is located at

2990 Main Street, approximately 1 mile away from the Project site. Ferries run between Alameda / Oakland and San Francisco approximately every 60 minutes between 6:00 AM and 9:00 PM on weekdays. Every ferry ticket comes with an attached AC Transit bus transfer, allowing ferry riders free AC Transit ridership to and from the Alameda (Main Street) or Clay Street (Jack London Square) Ferry Terminals. An additional charge is required for AC Express buses⁴.

2.4 Pedestrian Conditions

All major streets in the Alameda Point Area have sidewalks and all major intersections have marked crosswalks. Generally, a low amount of pedestrian activity was observed during the weekday and weekend peak periods in the Alameda Point Area. During the peak periods, the nearby sidewalk and crosswalk conditions were observed to be operating at free-flow conditions with pedestrians moving at normal walking speeds and with freedom to bypass other pedestrians.

Access to the VA Transfer Parcel and VA Development Area is currently restricted, and no formal pedestrian facilities (i.e., improved sidewalks) currently exist on the property.

2.5 Bicycle Conditions

The Caltrans' *Highway Design Manual* defines three types of bikeways:

- Class I bicycle facilities (bike paths) provide a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flow minimized. Examples include shoreline bike paths, abandoned railroad rights-of-way, or within parks;
- Class II bicycle facilities (bike lanes) provide a striped lane for one-way bicycle travel on a street or highway, adjacent to the curb lane; and
- Class III bicycle facilities (bike routes) provide for shared use with pedestrian or motor vehicle traffic. Bike routes are typically used to provide continuity to other bicycle facilities (usually bike lanes), or to designate preferred routes through high demand corridors.

Within the Alameda Point Area, several bicycle facilities are provided or planned for implementation as identified in the *City of Alameda Bicycle Plan Update* (November 2010). The existing bicycle facilities within the vicinity of the VA Transfer Parcel are as follows:

- Class I bicycle paths
 - Main Street (east side), between the Ralph Appezzato Memorial Parkway and Singleton Avenue;
 - Main Street (west side), between the Main Street Ferry Terminal and north of the Lincoln Avenue / Central Avenue intersection;
 - Willie Stargell Avenue, between Mariner Square Loop and Webster Street; and
 - Constitution Way, between Marina Village Parkway and south of Atlantic Avenue.
- Class II bicycle lanes

⁴ Express buses operate more frequently during peak commute times and have less stops along a route than traditional buses.

- Atlantic Avenue, between Constitution Way and Eagle Avenue;
 - Marina Village Parkway, between Mariner Square Drive and Constitution Way;
 - Willie Stargell Avenue, between 5th Street and Mariner Square Loop; and
 - 5th Street, between Ralph Apuzzato Memorial Parkway and Willie Stargell Avenue.
- Class III bicycle routes
 - Willie Stargell Avenue, between Main Street and Mariner Square Loop.

The *City of Alameda Bicycle Plan Update* identifies several planned bicycle facilities within the vicinity of the VA Transfer Parcel including:

- Extension of the Ralph Apuzzato Memorial Parkway and Willie Stargell Avenue bike lanes;
- Extension of the Alameda Point and Main Street Bay Trails;
- Extension of the Pacific Avenue bicycle route;
- Addition of a Class III bicycle route on 3rd Street, between Ralph Apuzzato Memorial Parkway and Central Avenue; and
- Development of bike lanes along major streets within Alameda Point.

Bicyclists are allowed to use the Estuary Crossing Shuttle, which operates every weekday between the Lake Merritt BART stop and two stops near the College of Alameda. The shuttle runs every 30 minutes between 7:00 AM and 11:30 AM, and 3:30 PM and 7:00 PM. The shuttle seats 18 passengers and can carry 13 bicycles. All AC Transit buses have front-mounted racks, which can accommodate two bicycles at a time. Bicycles are permitted on BART trains except as indicated on the BART schedule during weekday commute peak hours. However, a pilot program is currently being implemented to allow bicycles on BART all day only on Fridays. If this program is successful, bicycles will be allowed on BART everyday all day. All ferries are equipped with racks where bicycles can be parked for the duration of the trip.

The *City of Oakland Bicycle Plan Update* (December 2007) identifies several existing and planned bicycle facilities. The existing bicycle facilities within the vicinity of the VA Transfer Parcel are as follows:

- Class I bicycle paths
 - Posey Tube / Harrison Street (northbound), between 6th Street and Constitution Way; and
 - Jack London Waterfront and Lake Merritt Trail, between The Ferry Terminal and 1st Street / Embarcadero.

- Class II bicycle lanes
 - 8th Street, between Jefferson Street and Broadway; and
 - Broadway, between 25th Street and I-580.
- Class III bicycle routes
 - Broadway, between 2nd Street and 25th Street;
 - 2nd Street, between Oak Street and Brush Street; and
 - Washington Street, between 2nd Street and 10th Street.

Currently, the following bikeway projects within the vicinity of the VA Transfer Parcel are under development:

- Broadway Corridor Bicycle lane;
- 10th Street (Oak St to 5th Ave) Bicycle lane;
- Harrison Street / Oakland Avenue Bicycle lane and route Project; and
- East 7th Street Bikeway Improvement Project.

Access to the VA Transfer Parcel and VA Development Area is currently limited, and no formal bicycle facilities or lanes exist on the property.

2.6 Parking Conditions

In general, on-street parking in the Alameda Point Area consists of time-limited parallel parking. Existing on-street parking conditions were qualitatively assessed by field observations conducted during the weekday peak periods. Based on the field observations, it was determined that on-street parking is generally well-utilized throughout the day, although particular occupancy percentages can vary depending on location and peak period.

Currently, there is no designated parking provided on the VA Transfer Parcel.

2.7 Loading Conditions

Currently, there are no designated loading facilities provided on the VA Transfer Parcel.

2.8 Site Access and Circulation Conditions

Currently, access to the property is restricted and the Project site is developed with runways, former aircraft maintenance facilities, and several small bunkers formerly used for ammunition storage. Panoramic Drive, an unpaved roadway, enters the site north of its intersection with Avenue A.

3.0 Project Travel Demand

This chapter describes the travel demand forecasting process and provides the travel demand specific to the proposed Project.

3.1 Project Travel Demand Methodology

Travel demand refers to the new vehicle, transit, pedestrian, bicycle and other trips that would be generated by a proposed action. The travel demand estimates were based on information contained in the 2000 U.S. Census Journey-to-Work data and the Institute of Transportation Engineers' (ITE) *Trip Generation* (8th Edition).

There are four steps in the travel demand forecasting process:

- Trip generation – Given the land use program for a specific area, the travel demand forecasting process must estimate how many total trips the area will generate;
- Trip distribution – Given the number of trips for a specific area, the travel demand forecasting process must estimate the origins and destinations of these trips;
- Mode choice – Given the trip distribution, the travel demand forecasting process must estimate the number of trips expected on each of the available travel modes serving the area; and
- Trip assignment – Given the distributed trips by mode, the travel demand forecasting process must predict the routes that people making these trips will select, resulting in traffic forecasts for specific elements of the roadway system and ridership forecasts for the transit services.

Since Alternative 1 and 2 would 1) both be located at the former NAS Alameda property that is currently unaccessible to the public, 2) both include the same land use types and sizes, and 3) both affect the same study intersections, the same trip generation, trip distribution, mode choice, and trip assignment was assumed for both alternatives.

The person-trip generation for the Project was developed for Year 2017, 2027, and 2035. Only actions that result in active trip-generating uses were considered; accessory uses such as parking are not trip generators or attractors in and of themselves, and are, therefore, excluded from the travel demand calculations.

Trip Generation

Trip generation relates land uses to the number of persons or vehicles entering or exiting the site. The trip generation for the Project was based on the provided land use information using standard trip generation rates from ITE *Trip Generation* (8th Edition) and information provided by VA. Trip generation estimates from the ITE *Trip Generation* are based on a sample of trip generation studies at sites across the United States, for each land use provided. An average trip generation rate is then calculated, which can be used to estimate trips generated by land use.

ITE trip generation rates are developed through the summarization of numerous surveys conducted for various land uses in suburban areas throughout the United States. Specifically, areas were selected for trip analysis whose trip characteristics tended to be solely by automobile. Thus, ITE rates account for vehicle-trips only. However, for this analysis, the study examines trips made by all modes of travel. The vehicle trips generated by the Project, shown in Appendix C, were adjusted

using an appropriate average vehicle occupancy rate to determine total “person trips”. The national average vehicle occupancy rate of 1.08 passengers per vehicle⁵ was used to convert from vehicle trips to person trips.

Trip Distribution

To evaluate the traffic related effects of the Project, trips that would be generated by the Project were distributed onto the roadway network. Trip distribution simulates the geographical pattern of travel, matching trips generated by one type of land use (e.g. residential) with trips generated by other types of land uses (e.g., education, employment, and shopping). Trip distribution patterns to and from the Project were estimated based upon the residence zip codes of the employees that currently work at the existing Oakland clinic and BHC and the residence zip codes of the Veterans that currently receive treatment at the existing Oakland clinic and BHC as provided by VA. The zip code information of employees and patients would best represent the trip distribution patterns for the Project, because the staff and patients would now work and receive treatment, respectively, at the Project site.

Mode Choice

The proposed action-generated person-trips were assigned to travel modes in order to determine the number of auto, transit, BART, and “other” trips, where “other” includes motorcycle, taxi, and additional modes. Applicable data regarding mode split for the proposed action was limited—as the proposed action consists of uses, which would attract trips, therefore U.S. Census data regarding mode choice for home-based work trips would not be appropriate for use. Home-based work trips are trips that have one end at home and one at work and are considered “typical” commute trips. As a result, additional sources of mode choice data were required to derive an appropriate mode choice composition for the proposed action.

Given the close proximity and somewhat similar development pattern within the Broadway Auto Row / Medical Center neighborhood, it was determined that the City of Oakland would provide an adequate point of reference for the Project. The *Downtown Transportation and Parking Plan* (October 2003), which provides empirical mode splits for commute trips by employees working in various parts of the downtown area of Oakland, was consulted. The mode split for the Broadway Auto Row / Medical Center neighborhood was also assumed to be a reasonably similar match, but further adjustments were made to the mode split to account for Alameda Point’s more auto-oriented, suburban nature and isolated location (on an island with limited transit service and limited connectivity with the existing regional roadway network). Differences in visitor mode choice between a general employment generator (such as an office building) and a VA clinic were also considered.

Trip Assignment

Trips generated by the proposed action were assigned to the roadway network and study intersections from the Project main access roadway based upon the determined trip distribution pattern.

3.2 Project Travel Demand

This section provides an estimate of the travel demand that is anticipated to be generated by the Project.

Trip Generation

The person-trip generation for the Project was developed for Year 2017, 2027, and 2035. The following presents the person-trip generation for each forecast year.

⁵ U.S. Census Bureau, Census 2000 Summary File 3, QT-P23. Journey to Work: 2000.

Phase 1 (2017)

In Year 2017, the clinic and the conservation management office would be fully built-out and in operation and the first phase of the cemetery providing space for 25,000 niches would be completed and in operation. The trip generation for the clinic and conservation management office was based on ITE trip generation rates (ITE land use code 630 and 710), while the trip generation of the cemetery was based on information provided by VA National Cemetery Association (NCA). The clinic would have approximately 250 staff and also include 10,000 square feet of office space for the VBA and NCA within the building. A 2,500-square-foot conservation management office would be constructed to support the management of the California Least Tern colony. A cemetery is a unique land use and has unique operating characteristics and thus, information from VA NCA was used in this analysis instead of trip generation rates from the ITE *Trip Generation* manual. Vehicle trips to and from the cemetery would come from staff, visitors, deliveries, and corteges. The following information was used to develop the trip generation for the cemetery:

- Memorial or inurnment services would occur Monday through Friday between 9:00 AM and 3:00 PM (based on NCA statistics);
- Approximately six services would take place Monday through Friday with up to 15 vehicles per service and last approximately 15 to 30 minutes (based on NCA statistics);
- There would be seven cemetery staff working in the clinic building Monday through Friday between 8:00 AM and 5:00 PM;
- One delivery would occur in the weekday AM peak hour and PM peak hour;
- Visitors would amount to 40 vehicles each weekday and 60 vehicles each weekend day (based on NCA statistics); and
- Build-out of the cemetery would occur in 10-year increments providing space for 25,000 niches (based on NCA projections).

The clinic, conservation management office, VBA office, and cemetery employees trip generation was converted to person trips using the 1.08 occupancy factor. The cemetery visitors and deliveries were assumed as one person per vehicle. According to the VA, funeral corteges average three persons per vehicle. **Table 6** presents the Project person-trip generation for Year 2017.

As can be seen in the table below, the Project would generate 2,900 person-trips during the weekday, 371 of which would occur during the weekday AM peak hour, 370 of which would occur during the weekday PM peak hour, and 38 of which would occur during the Saturday peak trip generation hour of the Project.

Table 6: Year 2017 Project Person-Trip Generation

Land Use	Size	Weekday Daily	AM Peak Hour			PM Peak Hour			Saturday Peak Hour of Generator		
			In	Out	Total	In	Out	Total	In	Out	Total
Office	12,500 SF	149	19	2	21	4	16	20	2	2	4
Clinic	250 employees	2,093	239	93	332	136	196	332	10	10	20
Cemetery											
<i>Employees</i>	7 employees	30	8	0	8	0	8	8	0	0	0
<i>Visitors</i>		80	4	4	8	4	4	8	7	7	14
<i>Corteges</i>		540	0	0	0	0	0	0	0	0	0
<i>Deliveries</i>		8	1	1	2	1	1	2	0	0	0
Total		2,900	271	100	371	145	225	370	19	19	38

Source: 2000 U.S. Census data; AECOM, 2012.

Notes:

SF = square feet

While the number of employees is used as the independent variable to calculate the trip generation for the clinic, the number of trips generated are from both employees and patients.

Phase 2 (2027)

As discussed earlier, the cemetery would be built in 10-year increments. Even though intersection operations in Year 2027 was not analyzed in this study, the cemetery Project person-trips to account for an additional 25,000 niches to meet the projected burial needs for Phases 2 was estimated. The amount of person-trips generated by the Project for Phases 3 through 11 would be exactly the same as Phase 2. The only new Project person-trips that would be generated in Year 2027 would be from cemetery visitors and corteges. The number of staff and deliveries would remain the same as those from Year 2017. As stated earlier, cemetery visitors were assumed as one person per vehicle and funeral corteges average three persons per vehicle. **Table 7** presents the Project person-trip generation for Year 2027.

Table 7: Year 2027 Project Person-Trip Generation

Land Use	Weekday Daily	AM Peak Hour			PM Peak Hour			Saturday Peak Hour of Generator		
		In	Out	Total	In	Out	Total	In	Out	Total
Cemetery										
<i>Visitors</i>	80	4	4	8	4	4	8	7	7	14
<i>Corteges</i>	540	0	0	0	0	0	0	0	0	0
Total	620	4	4	8	4	4	8	7	7	14

Source: AECOM, 2012.

Cumulative (2035)

The Project person-trips that would be generated in Year 2035 include the person-trips from Phase 1 and 2, discussed above, and the person trips from Phases 3 through 11. As discussed above, the person-trips generated in Phase 2 would be the same for each subsequent phase.

Table 8 presents the Project person-trip generation for Year 2035. As can be seen in the table below, the Project would generate 8,700 person-trips during the weekday, 451 of which would occur during the weekday AM peak hour, 450 of which would occur during the weekday PM peak hour, and 178 of which would occur during the Saturday peak trip generation hour of the Project.

Table 8: Year 2035 Project Person-Trip Generation

Land Use	Size	Weekday Daily	AM Peak Hour			PM Peak Hour			Saturday Peak Hour of Generator		
			In	Out	Total	In	Out	Total	In	Out	Total
Office	12,500 SF	149	19	2	21	4	16	20	2	2	4
Clinic	250 employees	2,093	239	93	332	136	196	332	10	10	20
Cemetery											
Employees	7 employees	30	8	0	8	0	8	8	0	0	0
Visitors		480	44	44	88	44	44	88	77	77	154
Corteges		5,940	0	0	0	0	0	0	0	0	0
Deliveries		8	1	1	2	1	1	2	0	0	0
Total		8,700	311	140	451	185	265	450	89	89	178

Source: 2000 U.S. Census data; AECOM, 2012.

Notes:

SF = square feet

While the number of employees is used as the independent variable to calculate the trip generation for the clinic, the number of trips generated are from both employees and patients.

Trip Distribution

The estimated approach and departure directions and traffic distribution percentages for the Project are presented in **Table 9**.

Table 9: Project Trip Distribution

From/To	Percentage
I-880 North	19%
I-880 South	19%
I-980	7%
City of Oakland (Local)	49%
City of Alameda (Local)	6%
TOTAL	100%

Source: AECOM, 2012.

Mode Choice

Table 10 shows the mode split for the proposed action. It was assumed that any person taking BART as their mode of transportation to the VA Development Area would then take the VA shuttle that would operate between the VA Development Area and the 12th Street Oakland City Center BART Station.

Table 10: Project Mode Split

Mode	Percentage
Car, truck, van (includes carpool)	91%
AC Transit	2%
BART	5%
Motorcycle	0%
Bicycle	0%
Walk	2%
Amtrak	0%
Total	100%

Source: AECOM, 2012.

Phase 1 (2017)

The trip generation by mode for the proposed Project for both Alternative 1 and 2 in Year 2017 is summarized in Table 11. It should be noted that only the clinic staff and visitors, office staff, and cemetery staff were assumed to possibly take all modes of transportation, whereas it was assumed that the mode of transportation majoritively used by cemetery corteges, deliveries, and visitors would be the automobile.

Table 11: 2017 Project Trip Generation by Mode – Alternative 1 and 2

Direction	Person Trips						Vehicle-Trips ^{2,3}
	Auto	AC Transit	BART	Walk	Bike	Other ¹	
Weekday AM Peak Hour							
Inbound	248	5	13	5	0	0	271
Outbound	92	2	5	2	0	0	101
Total	340	7	18	7	0	0	372
Weekday PM Peak Hour							
Inbound	133	3	7	3	0	0	146
Outbound	203	4	11	4	0	0	222
Total	336	7	18	7	0	0	368
Saturday Peak Hour of Generator							
Inbound	18	0	1	0	0	0	19
Outbound	18	0	1	0	0	0	19
Total	36	0	2	0	0	0	34

Source: 2000 U.S. Census data and AECOM, 2012.

Notes:

¹ "Other" mode includes motorcycles and taxis.

² Used the average vehicle occupancy of 1.08 from the 2000 U.S. Census Summary File 3 QT-PT23 to convert back to vehicle trips.

³ Includes vehicle trips from cemetery visitors, corteges, and deliveries.

As shown, the Project is expected to generate 315 weekday AM peak hour, 312 weekday PM peak hour, and 34 Saturday peak hour of generator vehicle trips under 2017 plus Project Conditions.

Phase 2 (2027)

The trip generation for the weekday AM and PM peak hours and Saturday peak hour of generator by mode under 2035 plus Project Conditions is identical to those for person-trips as presented in Table 7. The automobile would be the only mode of transportation with an average vehicle occupancy of one person per vehicle.

Cumulative (2035)

The trip generation by mode for the proposed Project for both Alternative 1 and 2 for Year 2035 is summarized in Table 12. The same assumptions as Year 2017 were also assumed for Year 2035.

Table 12: Year 2035 Trip Generation by Mode – Alternative 1 and 2

Direction	Person Trips						Vehicle-Trips ^{2,3}
	Auto	AC Transit	BART	Walk	Bike	Other ¹	
Weekday AM Peak Hour							
Inbound	288	5	13	5	0	0	311
Outbound	132	2	5	2	0	0	141
Total	420	7	18	7	0	0	452
Weekday PM Peak Hour							
Inbound	173	3	7	3	0	0	186
Outbound	243	4	11	4	0	0	262
Total	416	7	18	7	0	0	448
Saturday Peak Hour of Generator							
Inbound	88	0	1	0	0	0	89
Outbound	88	0	1	0	0	0	89
Total	176	0	2	0	0	0	174

Source: 2000 U.S. Census data and AECOM, 2012.

Notes:

¹ “Other” mode includes motorcycles and taxis.

² Used the average vehicle occupancy of 1.08 from the 2000 U.S Census Summary File 3 QT-PT23 to convert back to vehicle trips.

³ Includes vehicle trips from cemetery visitors, corteges, and deliveries.

As shown, the Project is expected to generate 395 weekday AM peak hour, 392 weekday PM peak hour, and 174 Saturday peak hour of generator vehicle trips for Year 2035.

4.0 Impact Analysis

This chapter evaluates the transportation impacts of the Project and proposes mitigation measures where needed to mitigate any significant impacts.

4.1 Significance Criteria

The following are the significance criteria used by the City of Oakland, the City of Alameda, and the ACTC CMP for the determination of transportation impacts associated with a proposed project:

City of Oakland

The downtown area of Oakland is defined in the Land Use and Transportation Element of the City of Oakland General Plan as the area generally bounded by West Grand Avenue to the north, Lake Merritt and Channel Park to the east, the Oakland Estuary to the south, and I-980 / Brush Street to the west. Seven of the 11 study intersections are located in the City of Oakland, and all seven of these study intersections are located within the downtown area of Oakland.

The Project would have a significant impact if it meets any of the following criteria:

- At a study signalized intersection, which is located within the Downtown area, the Project would cause the LOS to degrade to worse than LOS E (i.e., LOS F); or
- At a study signalized intersection, for all areas where the level of service is LOS E, the Project would cause an increase in the average delay for any of the critical movements of six (6) seconds or more, or degrade to worse than LOS E (i.e., LOS F); or
- At a study signalized intersection, for all areas where the level of service is LOS F, the Project would cause the overall volume-to-capacity (v/c) ratio to increase by 0.01 or more, or the critical movement v/c ratio to increase by 0.02 or more; or
- At a study unsignalized intersection, the Project would add ten (10) or more vehicles and after project completion satisfy the Caltrans peak hour volume traffic signal warrant; or
- At a roadway segment on the CMP Network, the project would cause a) the LOS to degrade from LOS E or better to LOS F or (b) the V/C ratio to increase 0.03 or more for a roadway segment that would operate at LOS F without the project.

City of Alameda

Four study intersections lie within the City of Alameda and the Project would have a significant impact if it caused these intersections to meet any of the following criteria:

- Cause the LOS of a signalized intersection that is projected to operate at LOS D or better in the Base Case scenario to degrade to a LOS E or F in the Base Case plus Project scenario; or
- Cause the total intersection average vehicle delay at any signalized intersection currently operating at LOS E or F in the Base Case scenario to increase by 4 or more seconds in the Base Case plus Project scenario; or

- Cause the LOS of any movement of the intersection approach of an unsignalized intersection that currently operates at LOS D or better for the Base Case scenario to degrade to LOS E or F for any movement of the intersection approach in the Base Case plus Project scenario; or
- For any unsignalized intersection currently operating at LOS E or F in the Base Case scenario, when the total traffic volumes increase by 1% or more in the Base Case plus Project scenario; or
- Cause the LOS of a signalized intersection that is projected to operate at LOS D or better in the Cumulative scenario to degrade to a LOS E or F in the Cumulative plus Project scenario; or
- Cause the total intersection average vehicle delay an any signalized intersection currently operating at LOS E or F in the Cumulative scenario to increase by 4 or more seconds in the Cumulative plus Project scenario; or
- Cause the LOS of any movement of the intersection approach of an unsignalized intersection that currently operates at LOS D or better for the Cumulative scenario to degrade to LOS E or F for any movement of the intersection approach in the Cumulative plus Project scenario; or
- For any unsignalized intersection currently operating at LOS E or F in the Cumulative scenario, when the total traffic volumes increase by 1 percent or more in the Cumulative plus Project scenario.

CMP

The ACTC's CMP only contains an acceptable LOS standard for roadways segments on the CMP network. The document does not contain significance thresholds for these roadway segments. However, the City of Oakland does have significance thresholds for these roadway segments and these thresholds will be used for this analysis. In addition, these City of Oakland significance criteria have been used in other traffic studies that have analyzed roadway segments on the CMP network. Please see the City of Oakland's significance thresholds, shown above, for the threshold that will be used for the roadway segment analysis.

4.2 Phase 1 (2017) Impacts

Methods and Assumptions

The 2017 No Project Condition accounts for planned approved development growth (not including the Project), transportation network changes in the study area, as well as background growth throughout the region in Year 2017. In addition, the Phase 1 forecast Year 2017 coincides with the planned year of inception of service of the clinic and the first 18 acres of the cemetery providing space for 25,000 niches. The Phase 1 (2017) No Project Condition is used as a future baseline with which to compare against 2017 Plus Project Condition, in order to identify Phase 1 Project-related impacts. Transportation impacts under the 2017 Plus Project Condition are presented for all three alternatives at the 11 study intersections and ten roadway segments. Intersections and roadway segments that would result in unacceptable LOS due to the implementation of the Project are identified in accordance with City of Alameda and City of Oakland significance criteria.

Planned Growth and Background Growth

The Phase 1 (2017) No Project Condition was performed for a horizon year of 2017 in order to reflect foreseeable growth within the area. Forecasts of future year traffic volumes were prepared utilizing the ACTC and City of Alameda travel demand model. Existing traffic volumes were adjusted by applying growth factors to existing counts. The growth factors were derived using base year and future year model link volumes.

Intersections

Base year and future year weekday AM and PM peak hour traffic volumes were obtained using the ACTC and City of Alameda model network outputs. The Saturday peak hour volumes were obtained by applying an equivalence ratio, which was developed between the existing Saturday peak hour of generator intersection vehicle turning movement counts and the existing weekday AM and PM peak hour intersection vehicle turning movement counts. The forecasted weekday AM and PM peak hour intersection vehicle turning movements were first developed and then the equivalence ratio was applied to develop the Saturday peak hour of generator intersection vehicle turning movement volumes.

The ACTC travel demand model was used to develop future forecasts for the seven study intersections located within the City of Oakland. The existing intersection vehicle turning movement counts were taken in Year 2011 while the base year ACTC model link volumes are for the Year 2005. In order to adjust for the difference in years, the base year model link volumes were estimated for Year 2011 through a linear interpolation. The base year model link volumes for the Year 2011 were developed by interpolating between the base year model link volumes for the Year 2005 and the future year model link volumes for the Year 2035. This same process was also used to develop Year 2017 model traffic volumes by interpolating between the Year 2011 base model and Year 2035 future model link volumes. An annual growth factor for traffic was then developed between the Year 2017 model link volumes and the Year 2011 base year model link volumes and applied to existing intersection vehicle turning movement volumes.

The City of Alameda travel demand model was used to develop future forecasts for the four study intersections located within the City of Alameda. The existing intersection vehicle turning movement counts were taken in Year 2011 while the base year Alameda model link volumes are for the Year 2007. In order to adjust for the difference in years, the base year model link volumes were estimated for Year 2011 through a linear interpolation. The base year model link volumes for the Year 2011 were developed by interpolating between the base year model link volumes for the Year 2007 and the future year model link volumes for the Year 2030. This same process was also used to develop Year 2017 model traffic volumes by interpolating between the Year 2011 base model and Year 2030 future model link volumes. An annual growth factor for traffic was then developed between the Year 2017 model link volumes and the Year 2011 base year model link volumes and applied to existing intersection vehicle turning movement volumes.

Roadway Segments

The same methodology that was used to develop the traffic volumes for the study intersections was also applied to the roadway segments. The annual growth factor that was applied to the existing roadway volumes to generate 2017 traffic volumes was developed by only using the ACTC travel demand model. The ACTC model is a regional model while the City of Alameda travel demand model is a local centralized model.

Transportation Network Modifications

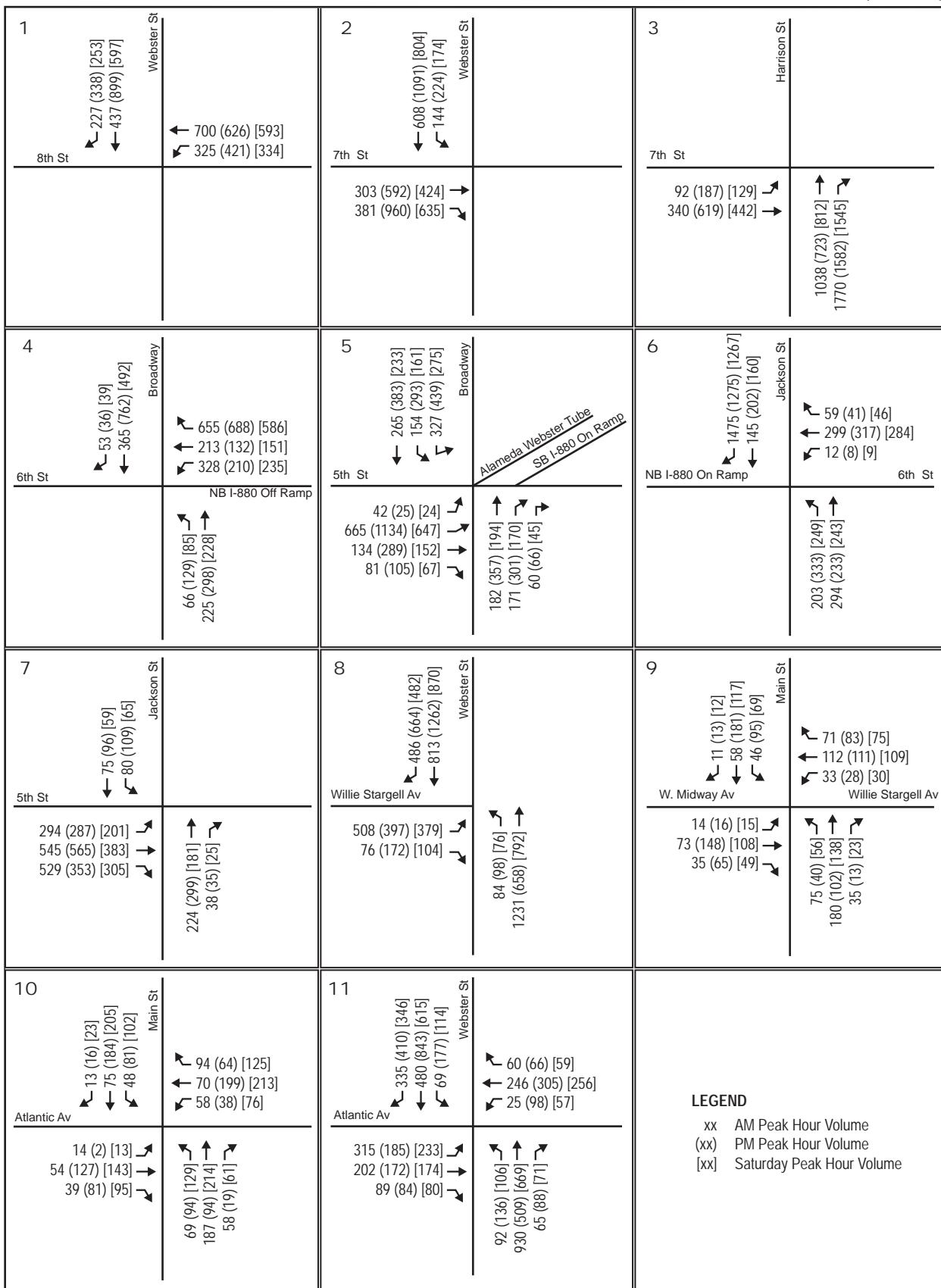
Under 2017 Conditions, there are no changes to the roadway network from the Existing Conditions. Therefore, the future 2017 proposed Project No Action would be similar to the Existing Conditions.

2017 No Project Conditions

Intersections

The **weekday AM and PM peak hour and Saturday peak trip generation hour** of the proposed Project intersection traffic volumes are shown in **Figure 7**.

Table 13 presents the summary LOS results for the study intersections under the Phase 1 (2017) No Project Condition. The table **indicates** that all of the study intersections under the Phase 1 (2017) No Project Condition would operate at



2016 No Project Volumes.ai

Figure 7
2017 No Project Intersection Traffic Volumes

acceptable levels as indicated by criteria for the City of Alameda and City of Oakland. Detailed LOS analysis and worksheets are provided in **Appendix B**.

Table 13: 2017 No Project Intersection Levels of Service

Intersection	Peak Hour ⁽¹⁾	Existing (2011) Conditions		2017 Conditions	
		LOS	Delay ⁽²⁾	LOS	Delay ⁽²⁾
1 8 th Street / Webster Street	Weekday AM	C	24.7	C	25.8
	Weekday PM	C	26.3	C	27.4
	Saturday	C	24.5	C	25.5
2 7 th Street / Webster Street	Weekday AM	B	11.6	B	11.8
	Weekday PM	B	16.3	B	17.6
	Saturday	A	8.4	A	9.6
3 7 th Street / Harrison Street	Weekday AM	B	15.3	B	16.1
	Weekday PM	C	25.9	D	41.4
	Saturday	B	11.6	B	13.2
4 Broadway / 6 th Street	Weekday AM	B	16.2	B	17.7
	Weekday PM	B	18.5	C	21.1
	Saturday	B	16.1	B	17.7
5 Broadway / 5 th Street	Weekday AM	C	30.7	C	33.4
	Weekday PM	D	52.4	E	74.9
	Saturday	C	27.0	C	28.2
6 Jackson Street / 6 th Street	Weekday AM	A	7.3	A	8.1
	Weekday PM	A	9.3	B	10.1
	Saturday	B	10.6	B	13.4
7 Jackson Street / 5 th Street	Weekday AM	B	18.0	C	31.9
	Weekday PM	B	14.0	B	15.1
	Saturday	B	11.8	B	13.5
8 Willie Stargell Avenue / Webster Street	Weekday AM	B	12.5	B	16.2
	Weekday PM	B	12.5	B	14.5
	Saturday	A	9.4	B	12.2
9 Willie Stargell Avenue / Main Street	Weekday AM	A	4.8	A	5.4
	Weekday PM	A	5.3	A	5.7
	Saturday	A	4.5	A	5.3
10 Atlantic Avenue / Main Street	Weekday AM	B	11.1	B	12.7
	Weekday PM	B	11.8	B	14.7
	Saturday	B	12.1	B	15.8
11 Atlantic Avenue / Webster Street	Weekday AM	C	29.9	D	43.7
	Weekday PM	C	24.7	C	26.7
	Saturday	C	21.0	C	23.7

Source: AECOM, 2012.

Notes: **Bold** indicates intersection operating at unacceptable levels (LOS F in Downtown Oakland, and LOS E or F in Alameda).

⁽¹⁾ “Saturday” indicates Saturday peak trip generation hour of Project.

⁽²⁾ Delay presented in seconds per vehicle.

Roadway Segments

The Phase I (2017) No Project weekday AM and PM peak hour traffic volumes are shown in **Table 14**.

Table 14 presents the summary LOS results for the roadway segments under the Phase 1 (2017) No Project Condition. The table indicates that all of the roadway segments under the Phase 1 (2017) No Project Condition would operate at acceptable levels as indicated by the City of Oakland criteria.

Table 14: 2017 No Project Roadway Segment Levels of Service

Roadway Segment	Existing (2011) Conditions						2017 Conditions					
	Weekday AM Peak Hour			Weekday PM Peak Hour			Weekday AM Peak Hour			Weekday PM Peak Hour		
	Volume	V/C ratio	LOS	Volume	V/C ratio	LOS	Volume	V/C ratio	LOS	Volume	V/C ratio	LOS
Northbound												
SR 260 Posey Tube	3,161	0.79	C	2,392	0.60	A	3,240	0.81	D	2,452	0.61	B
I-880 between 6 th Street and I-980	3,580	0.36	A	4,285	0.43	A	3,766	0.38	A	4,507	0.45	A
I-880 between I-980 and 5 th Street	1,943	0.24	A	2,648	0.33	A	2,015	0.25	A	2,746	0.34	A
I-880 between 5 th Street and Union Street	4,901	0.82	D	4,712	0.79	C	5,063	0.84	D	4,868	0.81	D
I-880 between Union Street and 7 th Street	3,866	0.48	A	3,802	0.48	A	4,004	0.50	A	3,938	0.49	A
I-880 between Embarcadero and 22 nd Avenue	3,302	0.55	A	3,515	0.59	A	3,393	0.57	A	3,612	0.60	B
Southbound												
SR 260 Webster Tube	1,985	0.50	A	3,231	0.81	D	2,034	0.51	A	3,312	0.83	D
I-880 between 7 th Street and Union Street	3,422	0.43	A	3,564	0.45	A	3,604	0.45	A	3,753	0.47	A
I-880 between 5 th Street and 10 th Avenue	3,818	0.48	A	3,491	0.44	A	3,940	0.49	A	3,602	0.45	A
I-880 between 10 th Avenue and Embarcadero	3,221	0.54	A	3,135	0.52	A	3,321	0.55	A	3,233	0.54	A

Source: AECOM, 2012.

Notes: V/C ratio = volume-to-capacity ratio

Bold indicates a roadway segment operating at an unacceptable level (i.e., LOS F)

2017 Plus Project (Alternative 1 Phase 1) Conditions

Traffic Impacts

Traffic volumes generated by Alternative 1 in Year 2017 were added to 2017 traffic volumes to obtain the 2017 plus Project traffic volumes. These traffic volumes reflect the aforementioned assumptions regarding trip generation, trip distribution, mode split, and traffic assignment for the proposed action.

Intersection

2017 plus Project (Alternative 1 Phase 1) weekday AM and PM peak hour and the Saturday peak trip generation hour of the proposed action traffic volumes at the study intersections are graphically shown in **Figure 8**.

Table 15 presents the summary LOS results for the study intersections under 2017 plus Project (Alternative 1 Phase 1) Conditions. The results show that all 11 study intersections are projected to operate at acceptable conditions, LOS D or

better, during the weekday AM peak hour, weekday PM peak hour, and Saturday peak trip generation hour of the Project. Detailed LOS analysis and worksheets are provided in **Appendix B**.

Table 15: 2017 Plus Project (Alternative 1 Phase 1) Intersection Level of Service

Intersection	Peak Hour⁽¹⁾	2017 No Project Conditions		2017 Plus Project (Alternative 1 Phase 1) Conditions	
		LOS	Delay⁽²⁾	LOS	Delay⁽²⁾
1 8 th Street / Webster Street	Weekday AM	C	25.8	C	25.9
	Weekday PM	C	27.4	C	27.5
	Saturday	C	25.5	C	25.5
2 7 th Street / Webster Street	Weekday AM	B	11.8	B	12.1
	Weekday PM	B	17.6	B	18.3
	Saturday	A	9.6	A	9.6
3 7 th Street / Harrison Street	Weekday AM	B	16.1	B	16.3
	Weekday PM	D	41.4	D	50.7
	Saturday	B	13.2	B	13.2
4 Broadway / 6 th Street	Weekday AM	B	17.7	B	17.8
	Weekday PM	C	21.1	C	21.1
	Saturday	B	17.7	B	17.7
5 Broadway / 5 th Street	Weekday AM	C	33.4	D	35.3
	Weekday PM	E	74.9	E	78.3
	Saturday	C	28.2	C	28.3
6 Jackson Street / 6 th Street	Weekday AM	A	8.1	A	8.1
	Weekday PM	B	10.1	B	10.4
	Saturday	B	13.4	B	13.4
7 Jackson Street / 5 th Street	Weekday AM	C	31.9	C	32.4
	Weekday PM	B	15.1	B	15.5
	Saturday	B	13.5	B	13.5
8 Willie Stargell Avenue / Webster Street	Weekday AM	B	16.2	B	17.0
	Weekday PM	B	14.5	B	15.2
	Saturday	B	12.2	B	12.2
9 Willie Stargell Avenue / Main Street	Weekday AM	A	5.4	A	7.9
	Weekday PM	A	5.7	A	7.1
	Saturday	A	5.3	A	5.3
10 Atlantic Avenue / Main Street	Weekday AM	B	12.7	B	13.7
	Weekday PM	B	14.7	B	15.3
	Saturday	B	15.8	B	15.9
11 Atlantic Avenue / Webster Street	Weekday AM	D	43.7	D	49.5
	Weekday PM	C	26.7	C	27.4
	Saturday	C	23.7	C	23.8

Source: AECOM, 2012.

Notes: **Bold** indicates intersection operating at unacceptable levels (LOS F in Downtown Oakland, and LOS E or F in Alameda).

⁽¹⁾ “Saturday” indicates Saturday peak trip generation hour of the Project.

⁽²⁾ Delay presented in seconds per vehicle.

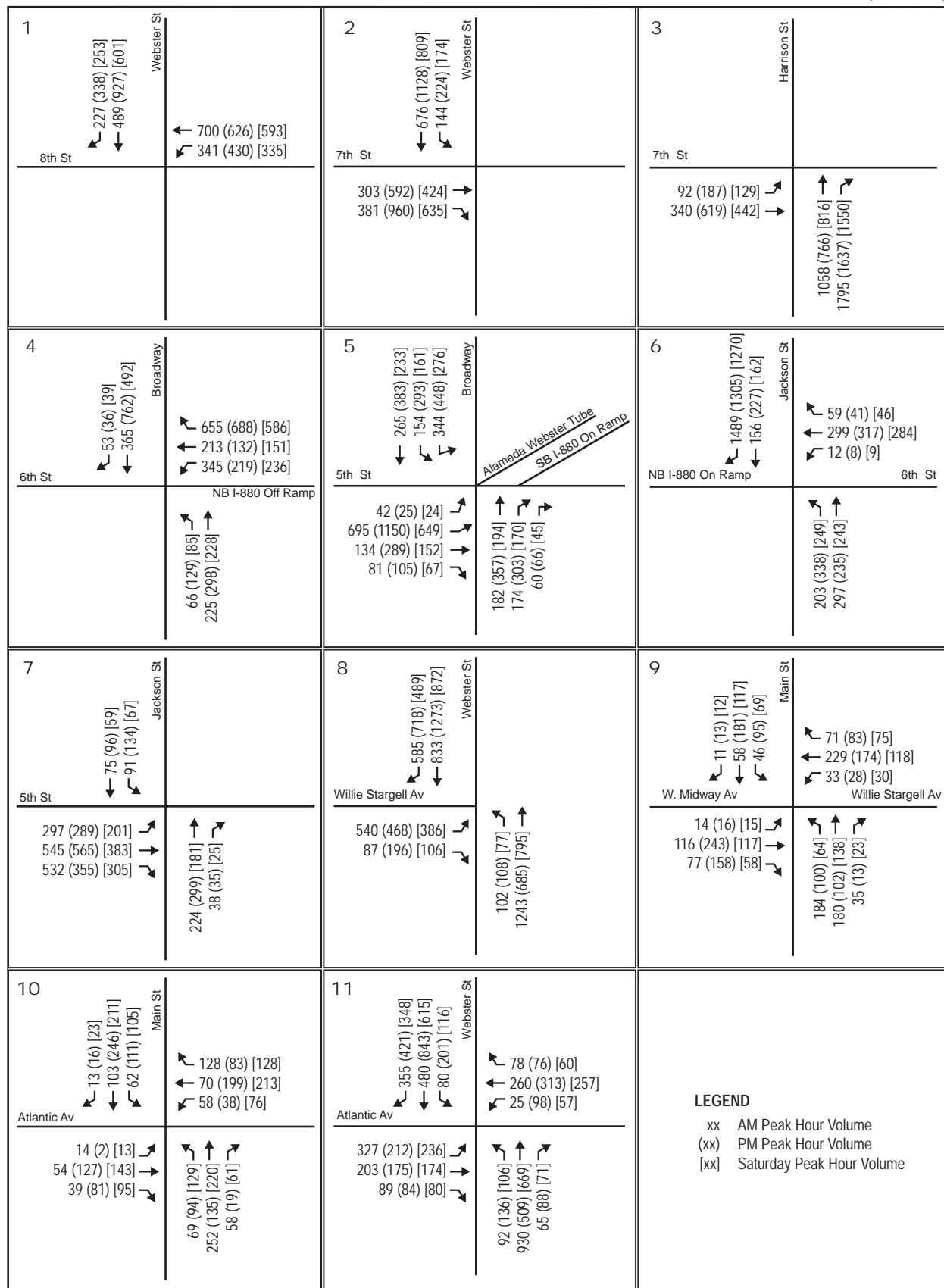


Figure 8
2017 Plus Project (Phase 1) Intersection Traffic Volumes

Roadway Segments

2017 plus Project (Alternative 1 Phase 1) weekday AM and PM peak hour traffic volumes at the roadway segments are shown in **Table 16**.

Table 16 presents the summary LOS results for the roadway segments under 2017 plus Project (Alternative 1 Phase 1) Conditions. The results show that all the roadway segments are projected to operate at acceptable conditions, LOS D or better, during the weekday AM and PM peak hours.

Table 16: 2017 Plus Project (Alternative 1 Phase 1) Roadway Segment Levels of Service

Roadway Segment	2017 No Project Conditions						2017 Plus Project (Alternative 1 Phase 1) Conditions					
	Weekday AM Peak Hour			Weekday PM Peak Hour			Weekday AM Peak Hour			Weekday PM Peak Hour		
	Volume	V/C ratio	LOS	Volume	V/C ratio	LOS	Volume	V/C ratio	LOS	Volume	V/C ratio	LOS
Northbound												
SR 260 Posey Tube	3,240	0.81	D	2,452	0.61	B	3,285	0.82	D	2,551	0.64	B
I-880 between 6 th Street and I-980	3,766	0.38	A	4,507	0.45	A	3,780	0.38	A	4,537	0.45	A
I-880 between I-980 and 5 th Street	2,015	0.25	A	2,746	0.34	A	2,026	0.25	A	2,769	0.35	A
I-880 between 5 th Street and Union Street	5,063	0.84	D	4,868	0.81	D	5,074	0.85	D	4,891	0.82	D
I-880 between Union Street and 7 th Street	4,004	0.50	A	3,938	0.49	A	4,015	0.50	A	3,961	0.50	A
I-880 between Embarcadero and 22 nd Avenue	3,393	0.57	A	3,612	0.60	B	3,423	0.57	A	3,628	0.60	B
Southbound												
SR 260 Webster Tube	2,034	0.51	A	3,312	0.83	D	2,153	0.54	A	3,377	0.84	D
I-880 between 7 th Street and Union Street	3,604	0.45	A	3,753	0.47	A	3,634	0.45	A	3,769	0.47	A
I-880 between 5 th Street and 10 th Avenue	3,940	0.49	A	3,602	0.45	A	3,951	0.49	A	3,627	0.45	A
I-880 between 10 th Avenue and Embarcadero	3,321	0.55	A	3,233	0.54	A	3,332	0.56	A	3,258	0.54	A

Source: AECOM, 2012.

Notes: V/C ratio = volume-to-capacity ratio

Bold indicates a roadway segment operating at an unacceptable level (i.e., LOS F)

Transit Impacts

As shown in **Table 11**, the Project was estimated to generate the following amount of person-transit trips under 2017 plus Project (Alternative 1Phase 1) Conditions:

- 25 transit trips (7 AC Transit trips and 18 BART trips) during the weekday AM peak hour;
- 25 transit trips (7 AC Transit trips and 18 BART trips) during the weekday PM peak hour; and
- 2 transit trips (0 AC Transit trips and 2 BART trips) during the Saturday peak hour of generator.

AC Transit bus line 31 is the closest bus line to the VA Development Area and has a bus stop approximately one mile away from the eastern edge of the VA Development Area. A future route alignment closer to or all the way into the VA

Development Area for bus line 31 could be possible after build-out of the clinic, but that would have to be determined and approved by AC Transit. Assuming the existing transit service would remain unchanged with line 31 providing service with two buses in the northbound direction and two buses in the southbound direction with approximately 30-minute headways during the peak commute periods, the estimated number of new Project-related transit riders using the bus stop would equate to approximately two more riders per bus during the weekday AM and PM peak hours. Headway is the scheduled time interval between any two buses operating in the same direction on a route. It was assumed for Saturday, there would be no new AC transit riders associated with the proposed action. These new riders could be accommodated by the current available ridership capacity of the bus service in the area. In addition, the VA shuttle that would operate between the 12th Street Oakland City Center BART station and the VA Development Area would accommodate all BART riders traveling to the VA Development Area.

Pedestrian Impacts

Pedestrian trips generated by Alternative 1 would include walk trips to and from the VA Development Area. Pedestrian walk-ins as a mode of transportation to the VA Development Area are anticipated to be infrequent, and pedestrian volumes are expected to be very low. Under 2017 plus Project (Alternative 1 Phase 1) Conditions, the Project would generate the following amount of pedestrian trips:

- 7 walk trips (5 trips inbound to the VA Development Area and 2 trips outbound from the VA Development Area) during the weekday AM peak hour;
- 7 walk trips (3 trips inbound to the VA Development Area and 4 trips outbound from the VA Development Area) during the weekday PM peak hour; and
- No walk trips occur during the Saturday peak hour of generator.

The new Project-related pedestrian trips generated by Alternative 1 could be accommodated on the nearby existing Alameda Point sidewalks and the VA Development Area sidewalks and would not substantially affect pedestrian operations along the existing Alameda Point sidewalks and crosswalks. Given the relatively low volume of pedestrians in the vicinity of the VA Development Area, no conflicts between Project-related traffic and pedestrians are expected to occur.

Bicycle Impacts

As presented in **Table 11** Project-generated bicycle trips are expected to be infrequent. With the current bicycle and traffic volumes on the Alameda Point streets, bicycle travel generally occurs without major impediments or safety problems. The negligible increase in bicycle trips under Alternative 1 within the Alameda Point Area would not be substantial enough to affect overall bicycle circulation or operations in the area.

Parking and Loading Impacts

The assessment of parking impacts compares the proposed parking supply against the supply required by the City of Alameda *Municipal Code*.

Municipal Code Requirements: Parking and loading requirements for the Project per the City of Alameda's *Municipal Code* are as follows:

- Office use: 2.5 spaces for each 1,000 square feet of occupied floor area;
- Clinic use: 4.0 spaces for each 1,000 square feet of occupied floor area; and

- For greater than 12,500 square feet of gross floor area, 1.0 loading space is required.

Based on the above requirements, Alternative 1 would be required to provide 623 parking spaces (31 spaces for the office use and 592 spaces for the clinic use), and one loading space.

Proposed Supply: Alternative 1 would provide a total of 640 parking spaces for employees, visitors and patients, and two full-size truck bays to accommodate a typical semi-truck (approximately 55-feet in length) by the Year 2017. The total parking supply includes 630 parking spaces adjacent to the clinic building and approximately 10 parking spaces adjacent to the conservation management office. The *Municipal Code* requires a total of 623 parking spaces. The total proposed parking supply would exceed the City of Alameda *Municipal Code* requirements for the Project by providing 17 more parking spaces. Additionally, space to park approximately 30 vehicles would be provided adjacent to each of the three proposed committal service shelters. Two committal service shelters (including 60 parking spaces) would be built by 2017.

Site Access and Circulation Impacts

Access to the proposed VA Development Area would be via Main Street, Navy Way, and West Redline Avenue. The intersection of West Redline Avenue and Monarch Street would connect with the proposed main access roadway. The proposed internal main access roadway traverses the northern boundary of the VA Development Area.

Other internal roadways would be constructed, which would provide access to the clinic, conservation management office, and cemetery. These internal roadways would connect to the proposed main access roadway. In addition, a cortege assembly area in a pre-staging area would consist of one or more lanes for vehicles to queue prior to proceeding to the committal service shelter(s). The cemetery roadway would be developed in accordance with VA design and construction standards and specifications for national cemeteries. The internal main access roadway would be developed in accordance with the American Association of State Highway and Transportation Officials (AASHTO) guidelines.

Taxis, private vehicles and emergency vehicles would utilize the new main access and internal roadways. An additional emergency vehicle access would be provided on the eastern perimeter of the VA transfer parcel.

Site access and circulation or emergency vehicle access to and from the VA Development Area is sufficient based on the review of the proposed action's site plan, which was discussed above.

Construction Traffic Impacts

It is anticipated that construction activities for Phase 1 would take approximately 18 months to complete. Construction would generally occur Monday through Friday between 7:00 AM to 7:00 PM, which are within City-designated construction hours per the City of Alameda Noise Ordinance Number 2712. Construction is not anticipated to occur on Saturdays, Sundays, or major legal holidays.

Construction activities would include import of fill / grading / excavation and below grade concrete, above-grade structure, paving, and painting. The paving and painting construction stages would occur concurrently with the above-grade structure activity. Construction of Phase 1 is expected to begin in July 2015 with an approximate completion date of December 2017. Details regarding each construction stage are included in **Appendix D**.

Throughout the construction period, there would be a flow of construction-related trucks into and out of the VA Development Area. It is anticipated that construction-related trucks would traverse I-880 and the designated truck routes with the City of Oakland and City of Alameda to access the VA Development Area. Since there a limited number of intersections that can be traveled through in order to access the VA Development Area, it is anticipated that construction

related truck trips and Personnel Occupied Vehicles (POV) would travel through the study intersections identified previously in this report. The details of construction traffic by activity are summarized in Table 17.

Table 17: Estimate of Construction Traffic – Alternatives 1 and 2, Phase I

Construction Activity	Approximate Start – End Date	Duration (Months)	Maximum Daily Trips (One-Way) by Activity			Peak Month ¹ Daily Trips (One-way) for All Activities		
			Trucks	POV	Total	Trucks	POV	Total
1. Access Road	7/2015 - 12/2015	6	6	10	60	6	10	16
2. Soil Import	7/2015 – 12/2015	6	372	0	372	372	0	372
3. Cemetery Support	7/2015 – 12/2015	6	16	62	78	16	62	78
4. Conservation Management	7/2015 – 6/2016	12	16	62	78	6	10	16
5. Outpatient Clinic	7/2015 – 12/2016	18	16	62	78	6	10	16

Source: AECOM, 2012.

Notes:

¹Peak month of construction occurs in December 2015

As shown in Table 17, construction associated with Alternative 1 Phase 1 will generate a maximum of 406 truck-trips (one-way) and 92 POV (one-way) trips during the peak month of construction. All construction staging areas would be located within the VA Development Area. It is anticipated that no regular travel lanes or AC Transit bus stops would need to be closed or relocated during the construction period. Any temporary sidewalk or traffic lane closures would be coordinated with the City in order to minimize the impacts on traffic.

Proposed action-related construction activity, including both construction truck traffic and additional vehicular traffic from construction workers, would not substantially affect vehicular, pedestrian, and bicycle circulation and would be temporary in nature. Intersection traffic operations were analyzed with the peak month construction traffic for Alternative 1, Phase 1 added to Year 2017 background traffic. The analysis found that all study intersections are forecasted to operate at acceptable levels as indicated by criteria for the City of Alameda and City of Oakland during the weekday AM and PM peak hours.

Construction workers who drive to the site would generate temporary demand for parking. Parking demand generated by construction workers' personal vehicles is expected to be accommodated by the portions of the VA Development Area that are not under construction at any given time and that have already been developed with internal roadways or runways. Construction-related parking demand would be short-term and temporary in nature. Therefore, construction impacts would be temporary and minor under Alternative 1, Phase 1.

Traffic Safety Impacts

The off-site utility corridor/access road would be required to be built to City of Alameda design standards, as this would be a public street. The internal main access roadway would need to be built to the American Association of State Highway and Transportation Officials (AASHTO) standards, as this would be a federal roadway. The internal roadways that would provide circulation within the cemetery would be required to be built in compliance with Section 12.7 of the VA NCA Facilities Design Guide (2010) for road widths and road minimum radius. The *NCA Facilities Design Guide* specifies the road widths and minimum radius for the various types of roads (i.e. entrance road, primary road, secondary road, service roads, and committal service shelter drives). The design of the NCA roads should accommodate anticipated traffic volume at a maximum design speed of 24 km/h (15 mph) (NCA 2010). Traffic safety impacts would be negligible under Alternative 1 through compliance with the City of Alameda, AASHTO, and VA NCA roadway design standards.

2017 plus Project (Alternative 2 Phase 1) Conditions

Traffic Impacts

Vehicle trips generated by Alternative 2 would be the same as Alternative 1 as summarized in Table 11. The resulting 2017 plus Project (Alternative 2 Phase 1) intersection and roadway segment traffic volumes are the same as Alternative 1 and are illustrated in Figure 8 and Table 16, respectively. The LOS results for the study intersections and roadway segments are the same as Alternative 1 and are summarized in Section 4.2.3. Even with the addition of the proposed action traffic, all study intersections and roadway segments would continue to operate acceptably.

Transit Impacts

Transit trips generated by Alternative 2 would be the same as Alternative 1 and summarized in Table 11. Transit operations under Alternative 2 would be the same as Alternative 1 and summarized in Section 4.2.3. The proposed action's addition of transit riders could be accommodated by the current available ridership capacity of the bus service in the Alameda Point Area. In addition, the VA shuttle that would operate between the 12th Street Oakland City Center BART station and the VA Development Area would accommodate all BART riders.

Pedestrian Impacts

Pedestrian trips generated by Alternative 2 would be the same as Alternative 1 and summarized in Table 11. The new pedestrian trips generated by the Project could be accommodated on the nearby existing Alameda Point sidewalks and the proposed VA Development Area sidewalks and would not substantially affect pedestrian operations along the Alameda Point nearby sidewalks and crosswalks.

Bicycle Impacts

Bicycle trips generated by Alternative 2 would be the same as Alternative 1 and summarized in Table 11. The proposed action's expected negligible increase in bicycle trips within the Alameda Point Area would not be substantial enough to affect overall bicycle circulation or operations in the area.

Parking and Loading Impacts

The parking and loading requirements per City of Alameda *Municipal Code* would be the same as Alternative 1 and discussed in Section 4.2.3. The total parking supply includes 630 parking spaces adjacent to the clinic and approximately 10 parking spaces adjacent to the conservation management office and, therefore, the Project would include 640 parking spaces. The *Municipal Code* requires a total of 623 parking spaces. Therefore, the number of parking spaces provided for the proposed action would meet and exceed the requirements contained in the *Municipal Code*.

Construction Impacts

Construction activities and level of intensity would be the same as Alternative 1 and discussed in *Section 4.2.3*. Proposed-action-related construction activity, including both construction truck traffic and additional vehicular traffic from construction workers, would not substantially affect vehicular, pedestrian, and bicycle circulation and would be temporary in nature.

Site Access and Circulation Impacts

Access to the proposed VA Development Area would be via Main Street, Navy Way, and West Redline Avenue. The intersection of West Redline Avenue and Monarch Street would connect with the proposed main access roadway. The proposed internal main access roadway traverses the northern boundary of the VA Development Area.

The internal roadways would have a slightly different location compared to Alternative 1. These internal roadways would connect to the proposed main access roadway. Taxis, private vehicles and emergency vehicles would utilize the new main access and internal roadways.

The clinic would be located further north and would have a different building orientation and the cemetery would be developed within one 80-acre area west of the clinic, rather than in two separate areas on both the west and east sides of the clinic.

Site access and circulation or emergency vehicle access to and from the VA Development Area is sufficient based on the review of the site plan, which was discussed above.

Traffic Safety Impacts

There would be no traffic safety impacts as discussed in *Section 4.2.3*.

2017 plus Project (Alternative 3 Phase 1) Conditions

Traffic Impacts

Alternative 3 corresponds to the No Action alternative and therefore, the Project would not generate any trips.

Intersections

The 2017 plus Project (Alternative 3 Phase 1) Conditions intersection traffic volumes would be equivalent to the 2017 Conditions intersection traffic volumes shown in **Figure 7**.

Table 18 presents the summary LOS results for the study intersections under 2017 plus Project (Alternative 3 Phase 1) Conditions. The results show that all 11 study intersections are projected to operate at acceptable conditions, LOS D or better, during the weekday AM peak hour, weekday PM peak hour, and Saturday peak trip generation hour of the Project. Detailed LOS analysis and worksheets are provided in **Appendix B**.

Table 18: Intersection Level of Service – 2017 plus Project (Alternative 3 Phase 1) Conditions

Intersection	Peak Hour ⁽¹⁾	Existing (2011) Conditions		2017 Plus Project Alternative 3 Conditions	
		LOS	Delay ⁽²⁾	LOS	Delay ⁽²⁾
1 8 th Street / Webster Street	Weekday AM	C	24.7	C	25.8
	Weekday PM	C	26.3	C	27.4
	Saturday	C	24.5	C	25.5
2 7 th Street / Webster Street	Weekday AM	B	11.6	B	11.8
	Weekday PM	B	16.3	B	17.6
	Saturday	A	8.4	A	9.6
3 7 th Street / Harrison Street	Weekday AM	B	15.3	B	16.1
	Weekday PM	C	25.9	D	41.4
	Saturday	B	11.6	B	13.2
4 Broadway / 6 th Street	Weekday AM	B	16.2	B	17.7
	Weekday PM	B	18.5	C	21.1
	Saturday	B	16.1	B	17.7
5 Broadway / 5 th Street	Weekday AM	C	30.7	C	33.4
	Weekday PM	D	52.4	E	74.9
	Saturday	C	27.0	C	28.2
6 Jackson Street / 6 th Street	Weekday AM	A	7.3	A	8.1
	Weekday PM	A	9.3	B	10.1
	Saturday	B	10.6	B	13.4
7 Jackson Street / 5 th Street	Weekday AM	B	18.0	C	31.9
	Weekday PM	B	14.0	B	15.1
	Saturday	B	11.8	B	13.5
8 Willie Stargell Avenue / Webster Street	Weekday AM	B	12.5	B	16.2
	Weekday PM	B	12.5	B	14.5
	Saturday	A	9.4	B	12.2
9 Willie Stargell Avenue / Main Street	Weekday AM	A	4.8	A	5.4
	Weekday PM	A	5.3	A	5.7
	Saturday	A	4.5	A	5.3
10 Atlantic Avenue / Main Street	Weekday AM	B	11.1	B	12.7
	Weekday PM	B	11.8	B	14.7
	Saturday	B	12.1	B	15.8
11 Atlantic Avenue / Webster Street	Weekday AM	C	29.9	D	43.7
	Weekday PM	C	24.7	C	26.7
	Saturday	C	21.0	C	23.7

Source: AECOM, 2012.

Notes: Bold indicates intersection operating at unacceptable levels (LOS F in Downtown Oakland, and LOS E or F in Alameda).

(1) "Saturday" indicates Saturday peak trip generation hour of the Project.

(2) Delay presented in seconds per vehicle.

Roadway Segments

The 2017 plus Project (Alternative 3 Phase 1) Conditions roadway segment traffic volumes would be equivalent to the 2017 Conditions roadway segment traffic volumes shown in Table 14. As shown in Table 14, all roadway segments are projected to operate at acceptable conditions, LOS D or better, during the weekday AM and PM peak hours.

Other Impacts

Since Alternative 3 corresponds to the No Action Alternative, Phase 1 of the Project would not result in any deficiencies related to transit, pedestrian, bicycle, parking and loading, site access and circulation, or construction activity.

Phase 1 (2017) Conclusion

Neither Alternative 1 nor Alternative 2 is expected to result in transportation impacts that would require mitigation.

4.3 Cumulative (2035) Impacts

Methods and Assumptions

The Cumulative (2035) No Project Condition accounts for planned approved development growth, transportation network changes in the study area, as well as background growth throughout the region in Year 2035. The Cumulative (2035) Conditions are used as a future baseline with which to compare against Cumulative (2035) Plus Project Conditions, in order to identify Project-related cumulative impacts. Project trips generated by every phase of the Project were added to the Cumulative (2035) No Project Conditions. This provides for a conservative analysis because full build-out of the Project would not occur till Year 2116. The Cumulative Transportation impacts under the Cumulative (2035) Plus Project Conditions for all three alternatives at the 11 study intersections and ten roadway segments are presented below. Intersections and roadway segments that would result in unacceptable LOS due to the implementation of the Project are identified in accordance with City of Alameda and City of Oakland policies.

Planned Growth and Background Growth

The 2035 analysis was performed for a horizon year of 2035 in order to reflect foreseeable growth within the area. Forecasts of future year traffic volumes were prepared utilizing the ACTC and City of Alameda travel demand model. Existing traffic volumes were adjusted by applying growth factors to existing counts. The growth factors were derived using base year and future year model link volumes.

Intersections

Base year and future year weekday AM and PM peak hour traffic volumes were obtained using the ACTC and City of Alameda model network outputs. The Saturday peak hour volumes were obtained by applying an equivalence ratio, which was developed between the existing Saturday peak hour of generator intersection vehicle turning movement counts and the existing weekday AM and PM peak hour intersection vehicle turning movement counts. The forecasted weekday AM and PM peak hour intersection vehicle turning movements were first developed and then the equivalence ratio was applied to develop the Saturday peak hour of generator intersection vehicle turning movement volumes.

The ACTC travel demand model was used to develop future forecasts for the seven study intersections located within the City of Oakland. The intersection vehicle turning movement volumes in Year 2035 was developed through the use of growth

factors. An annual growth factor for traffic was developed between the Year 2035 model link volumes and the Year 2011 year model link volumes and applied to existing intersection vehicle turning movement volumes.

The City of Alameda travel demand model was used to develop future forecasts for the four study intersections located within the City of Alameda. The City of Alameda traffic model forecast year is for Year 2030, but the traffic analysis is for Year 2035. Therefore, the Year 2035 model link volumes were developed by extrapolating between the Year 2007 model link volumes and the Year 2030 model link volumes. Once 2035 model link volumes were developed, an annual growth factor for traffic was then developed between the Year 2011 model link volumes and the Year 2035 model link volumes and applied to existing intersection vehicle turning movement volumes.

Roadway Segments

The same methodology that was used to develop the traffic volumes for the study intersections was also applied to the roadway segments. The annual growth factor that was applied to the existing roadway volumes to generate 2035 traffic volumes was developed by only using the ACTC travel demand model. The ACTC model is a regional model while the City of Alameda travel demand model is a local centralized model.

Transportation Network Modifications

Under 2035 Conditions, the following roadway network changes are planned and programmed and assumed within the City of Alameda:

- The Clement Street Extension from the intersection of Atlantic Avenue and Sherman Street to Grand Street as a two-lane street;
- The Mitchell Street Extension from Mariner Square Loop to a new intersection on Main Street north of Singleton Avenue as a two-lane street; and
- The 5th Street Extension from Willie Stargell Avenue north to Mitchell Street as a two-lane street.

Another planned improvement is the Broadway/Jackson Interchange at I-880. This project is a partnership among the cities of Oakland and Alameda, Caltrans, ACTC, and other stakeholders. Its main goal is to improve traffic operations and circulation in the area around the I-880 Broadway / Jackson Street Interchange. Although the project is not yet fully funded, it could include any of the following elements:

- Construction of a new I-880 southbound off-ramp at Martin Luther King Jr. Way, relieving traffic using the southbound off-ramp at Broadway;
- A Bus Rapid Transit (BRT) from Alameda Point to 12th Street BART Station;
- Reconstruct and realign the existing northbound I-880 Broadway off-ramp to terminate at Webster Street and provide connection to the Webster Tube;
- Construction of a new I-880 northbound on-ramp at the Market Street / 6th Street intersection;
- 6th Street corridor improvements from Broadway to Market Street and 5th Street corridor improvements from Martin Luther King Jr. Way to Broadway; and

- Construction of a new left-turn lane from a depressed portion of Harrison Street onto northbound 6th Street.

A Project Study Report (PSR) Project Development Support has been completed for this project on March 16, 2011. Because of the absence of finalized design plans, as the project is still in the environmental phase, and assurance of full funding, this improvement was not assumed in 2035 Conditions. It is noted that if the improvement were to be successfully implemented, there would be a reduction in background traffic volumes among many of the study intersections located within the City of Oakland. Because the analysis presented in this traffic study does not assume the Broadway / Jackson Interchange project, the results of this analysis are, therefore, considered conservative.

Cumulative (2035) No Project Conditions

Intersections

The weekday AM and PM peak hour and Saturday peak trip generation hour of the proposed action intersection traffic volumes are shown in **Figure 9**.

Table 19 presents the summary LOS results for the study intersections under the Cumulative (2035) No Project Condition. These results indicate that all of the study intersections are projected to operate at acceptable levels as indicated by criteria for the City of Alameda and City of Oakland except for the following:

- 7th Street / Harrison Street during the weekday PM peak hour;
- Broadway / 5th Street during the weekday PM peak hour; and
- Atlantic Avenue / Webster Street during the weekday AM and PM peak hours.

Detailed LOS analysis and worksheets are provided in **Appendix B**.

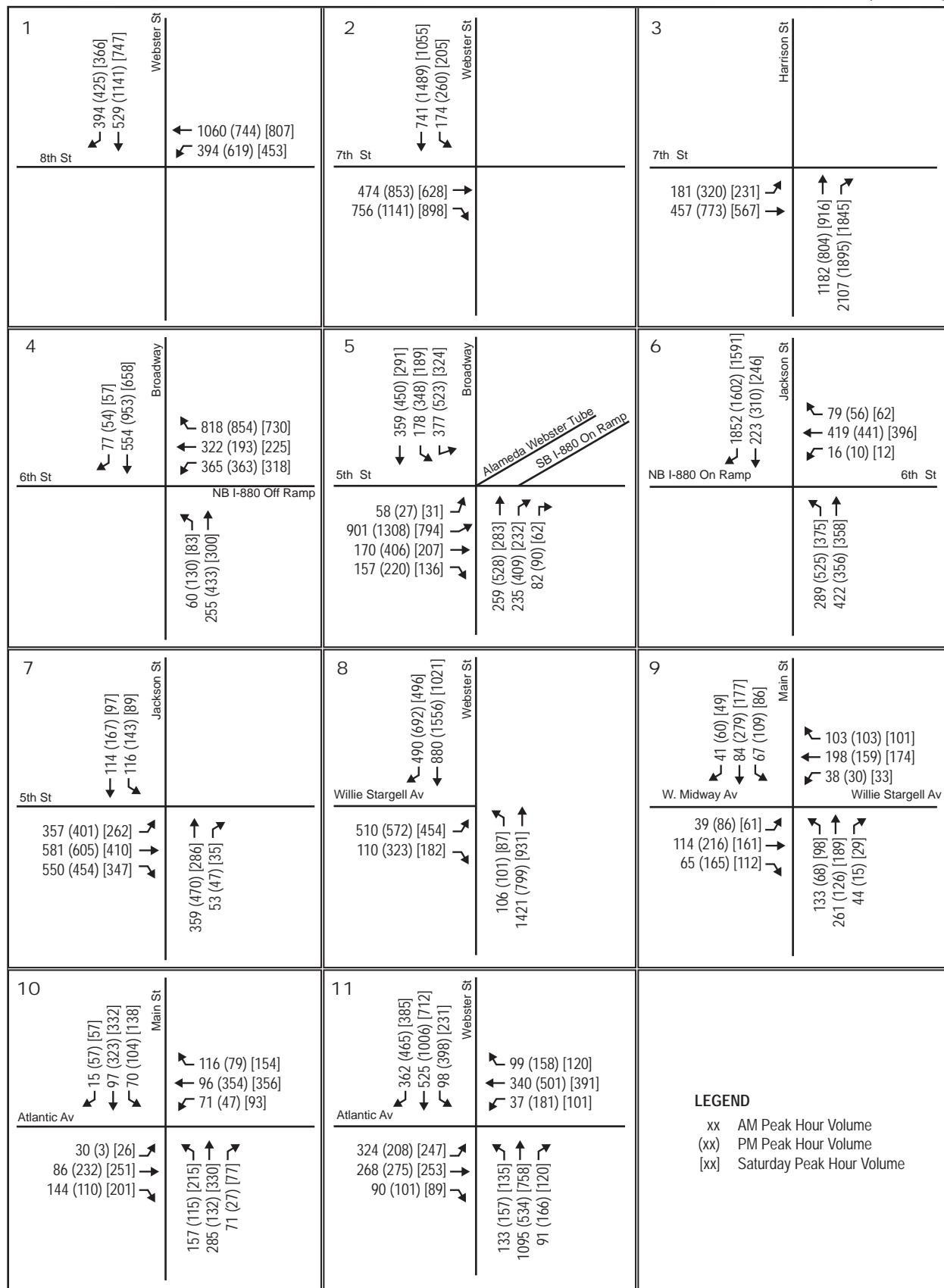


Figure 9
Cumulative (2035) Intersection Traffic Volumes

Table 19: Cumulative (2035) No Project Intersection Level of Service

Intersection	Peak Hour ⁽¹⁾	2017 Conditions		2035 Conditions	
		LOS	Delay ⁽²⁾	LOS	Delay ⁽²⁾
1 8 th Street / Webster Street	Weekday AM	C	25.8	C	29.4
	Weekday PM	C	27.4	C	31.1
	Saturday	C	25.5	C	27.7
2 7 th Street / Webster Street	Weekday AM	B	11.8	B	13.5
	Weekday PM	B	17.6	D	51.6
	Saturday	A	9.6	B	16.9
3 7 th Street / Harrison Street	Weekday AM	B	16.1	C	24.1
	Weekday PM	D	41.4	F	114.0
	Saturday	B	13.2	C	27.0
4 Broadway / 6 th Street	Weekday AM	B	17.7	C	21.8
	Weekday PM	C	21.1	D	40.2
	Saturday	B	17.7	C	21.2
5 Broadway / 5 th Street	Weekday AM	C	33.4	D	50.0
	Weekday PM	E	74.9	F	119.2
	Saturday	C	28.2	C	32.6
6 Jackson Street / 6 th Street	Weekday AM	A	8.1	C	20.1
	Weekday PM	B	10.1	E	56.3
	Saturday	B	13.4	E	67.4
7 Jackson Street / 5 th Street	Weekday AM	C	31.9	D	50.4
	Weekday PM	B	15.1	D	35.3
	Saturday	B	13.5	B	14.6
8 Willie Stargell Avenue / Webster Street	Weekday AM	B	16.2	C	22.4
	Weekday PM	B	14.5	C	31.6
	Saturday	B	12.2	B	13.3
9 Willie Stargell Avenue / Main Street	Weekday AM	A	5.4	A	7.9
	Weekday PM	A	5.7	A	9.4
	Saturday	A	5.3	A	7.2
10 Atlantic Avenue / Main Street	Weekday AM	B	12.7	B	14.4
	Weekday PM	B	14.7	B	18.2
	Saturday	B	15.8	C	22.1
11 Atlantic Avenue / Webster Street	Weekday AM	D	43.7	F	95.8
	Weekday PM	C	26.7	E	64.6
	Saturday	C	23.7	C	31.6

Source: AECOM, 2012.

Notes: **Bold** indicates intersection operating at unacceptable levels (LOS F in Downtown Oakland, and LOS E or F in Alameda).⁽¹⁾ "Saturday" indicates Saturday peak trip generation hour of the Project.⁽²⁾ Delay presented in seconds per vehicle.

Roadway Segments

The Cumulative (2035) No Project weekday AM and PM peak hour traffic volumes are shown in Table 20.

Table 20 presents the summary LOS results for the roadway segments under Cumulative (2035) No Project Conditions. The table indicates that all of the roadway segments under Cumulative (2035) No Project Condition are forecasted to operate at acceptable levels as indicated by the City of Oakland criteria.

Table 20: Cumulative (2035) No Project Roadway Segment Levels of Service

Roadway Segment	2017 Conditions						2035 Conditions					
	Weekday AM Peak Hour			Weekday PM Peak Hour			Weekday AM Peak Hour			Weekday PM Peak Hour		
	Volume	V/C ratio	LOS									
Northbound												
SR 260 Posey Tube	3,240	0.81	D	2,452	0.61	B	3,560	0.89	D	2,695	0.67	B
I-880 between 6 th Street and I-980	3,766	0.38	A	4,507	0.45	A	4,472	0.45	A	5,352	0.54	A
I-880 between I-980 and 5 th Street	2,015	0.25	A	2,746	0.34	A	2,288	0.29	A	3,118	0.39	A
I-880 between 5 th Street and Union Street	5,063	0.84	D	4,868	0.81	D	5,681	0.95	E	5,462	0.91	E
I-880 between Union Street and 7 th Street	4,004	0.50	A	3,938	0.49	A	4,529	0.57	A	4,454	0.56	A
I-880 between Embarcadero and 22 nd Avenue	3,393	0.57	A	3,612	0.60	B	3,739	0.62	B	3,981	0.66	B
Southbound												
SR 260 Webster Tube	2,034	0.51	A	3,312	0.83	D	2,236	0.56	A	3,640	0.91	E
I-880 between 7 th Street and Union Street	3,604	0.45	A	3,753	0.47	A	4,295	0.54	A	4,474	0.56	A
I-880 between 5 th Street and 10 th Avenue	3,940	0.49	A	3,602	0.45	A	4,402	0.55	A	4,025	0.50	A
I-880 between 10 th Avenue and Embarcadero	3,321	0.55	A	3,233	0.54	A	3,702	0.62	B	3,603	0.60	B

Source: AECOM, 2012.

Notes: V/C ratio = volume-to-capacity ratio

Bold indicates a roadway segment operating at an unacceptable level (i.e., LOS F)

2035 plus Project Alternative 1 (Phases 1-11) Conditions

Traffic Impacts

Traffic volumes generated by Alternative 1 in Year 2035 were added to Cumulative (2035) No Project traffic volumes to obtain the 2035 plus Project Alternative 1 (Phases 1-11) traffic volumes. These traffic volumes reflect the aforementioned assumptions regarding trip generation, trip distribution, mode split, and traffic assignment for the proposed Project.

Intersection

2035 plus Project Alternative 1 (Phases 1-11) weekday AM and PM peak hour and the Saturday peak trip generation hour of the Project traffic volumes at the study intersections are graphically shown in Figure 10.

Table 21 presents the summary LOS results for the study intersections under 2035 plus Project Alternative 1 (Phases 1-11) Conditions. The results show that all 11 study intersections are forecasted to operate at acceptable conditions except for the following intersections that would continue to operate unacceptably with the addition of proposed Project traffic:

- 7th Street / Harrison Street during the weekday PM peak hour;
- Broadway / 5th Street during the weekday PM peak hour; and
- Atlantic Avenue / Webster Street during the weekday AM and PM peak hours.

Detailed LOS analysis and worksheets are provided in Appendix B.

In some instances, the average intersection delay decreases from Cumulative (2035) No Project to 2035 plus Project Alternative 1 (Phases 1-11) Conditions. This is because the Project would add vehicles to movements that currently operate under capacity with no/lower delay, thus resulting in an improved intersection delay.

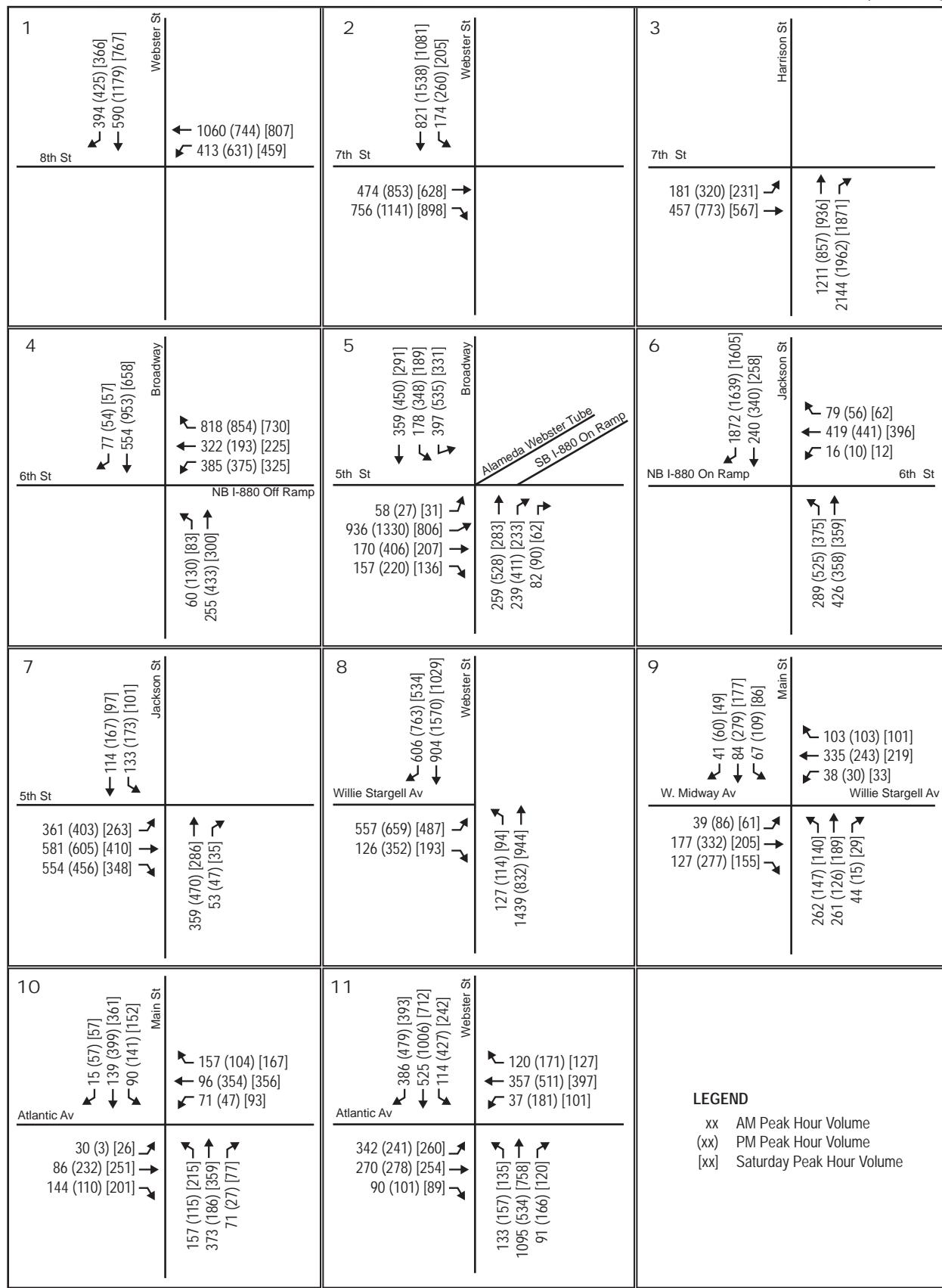
The following is a description of the intersections that would operate unacceptably under 2035 plus Project Alternative 1 (Phases 1-11) Conditions. The intersections are evaluated using the significance criteria in Section 4.1.

7th Street / Harrison Street

The addition of Project-related traffic to Cumulative (2035) No Project Conditions would cause the intersection located within the City of Oakland to continue to operate at an unacceptable LOS F during the weekday PM peak hour. The implementation of the Project would cause the overall volume-to-capacity ratio to increase by 0.01 or more or the critical movement volume-to-capacity ratio to increase by 0.02 or more from the Cumulative (2035) No Project Conditions. Therefore, this is considered an impact.

5th Street / Broadway

The addition of Project-related traffic to Cumulative (2035) No Project Conditions would cause the intersection located within the City of Oakland to continue to operate at an unacceptable LOS F during the weekday PM peak hour. The implementation of the Project would cause the overall volume-to-capacity ratio to increase by 0.01 or more or the critical movement volume-to-capacity ratio to increase by 0.02 or more from the Cumulative (2035) No Project Conditions. Therefore, this is considered an impact.



2035 No Project Volumes.ai

Figure 10

Cumulative (2035) Plus Project (Phases 1-11) Intersection Traffic Volumes

Table 21: 2035 plus Project Alternative 1 (Phases 1-11) Intersection Level of Service

Intersection	Peak Hour ⁽¹⁾	2035 Conditions		2035 Plus Project Alternative 1 Conditions	
		LOS	Delay ⁽²⁾	LOS	Delay ⁽²⁾
1 8th Street / Webster Street	Weekday AM	C	29.4	C	29.7
	Weekday PM	C	31.1	C	31.7
	Saturday	C	27.7	C	27.8
2 7th Street / Webster Street	Weekday AM	B	13.5	B	13.9
	Weekday PM	D	51.6	E	58.7
	Saturday	B	16.9	B	17.1
3 7th Street / Harrison Street	Weekday AM	C	24.1	C	26.4
	Weekday PM	F	114.0	F	127.3
	Saturday	C	27.0	C	29.7
4 Broadway / 6th Street	Weekday AM	C	21.8	C	21.9
	Weekday PM	D	40.2	D	40.1
	Saturday	C	21.2	C	21.2
5 Broadway / 5th Street	Weekday AM	D	50.0	E	55.8
	Weekday PM	F	119.2	F	124.4
	Saturday	C	32.6	C	33.3
6 Jackson Street / 6th Street	Weekday AM	C	20.1	C	20.8
	Weekday PM	E	56.3	E	62.8
	Saturday	E	67.4	E	68.6
7 Jackson Street / 5th Street	Weekday AM	D	50.4	D	51.2
	Weekday PM	D	35.3	E	55.9
	Saturday	B	14.6	B	14.7
8 Willie Stargell Avenue / Webster Street	Weekday AM	C	22.4	C	25.6
	Weekday PM	C	31.6	D	38.3
	Saturday	B	13.3	B	13.7
9 Willie Stargell Avenue / Main Street	Weekday AM	A	7.9	B	12.4
	Weekday PM	A	9.4	B	15.4
	Saturday	A	7.2	A	7.9
10 Atlantic Avenue / Main Street	Weekday AM	B	14.4	B	16.1
	Weekday PM	B	18.2	B	19.4
	Saturday	C	22.1	C	22.8
11 Atlantic Avenue / Webster Street	Weekday AM	F	95.8	F	104.3
	Weekday PM	E	64.6	E	71.6
	Saturday	C	31.6	C	32.5

Source: AECOM, 2012.

Notes: **Bold** indicates intersection operating at unacceptable levels (LOS F in Downtown Oakland, and LOS E or F in Alameda).⁽¹⁾ "Saturday" indicates Saturday peak trip generation hour of the Project.⁽²⁾ Delay presented in seconds per vehicle.

Webster Street / Atlantic Avenue

The addition of Project-related traffic to Cumulative (2035) No Project Conditions would cause the intersection located within the City of Alameda to continue to operate at an unacceptable LOS F and E during the weekday AM peak hour and weekday PM peak hour, respectively. The implementation of the Project would cause the total intersection average delay to increase by four or more seconds from the Cumulative (2035) No Project Conditions. Therefore, this is considered an impact.

Roadway Segments

2035 plus Project Alternative 1 (Phases 1-11) weekday AM and PM peak hour traffic volumes at the roadway segments are shown in Table 22.

Table 22 presents the summary LOS results for the roadway segments under 2035 plus Project Alternative 1 (Phases 1-11) Conditions. The results show that all the roadway segments are forecasted to operate at acceptable conditions, LOS E or better, during the weekday AM and PM peak hours.

Table 22: 2035 plus Project Alternative 1 (Phases 1-11) Roadway Segment Levels of Service

Roadway Segment	2035 Conditions						2035 Plus Project Alternative 1 Conditions					
	Weekday AM Peak Hour			Weekday PM Peak Hour			Weekday AM Peak Hour			Weekday PM Peak Hour		
	Volume	V/C ratio	LOS	Volume	V/C ratio	LOS	Volume	V/C ratio	LOS	Volume	V/C ratio	LOS
Northbound												
SR 260 Posey Tube	3,560	0.89	D	2,695	0.67	B	3,626	0.91	E	2,815	0.70	C
I-880 between 6 th Street and I-980	4,472	0.45	A	5,352	0.54	A	4,492	0.45	A	5,389	0.54	A
I-880 between I-980 and 5 th Street	2,288	0.29	A	3,118	0.39	A	2,304	0.29	A	3,147	0.39	A
I-880 between 5 th Street and Union Street	5,681	0.95	E	5,462	0.91	E	5,697	0.95	E	5,491	0.92	E
I-880 between Union Street and 7 th Street	4,529	0.57	A	4,454	0.56	A	4,545	0.57	A	4,483	0.56	A
I-880 between Embarcadero and 22 nd Avenue	3,739	0.62	B	3,981	0.66	B	3,774	0.63	B	4,002	0.67	B
Southbound												
SR 260 Webster Tube	2,236	0.56	A	3,640	0.91	E	2,376	0.59	A	3,726	0.93	E
I-880 between 7 th Street and Union Street	4,295	0.54	A	4,474	0.56	A	4,330	0.54	A	4,496	0.56	A
I-880 between 5 th Street and 10 th Avenue	4,402	0.55	A	4,025	0.50	A	4,419	0.55	A	4,055	0.51	A
I-880 between 10 th Avenue and Embarcadero	3,702	0.62	B	3,603	0.60	B	3,719	0.62	B	3,633	0.61	B

Source: AECOM, 2012.

Notes: V/C ratio = volume-to-capacity ratio

Bold indicates a roadway segment operating at an unacceptable level (i.e., LOS F)

Transit Impacts

Transit trips generated by Alternative 1 under 2035 Conditions are summarized in Table 12. As shown in Table 12, the Project would only generate an additional seven person-transit trips in the weekday AM and PM peak hours. No additional transit trips would be generated on the Saturday peak trip generation hour of the Project.

AC Transit bus line 31 is the closest bus line to the VA Development Area and has a bus stop approximately one mile away from the eastern edge of the VA Development Area. A future route alignment closer to or all the way into the VA Development Area for bus line 31 could be possible after build-out of the clinic, but that would have to be determined and approved by AC Transit. Assuming the existing transit service would remain unchanged with line 31 providing service with two buses in the northbound direction and two buses in the southbound direction with approximately 30-minute headways during the peak commute periods, the estimated number of new Project-related transit riders using the bus stop would equate to approximately two more riders per bus during the weekday AM and PM peak hours. These new riders could be accommodated by the current available ridership capacity of the bus service in the area. Therefore, the Project is not anticipated to have a substantial effect on transit services in the Alameda Point Area.

Pedestrian Impacts

Pedestrian trips generated by Alternative 1 would include walk trips to and from the VA Development Area. Pedestrian walk-ins as a mode of transportation to the VA Development Area are anticipated to be infrequent, and pedestrian volumes are expected to be very low. Under 2035 plus Project Alternative 1 (Phases 1-11) Conditions, the Project would not be expected to generate a substantial change in pedestrian circulation. The Project would not conflict with the existing or proposed Alameda Point Area pedestrian facilities or propose design features hazardous to pedestrian operations.

Bicycle Impacts

As presented in **Table 12**, bicycle trips generated by Alternative 1 are expected to be infrequent. With the current bicycle and traffic volumes on the Alameda Point streets, bicycle travel generally occurs without major impediments or safety problems. The negligible increase in bicycle under Alternative 1 would not be substantial enough to affect overall bicycle circulation or operations in the area. The Project would not conflict with existing or planned bicycle facilities or propose design features hazardous to bicycle operations.

Parking and Loading Impacts

Based on the Municipal Code requirements discussed in *Section 4.2.3*, the Project would be required to provide 623 parking spaces and one loading space. The Project would provide approximately 640 parking spaces and two full-size truck bays to accommodate a typical semi-truck (approximately 55-feet in length), exceeding the *Municipal Code* requirements. Thus, adequate parking is provided by the Project.

Site Access and Circulation Impacts

Access to the VA Development Area under 2035 Conditions would be similar to the access provided under 2017 Conditions. The main access roadway clinic would tie into the existing City of Alameda roadway system and be located on the northern boundary of the VA Development Area. Taxis, private vehicles and emergency vehicles would utilize the new main access and internal roadways. Additional emergency vehicle access, including an emergency access road, would be provided on the eastern perimeter of the VA Transfer Parcel.

Access to and from the VA Development Area, as well as internal circulation within the VA Development Area, based on the review of the Project's site plan is sufficient.

Construction Impacts

There would be several other projects such as the Oakland International Airport Runway Safety Area (RSA) Improvement Project, Caltrans District 4 I-880 Operational and Safety Improvements at 23rd and 29th Avenue Overcrossings, and City of Alameda Landing Mixed-Use Project that could be in construction at the same time as the proposed Project. The construction trips from these projects and the proposed action would cumulatively contribute to roadway volumes to I-880.

It is anticipated that construction activities for Phase 1 would take approximately 18 months to complete and begin in July 2015 with an approximate completion date of December 2016. As stated earlier, the proposed action would generate 498 daily construction vehicle trips during the peak month of construction. The construction vehicles would travel between I-880 and the VA Development Area. The Annual Average Daily Traffic (AADT) roadway volume on I-880 for Year 2010 near the Alameda Point Area is approximately 195,000 vehicles (Caltrans, 2010). The AADT is the total volumes for the year divided by 365 days. Assuming a 1 percent growth rate per year, the estimated AADT for Year 2015 would be 204,950. The construction trips from the proposed action plus those from other foreseeable projects would add to the projected volumes on I-880. Cumulatively, the projects could increase congestion and travel times, particularly during the peak period commute hours. However, given the magnitude of future traffic volumes on this freeway and the temporary and variable nature of construction trips, the proposed action's contribution to freeway operating conditions would be minimal. The peak number of construction traffic from the proposed action would be about 0.2 percent of projected I-880 AADT, so that the proposed action's contribution is anticipated to be less than cumulatively considerable.

Traffic Safety Impacts

The off-site utility corridor/access road would be required to be built to City of Alameda design standards, as this would be a public street. The internal main access roadway would be required to be built to AASHTO standards, as this would be a federal roadway. The internal roadways that would provide circulation within the cemetery would be required to be built in compliance with Section 12.7 of the VA NCA Facilities Design Guide (2010) for road widths and road minimum radius. The *NCA Facilities Design Guide* specifies the road widths and minimum radius for the various types of roads (i.e. entrance road, primary road, secondary road, service roads, and committal service shelter drives). The design of the NCA roads should accommodate anticipated traffic volume at a maximum design speed of 24 km/h (15 mph) (NCA 2010). Traffic safety impacts would be negligible under Alternative 1 through compliance with the City of Alameda, AASHTO, and VA NCA roadway design standards.

2035 plus Project Alternative 2 (Phases 1-11) Conditions

Traffic Impacts

Vehicle trips generated by Alternative 2 would be the same as Alternative 1 as summarized in **Table 21**. The resulting 2035 plus Project Alternative 2 traffic volumes is the same as Alternative 1 and are illustrated in **Figure 10**. The LOS results the study intersections under Alternative 2 are the same as Alternative 1 and are summarized in Section 4.3.3 under the heading titled traffic impacts.

Transit Impacts

Transit trips generated by Alternative 2 would be the same as Alternative 1 and discussed in Section 4.3.3 under the heading titled transit impacts. The Project would not generate any noticeable transit trips and therefore, the Project would not be expected to have a substantial effect on transit operations.

Pedestrian Impacts

Pedestrian trips generated by Alternative 2 would be the same as Alternative 1 and discussed in Section 4.3.3 under the heading titled pedestrian impacts. The Project would not be expected to generate any noticeable pedestrian trips. In addition, the proposed action would not conflict with existing pedestrian facilities in the Alameda Point Area or propose design features hazardous to pedestrian operations.

Bicycle Impacts

Bicycle trips generated by Alternative 2 would be the same as Alternative 1 and discussed in Section 4.3.3 under the heading titled bicycle impacts. Bicycle trips generated by Alternative 2 are expected to be infrequent and not be substantial enough to affect overall bicycle circulation or operations in the Alameda Point Area.

Parking and Loading Impacts

The parking and loading requirements per City of Alameda *Municipal Code* would be the same as Alternative 1 and discussed in Section 4.3.3 under the heading parking and loading impacts. The total parking supply includes 630 parking spaces adjacent to the clinic building and approximately 10 parking spaces adjacent to the conservation management office and therefore, the proposed action would include 640 parking spaces. The *Municipal Code* requires a total of 623 parking spaces. Therefore, the number of parking spaces provided for the proposed action would meet and exceed the requirements contained in the *Municipal Code*.

Site Access and Circulation Impacts

The site access and circulation would be similar to Alternative 1, as discussed in Section 4.3.3 under the heading titled site access and circulation impacts, with the exception that the internal roadways would have a slightly different location compared to Alternative 1. The proposed internal main access roadway clinic would tie into the existing City of Alameda roadway system. The main access roadway would be located along the northern boundary of the VA Development Area. Taxis, private vehicles and emergency vehicles would utilize the new main access and internal roadways.

Access to and from the VA Development Area, as well as internal circulation within the VA Development Area, is sufficient.

Construction Impacts

Construction activities and level of intensity would be the same as Alternative 1 and discussed in Section 4.3.3 under the heading titled construction impacts. Project-related construction activity, including both construction truck traffic and additional vehicular traffic from construction workers, would not substantially affect vehicular, pedestrian, and bicycle circulation and would be temporary in nature.

Traffic Safety Impacts

Traffic Safety standards would be the same as Alternative 1 and discussed in Section 4.3.3 under the heading titled traffic safety impacts.

2035 plus Project Alternative 3 (Phases 1-11) Conditions

Traffic Impacts

Growth in traffic as a result of background growth throughout the region was used to develop 2035 plus Project Alternative 3 (Phases 1-11) traffic volumes. The methodology used to develop 2035 plus Project Alternative 3 (Phases 1-11) traffic volumes is discussed in Section 4.3.1. The No Action Alternative would not generate any trips and therefore, operational traffic associated with the Project was not added to the background traffic volumes.

Intersections

The resulting 2035 plus Project Alternative 3 (Phases 1-11) Conditions intersection traffic volumes are illustrated in Figure 9.

Table 23 presents the summary LOS results for the study intersections under 2035 plus Project Alternative 3 Conditions. The results show that all 11 study intersections are projected to operate at acceptable conditions, except for the following:

- 7th Street / Harrison Street during the weekday PM peak hour;
- Broadway / 5th Street during the weekday PM peak hour; and
- Atlantic Avenue / Webster Street during the weekday AM and PM peak hours.

The 2035 plus Project Alternative 3 Conditions LOS results would be equivalent to the Cumulative (2035) No Project Conditions LOS results shown in **Table 19**, because the Project would not generate any trips. Detailed LOS analysis and worksheets are provided in **Appendix B**.

Roadways

The 2035 plus Project Alternative 3 (Phases 1-11) Conditions roadway segment traffic volumes would be equivalent to the Cumulative (2035) No Project Conditions roadway segment traffic volumes shown in **Table 20**. As shown in **Table 20**, all roadway segments are projected to operate at acceptable conditions, LOS E or better, during the weekday AM and PM peak hours.

Other Impacts

Since Alternative 3 corresponds to the No Action Alternative, the proposed action would not generate any trips and would not result in any deficiencies to transit, pedestrian, bicycle, parking, loading, site access and circulation, and construction activity.

2035 Conclusion

This section presents the transportation mitigation measures that would be required to reduce the traffic impacts found under the 2035 plus Project Conditions for both Alternative 1 and Alternative 2. Since no impacts were found for either Alternative 1 or 2 under transit, bicycle, pedestrian, parking and loading, site access and circulation, and construction, no mitigation measures are required.

The following mitigation measures are needed to mitigate Project-generated traffic impacts under 2035 plus Project Conditions:

Atlantic Avenue / Webster Street

The VA would need to pay 100% for the following mitigation measure as to ensure it would get implemented:

- Optimize the signal timing (i.e., allocation of green time for each intersection approach to be in tune with the relative traffic volumes on those approaches). The VA would need to enter into a mutual agreement with the City of Alameda to optimize the signal timing.

With this improvement, the intersection would operate at LOS D with 52.4 and 48.3 seconds of delay during the weekday AM and PM peak hour, respectively. This is an acceptable LOS for this location.

Table 23: 2035 plus Project Alternative 3 (Phases 1-11) Intersection Level of Service

Intersection	Peak Hour ⁽¹⁾	Existing Conditions		2017 Conditions		2035 Conditions plus Project Alternative 3	
		LOS	Delay ⁽²⁾	LOS	Delay ⁽²⁾	LOS	Delay ⁽²⁾
1 8 th Street / Webster Street	Weekday AM	C	24.7	C	25.8	C	29.4
	Weekday PM	C	26.3	C	27.4	C	31.1
	Saturday	C	24.5	C	25.5	C	27.7
2 7 th Street / Webster Street	Weekday AM	B	11.6	B	11.8	B	13.5
	Weekday PM	B	16.3	B	17.6	D	51.6
	Saturday	A	8.4	A	9.6	B	16.9
3 7 th Street / Harrison Street	Weekday AM	B	15.3	B	16.1	C	24.1
	Weekday PM	C	25.9	D	41.4	F	114.0
	Saturday	B	11.6	B	13.2	C	27.0
4 Broadway / 6 th Street	Weekday AM	B	16.2	B	17.7	C	21.8
	Weekday PM	B	18.5	C	21.1	D	40.2
	Saturday	B	16.1	B	17.7	C	21.2
5 Broadway / 5 th Street	Weekday AM	C	30.7	C	33.4	D	50.0
	Weekday PM	D	52.4	E	74.9	F	119.2
	Saturday	C	27.0	C	28.2	C	32.6
6 Jackson Street / 6 th Street	Weekday AM	A	7.3	A	8.1	C	20.1
	Weekday PM	A	9.3	B	10.1	E	56.3
	Saturday	B	10.6	B	13.4	E	67.4
7 Jackson Street / 5 th Street	Weekday AM	B	18.0	C	31.9	D	50.4
	Weekday PM	B	14.0	B	15.1	D	35.3
	Saturday	B	11.8	B	13.5	B	14.6
8 Willie Stargell Avenue / Webster Street	Weekday AM	B	12.5	B	16.2	C	22.4
	Weekday PM	B	12.5	B	14.5	C	31.6
	Saturday	A	9.4	B	12.2	B	13.3
9 Willie Stargell Avenue / Main Street	Weekday AM	A	4.8	A	5.4	A	7.9
	Weekday PM	A	5.3	A	5.7	A	9.4
	Saturday	A	4.5	A	5.3	A	7.2
10 Atlantic Avenue / Main Street	Weekday AM	B	11.1	B	12.7	B	14.4
	Weekday PM	B	11.8	B	14.7	B	18.2
	Saturday	B	12.1	B	15.8	C	22.1
11 Atlantic Avenue / Webster Street	Weekday AM	C	29.9	D	43.7	F	95.8
	Weekday PM	C	24.7	C	26.7	E	64.6
	Saturday	C	21.0	C	23.7	C	31.6

Source: AECOM, 2012.

Notes: **Bold** indicates intersection operating at unacceptable levels (LOS F in Downtown Oakland, and LOS E or F in Alameda).

(1) "Saturday" indicates Saturday peak hour of generator.

(2) Delay presented in seconds per vehicle.

Harrison Street / 7th Street

The VA would need to pay 100% for the following mitigation measure as to ensure it would get implemented:

- Optimize the signal timing (i.e., allocation of green time for each intersection approach to be in tune with the relative traffic volumes on those approaches). In addition, the signal timing at the adjacent intersection of Webster Street / 7th Street would also need to be adjusted as the two signals are coordinated. The VA would need to enter into a mutual agreement with the City of Oakland to optimize the signal timing.

With this improvement, the intersection would operate at LOS C with 23.1 seconds of delay during the weekday PM peak hour, respectively. This is an acceptable LOS for this location.

Broadway / 5th Street

There are no feasible mitigation measures for this intersection as right-of-way constraints prevent the addition of roadway lanes (to increase capacity) and signal optimization would not be sufficient to reduce the delay at the intersection to acceptable levels.

Alameda Point Transfer, Clinic, and Cemetery Environmental Assessment Transportation Impact Study

Technical Appendix

- A: Traffic Counts (2011)
- B: Intersection Level of Service Calculations
- C: Project Travel Demand
- D: Construction Traffic

Appendix A

Traffic Counts (2011)

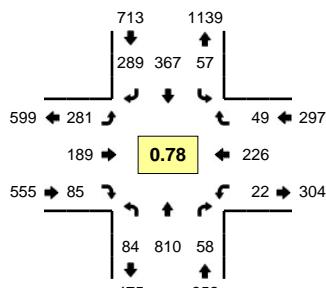
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

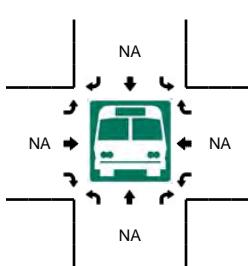
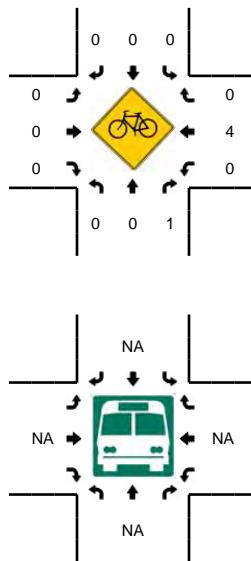
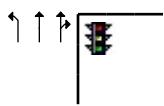
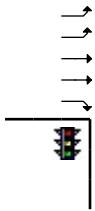
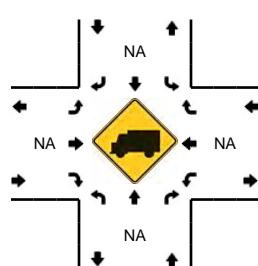
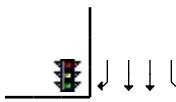
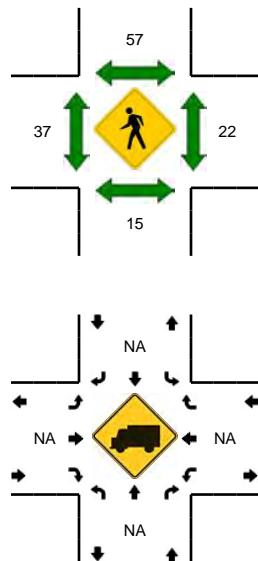
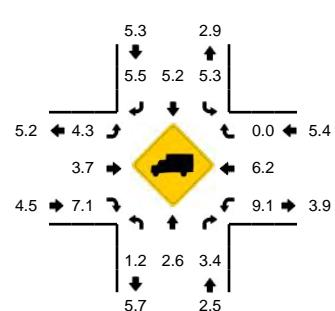
LOCATION: Webster St -- Atlantic Ave
CITY/STATE: Alameda, CA

QC JOB #: 10679621

DATE: Wed, Nov 16 2011



Peak-Hour: 7:40 AM -- 8:40 AM
Peak 15-Min: 7:55 AM -- 8:10 AM



5-Min Count Period Beginning At	Webster St (Northbound)				Webster St (Southbound)				Atlantic Ave (Eastbound)				Atlantic Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	5	51	2	0	4	17	18	0	17	6	1	0	2	12	2	0	137	
7:05 AM	5	40	0	0	3	16	10	0	16	4	2	0	2	9	0	0	107	
7:10 AM	4	50	2	0	1	15	10	0	17	6	0	0	1	2	2	0	110	
7:15 AM	1	57	1	0	4	24	19	0	16	4	2	0	4	0	7	0	139	
7:20 AM	3	71	3	0	4	28	20	0	21	2	2	0	4	3	2	0	163	
7:25 AM	5	44	1	0	4	25	7	0	24	6	6	0	2	6	3	0	133	
7:30 AM	1	73	3	0	4	27	14	0	21	5	3	0	1	5	8	0	165	
7:35 AM	4	62	3	0	4	21	19	0	10	6	4	0	1	10	2	0	146	
7:40 AM	6	78	3	0	6	33	28	0	24	7	4	0	4	12	3	0	208	
7:45 AM	8	52	2	0	3	42	20	0	34	13	6	0	3	19	5	0	207	
7:50 AM	5	91	3	0	5	27	28	0	32	16	10	0	2	24	7	0	250	
7:55 AM	10	96	1	0	6	39	34	0	29	18	6	0	1	34	2	0	276	2041
8:00 AM	3	73	6	0	5	28	44	0	44	16	17	0	3	20	5	0	264	2168
8:05 AM	13	85	5	1	7	48	31	0	23	22	11	0	0	21	3	0	270	2331
8:10 AM	8	49	14	0	1	34	27	0	18	20	6	0	0	27	3	0	207	2428
8:15 AM	3	51	6	0	7	24	19	0	17	16	9	1	0	13	5	0	171	2460
8:20 AM	6	76	4	0	4	38	18	0	11	10	6	0	2	9	3	0	187	2484
8:25 AM	8	40	3	0	2	20	14	0	16	23	3	0	2	19	5	0	155	2506
8:30 AM	5	58	6	0	9	21	12	0	14	8	2	0	3	11	7	0	156	2497
8:35 AM	8	61	5	0	2	13	14	0	18	20	5	0	2	17	1	0	166	2517
8:40 AM	9	36	5	0	5	22	22	0	14	8	11	0	2	21	6	0	161	2470
8:45 AM	12	56	5	0	8	23	17	0	18	10	10	0	4	15	5	0	183	2446
8:50 AM	6	47	5	0	3	31	23	0	21	12	9	0	2	27	6	0	192	2388
8:55 AM	18	75	9	0	6	32	25	0	24	14	8	0	4	30	2	0	247	2359
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	104	1016	48	4	72	460	436	0	384	224	136	0	16	300	40	0	3240	
Heavy Trucks	4	20	4		0	28	16		8	4	8		4	12	0		108	
Pedestrians		20				48				76					16		160	
Bicycles	0	0	0		0	0	0		0	0	0		0	2	0		2	
Railroad																		
Stopped Buses																		

Comments:

Report generated on 12/1/2011 10:23 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

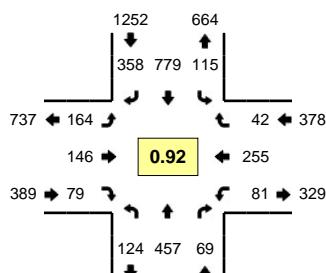
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Method for determining peak hour: Total Entering Volume

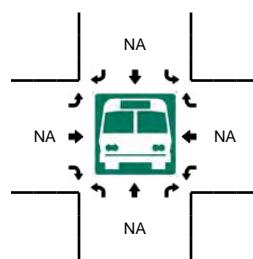
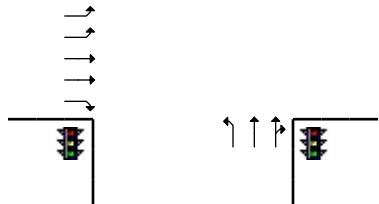
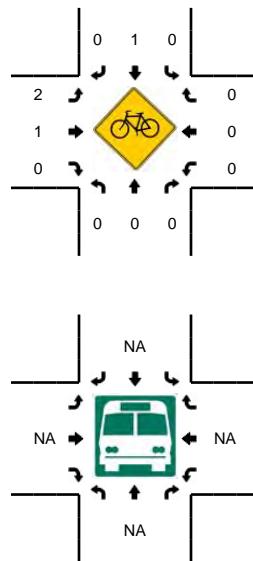
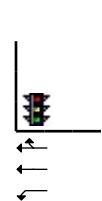
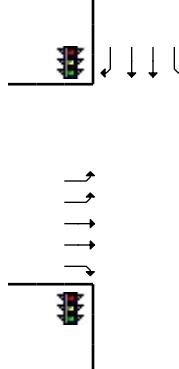
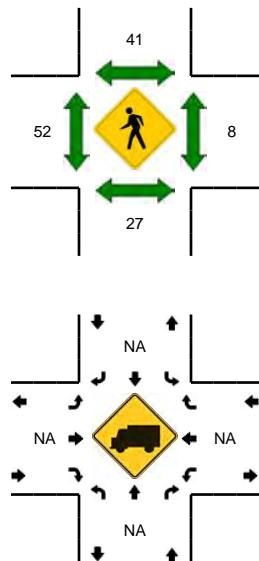
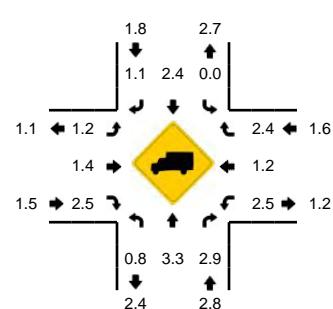
LOCATION: Webster St -- Atlantic Ave
CITY/STATE: Alameda, CA

QC JOB #: 10679622

DATE: Wed, Nov 16 2011



Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:45 PM -- 6:00 PM



5-Min Count Period Beginning At	Webster St (Northbound)				Webster St (Southbound)				Atlantic Ave (Eastbound)				Atlantic Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
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4:15 PM	6	49	1	0	9	62	17	0	15	13	9	0	4	21	1	0	207	
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Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	184	404	80	0	96	716	484	0	164	192	92	0	76	384	32	0	2904
Heavy Trucks	0	12	0		0	24	4		0	4	0		0	4	0		48
Pedestrians	32																136
Bicycles	0	0	0		0	0	0		0	1	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Type of peak hour being reported: Intersection Peak

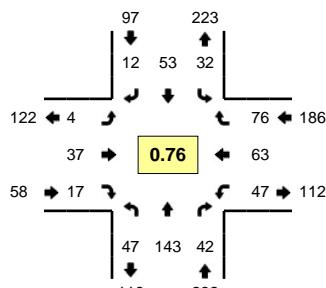
Method for determining peak hour: Total Entering Volume

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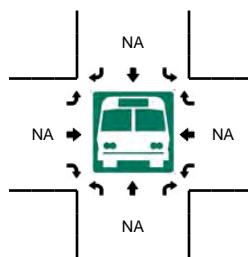
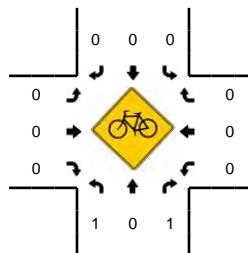
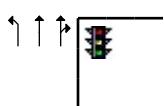
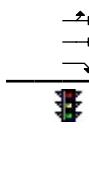
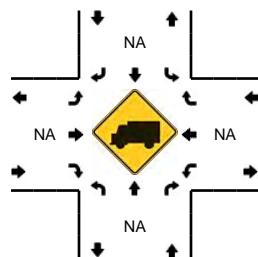
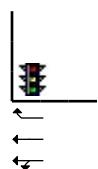
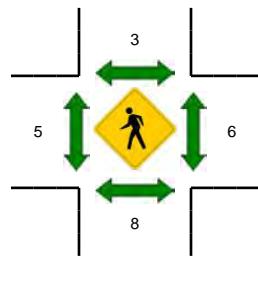
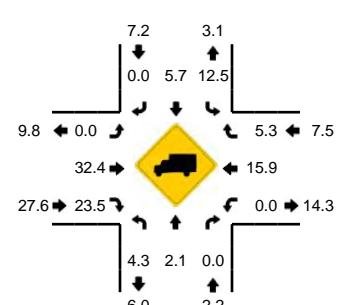
QC JOB #: 10679619

CITY/STATE: Alameda, CA

DATE: Wed, Nov 16 2011



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Peak 15-Min: 8:05 AM -- 8:20 AM



5-Min Count Period Beginning At	Main St (Northbound)				Main St (Southbound)				Atlantic Ave (Eastbound)				Atlantic Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	18	0	0	1	2	1	0	0	1	0	0	1	8	8	0	43	
7:05 AM	0	28	3	0	1	2	1	0	0	3	1	0	3	4	16	0	62	
7:10 AM	0	18	4	0	0	4	2	0	0	3	1	0	1	8	5	0	46	
7:15 AM	0	2	1	0	4	2	1	0	0	2	1	0	4	3	1	0	21	
7:20 AM	0	0	3	0	1	2	1	0	1	5	2	0	1	5	1	0	22	
7:25 AM	0	4	2	0	3	3	0	0	0	1	0	0	3	8	2	0	26	
7:30 AM	0	3	4	0	1	1	0	0	0	0	2	0	1	4	1	0	17	
7:35 AM	4	3	2	0	1	5	2	0	1	2	1	0	7	6	1	0	35	
7:40 AM	0	3	5	0	3	6	0	0	0	2	0	0	11	7	5	0	42	
7:45 AM	4	5	6	0	2	9	1	0	0	4	2	0	6	7	4	1	51	
7:50 AM	4	6	4	0	8	5	3	0	2	3	3	0	4	2	4	0	48	
7:55 AM	2	8	5	0	2	4	1	0	1	3	0	0	6	4	3	0	39	452
8:00 AM	6	15	5	0	1	6	3	0	0	0	3	0	5	3	4	0	51	460
8:05 AM	3	22	6	0	4	1	2	0	0	5	2	0	0	6	13	0	64	462
8:10 AM	2	32	2	0	1	6	0	0	0	1	0	0	4	6	16	0	70	486
8:15 AM	6	20	1	0	2	6	0	0	0	2	0	0	5	5	7	0	54	519
8:20 AM	6	5	1	0	4	5	0	0	0	3	2	0	3	4	2	0	35	532
8:25 AM	5	10	3	0	0	3	0	0	1	6	0	0	1	9	9	0	47	553
8:30 AM	1	10	1	0	4	2	0	0	0	4	2	0	0	1	4	0	29	565
8:35 AM	3	4	3	0	2	3	2	0	0	2	2	0	6	7	4	0	38	568
8:40 AM	5	6	5	0	2	3	0	0	0	4	1	0	6	9	6	0	47	573
8:45 AM	2	0	7	0	3	4	0	0	1	2	4	0	3	7	3	0	36	558
8:50 AM	2	4	6	0	7	6	3	0	0	3	1	0	2	2	2	0	38	548
8:55 AM	1	8	4	0	3	7	1	0	0	3	1	0	7	11	5	0	51	560
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	296	36	0	28	52	8	0	0	32	8	0	36	68	144	0	752	
Heavy Trucks	4	4	0		8	0	0		0	12	4		0	4	4		40	
Pedestrians	8																12	
Bicycles	0	0	1		0	0	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

Comments:

Report generated on 12/1/2011 10:23 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

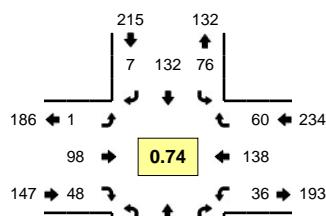
Method for determining peak hour: Total Entering Volume

LOCATION: Main St -- Atlantic Ave

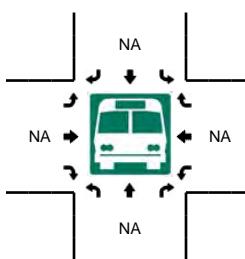
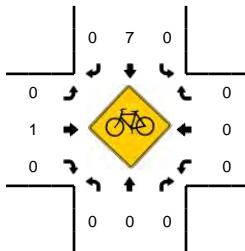
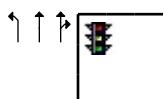
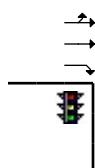
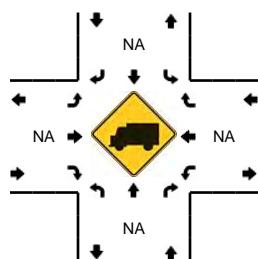
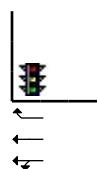
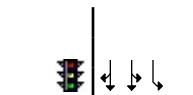
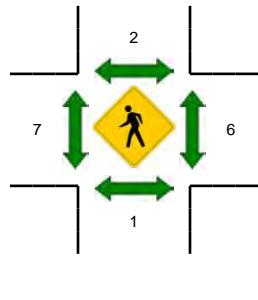
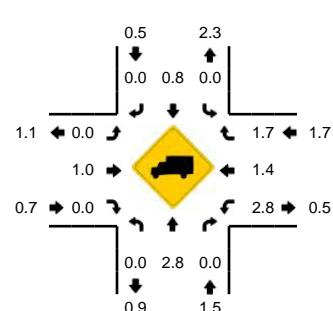
QC JOB #: 10679620

CITY/STATE: Alameda, CA

DATE: Wed, Nov 16 2011



Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:40 PM -- 5:55 PM



5-Min Count Period Beginning At	Main St (Northbound)				Main St (Southbound)				Atlantic Ave (Eastbound)				Atlantic Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	6	5	0	7	4	0	0	0	6	1	0	0	10	3	0	47	
4:05 PM	3	4	2	0	5	4	2	0	0	10	3	0	0	4	6	0	43	
4:10 PM	2	4	2	0	7	8	1	0	1	9	3	0	5	7	6	0	55	
4:15 PM	3	6	6	0	6	3	0	0	0	14	5	0	0	8	5	0	61	
4:20 PM	3	11	2	0	5	5	1	0	1	9	0	0	5	12	10	0	64	
4:25 PM	2	2	1	0	2	9	0	0	1	12	5	0	2	9	5	0	50	
4:30 PM	2	7	0	0	8	33	0	0	2	12	4	0	7	5	5	0	85	
4:35 PM	5	6	2	0	9	10	3	0	3	8	5	0	6	8	3	0	68	
4:40 PM	2	2	3	0	2	1	0	0	1	8	0	0	2	7	4	0	32	
4:45 PM	0	5	1	0	7	4	0	0	1	12	3	0	6	2	4	0	45	
4:50 PM	8	8	3	0	0	4	2	0	0	8	0	0	4	8	6	0	51	
4:55 PM	4	4	2	0	5	9	0	0	0	13	4	0	3	10	5	0	59	660
5:00 PM	3	3	3	0	4	3	1	0	0	13	2	0	5	7	3	0	47	660
5:05 PM	3	5	0	0	4	3	0	0	1	12	9	0	3	6	6	0	52	669
5:10 PM	4	6	1	0	5	6	1	0	0	5	5	0	4	9	4	0	50	664
5:15 PM	4	8	2	0	7	5	0	0	0	6	3	0	2	12	5	0	54	657
5:20 PM	5	4	0	0	5	8	3	0	0	11	3	0	7	12	2	0	60	653
5:25 PM	6	4	2	0	8	8	1	0	0	6	3	0	2	12	5	0	57	660
5:30 PM	4	5	1	0	3	5	0	0	0	10	5	0	4	7	3	1	48	623
5:35 PM	1	3	4	0	3	7	0	0	0	6	4	0	1	17	6	0	52	607
5:40 PM	1	5	1	0	18	38	0	0	0	4	3	0	0	9	6	0	85	660
5:45 PM	4	8	1	0	10	37	0	0	0	2	3	0	2	12	7	0	86	701
5:50 PM	4	12	1	0	6	6	0	0	0	12	4	0	3	18	7	0	73	723
5:55 PM	2	8	2	0	3	6	1	0	0	11	4	0	2	17	6	0	62	726

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	36	100	12	0	136	324	0	0	0	72	40	0	20	156	80	0	976
Heavy Trucks	0	4	0	0	0	0	0	0	0	0	4	4	0	0	0	0	12
Pedestrians	0				0				16				0				16
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Type of peak hour being reported: Intersection Peak

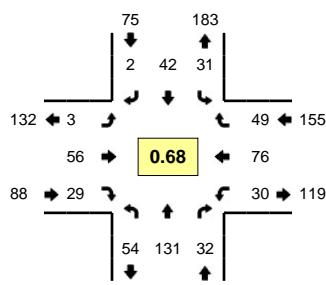
Method for determining peak hour: Total Entering Volume

LOCATION: Main St -- Willie Stargell Ave

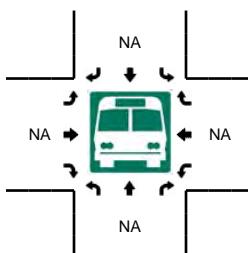
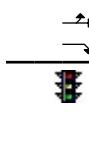
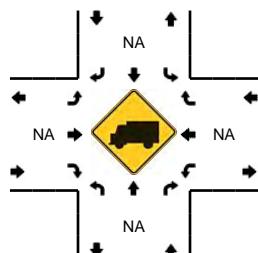
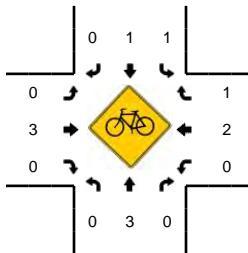
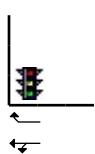
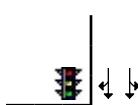
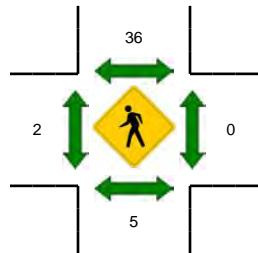
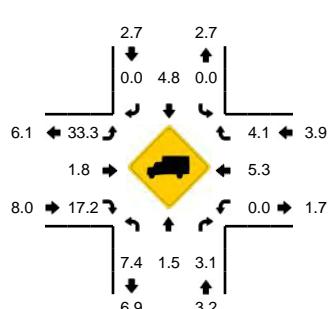
CITY/STATE: Alameda, CA

QC JOB #: 10679617

DATE: Wed, Nov 16 2011



Peak-Hour: 7:40 AM -- 8:40 AM
Peak 15-Min: 8:05 AM -- 8:20 AM



5-Min Count Period Beginning At	Main St (Northbound)				Main St (Southbound)				Willie Stargell Ave (Eastbound)				Willie Stargell Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	20	0	0	3	2	0	0	0	2	0	0	1	3	9	0	42	
7:05 AM	0	41	0	0	3	1	0	0	0	5	0	0	3	4	9	0	66	
7:10 AM	1	28	0	0	2	4	0	0	0	0	1	0	3	5	3	0	47	
7:15 AM	1	1	0	0	5	4	0	0	0	3	0	0	1	5	8	0	28	
7:20 AM	0	1	0	0	3	1	0	0	0	4	1	0	2	4	3	0	19	
7:25 AM	1	3	3	0	0	2	0	0	0	5	2	0	1	5	2	0	24	
7:30 AM	1	2	1	0	3	2	0	0	0	4	0	0	2	4	3	0	22	
7:35 AM	1	3	1	0	5	2	0	0	0	5	1	0	3	2	2	0	25	
7:40 AM	1	4	2	0	5	4	1	0	0	5	4	0	2	7	3	0	38	
7:45 AM	0	6	1	0	0	4	0	0	0	4	3	0	7	7	3	0	35	
7:50 AM	2	5	2	0	2	4	0	0	0	3	5	0	4	12	4	0	43	
7:55 AM	8	5	3	0	1	0	0	0	0	3	4	0	3	3	4	0	34	
8:00 AM	4	10	4	0	4	2	0	0	2	5	0	0	6	7	6	0	50	431
8:05 AM	7	25	5	0	4	4	0	0	0	4	2	0	1	1	2	0	55	420
8:10 AM	0	39	1	0	4	5	0	0	0	6	1	0	2	4	10	0	72	445
8:15 AM	7	24	3	0	4	7	0	0	0	11	1	0	2	5	6	0	70	487
8:20 AM	2	4	1	0	4	3	1	0	0	5	3	0	1	8	1	0	33	501
8:25 AM	11	2	5	0	3	2	0	0	1	2	1	0	0	9	3	0	39	516
8:30 AM	8	5	1	0	0	4	0	0	0	4	2	0	1	6	4	0	35	529
8:35 AM	4	2	4	0	0	3	0	0	0	4	3	0	1	7	3	0	31	535
8:40 AM	6	6	0	0	4	2	0	0	0	5	1	0	0	5	2	0	31	528
8:45 AM	0	3	2	0	2	2	1	0	0	5	5	0	2	6	1	0	29	522
8:50 AM	1	4	1	0	3	8	0	0	0	5	6	0	2	8	4	0	42	521
8:55 AM	3	8	2	0	2	3	1	0	0	4	3	0	2	4	3	0	35	522
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	56	352	36	0	48	64	0	0	0	84	16	0	20	40	72	0	788	
Heavy Trucks	8	0	0		0	4	0		0	0	4		0	4	0		20	
Pedestrians		8				40				4				0			52	
Bicycles	0	2	0		0	0	0		0	2	0		0	1	1		6	
Railroad																		
Stopped Buses																		

Comments:

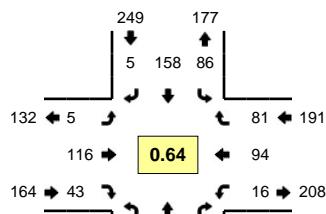
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

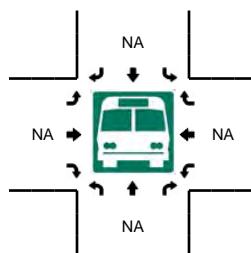
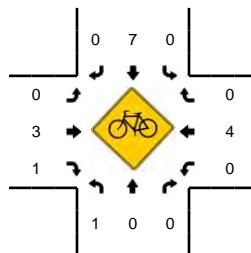
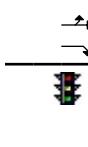
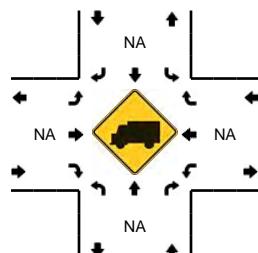
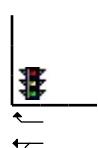
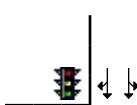
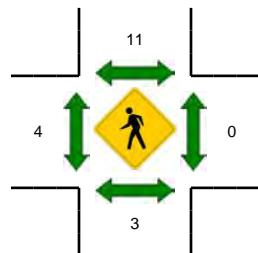
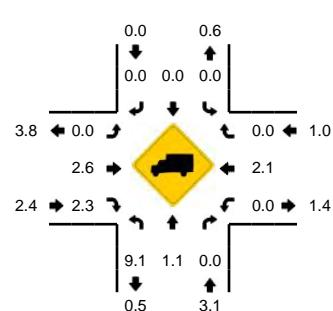
LOCATION: Main St -- Willie Stargell Ave
CITY/STATE: Alameda, CA

QC JOB #: 10679618

DATE: Wed, Nov 16 2011



Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:40 PM -- 5:55 PM



5-Min Count Period Beginning At	Main St (Northbound)				Main St (Southbound)				Willie Stargell Ave (Eastbound)				Willie Stargell Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	3	1	0	8	10	0	0	0	9	5	0	0	8	5	0	51	
4:05 PM	3	6	1	0	20	9	2	0	0	11	3	0	0	9	10	0	74	
4:10 PM	3	8	2	0	13	5	3	0	1	7	3	0	0	10	12	0	67	
4:15 PM	2	7	0	0	5	10	0	0	1	9	4	0	0	7	4	0	49	
4:20 PM	3	17	3	0	9	5	0	0	0	3	2	0	0	10	16	0	68	
4:25 PM	3	5	1	0	9	1	0	0	0	8	4	0	2	4	11	0	48	
4:30 PM	5	7	2	0	12	41	1	0	0	10	4	0	0	7	9	0	98	
4:35 PM	4	3	3	0	17	15	1	0	0	11	5	0	0	2	6	0	67	
4:40 PM	2	1	1	0	6	3	0	0	0	6	1	0	0	5	4	0	29	
4:45 PM	1	9	0	0	7	6	0	0	0	4	2	0	2	5	6	0	42	
4:50 PM	3	9	1	0	5	6	0	0	1	10	1	0	2	5	2	0	45	
4:55 PM	2	7	1	0	7	5	1	0	0	1	3	0	1	5	8	0	41	679
5:00 PM	1	4	0	0	3	6	0	0	1	13	3	0	0	8	4	0	43	671
5:05 PM	3	7	1	0	5	6	1	0	0	24	2	0	0	5	6	0	60	657
5:10 PM	4	4	1	0	1	3	0	0	0	11	4	0	2	6	5	0	41	631
5:15 PM	3	7	2	0	10	6	0	0	0	10	8	0	0	8	6	0	60	642
5:20 PM	2	5	0	0	8	7	0	0	1	7	7	0	2	4	3	0	46	620
5:25 PM	1	9	0	0	5	8	1	0	1	9	3	0	3	10	1	0	51	623
5:30 PM	3	2	1	0	6	7	0	0	0	7	3	0	0	7	4	0	40	565
5:35 PM	5	7	0	0	8	4	1	0	0	6	2	0	3	9	12	0	57	555
5:40 PM	1	12	0	0	20	57	0	0	0	11	2	0	2	5	4	0	114	640
5:45 PM	6	7	0	0	11	43	2	0	0	7	1	0	1	11	10	0	99	697
5:50 PM	2	16	1	0	5	5	0	0	2	7	4	0	2	14	17	0	75	727
5:55 PM	2	11	0	0	4	6	0	0	0	4	4	0	1	7	9	0	48	734

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	36	140	4	0	144	420	8	0	8	100	28	0	20	120	124	0	1152
Heavy Trucks	4	4	0	0	0	0	0	0	0	0	4	0	0	11	10	0	12
Pedestrians	0				20				0				0				20
Bicycles	1	0	0	0	0	1	0	0	0	0	0	0	0	3	0		5
Railroad																	
Stopped Buses																	

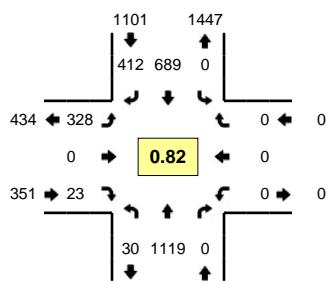
Comments:

Type of peak hour being reported: Intersection Peak

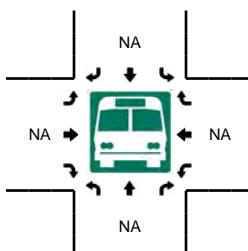
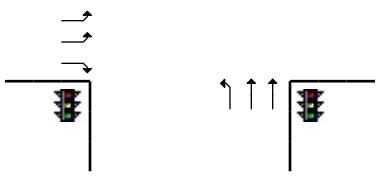
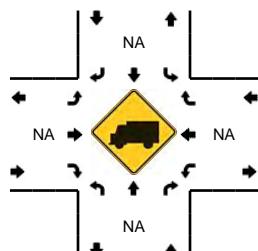
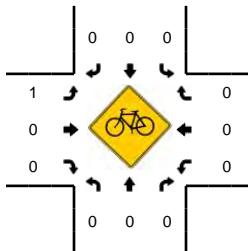
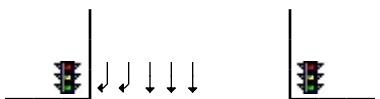
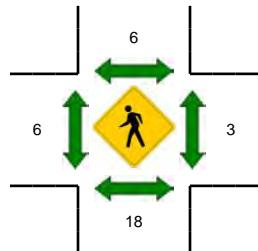
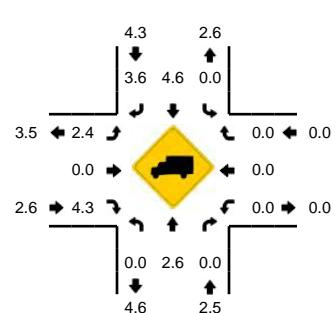
Method for determining peak hour: Total Entering Volume

LOCATION: Webster St -- Willie Stargell Ave
CITY/STATE: Oakland, CA

QC JOB #: 10679615
DATE: Wed, Nov 16 2011



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:50 AM -- 8:05 AM



5-Min Count Period Beginning At	Webster St (Northbound)				Webster St (Southbound)				Willie Stargell Ave (Eastbound)				Willie Stargell Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	76	0	0	0	35	20	0	13	0	1	0	0	0	0	0	146	
7:05 AM	1	54	0	0	0	27	21	0	17	0	3	0	0	0	0	0	123	
7:10 AM	0	66	0	0	0	27	18	0	14	0	0	0	0	0	0	0	125	
7:15 AM	0	77	0	0	0	50	21	0	13	0	2	0	0	0	0	0	163	
7:20 AM	1	72	0	0	0	44	35	0	20	0	3	0	0	0	0	0	175	
7:25 AM	1	84	0	0	0	38	18	0	23	0	1	0	0	0	0	0	165	
7:30 AM	3	99	0	0	0	42	23	0	19	0	2	0	0	0	0	0	188	
7:35 AM	2	66	0	0	0	50	23	0	25	0	1	0	0	0	0	0	167	
7:40 AM	2	89	0	1	0	65	36	0	27	0	2	0	0	0	0	0	222	
7:45 AM	1	96	0	0	0	60	50	0	20	0	4	0	0	0	0	0	231	
7:50 AM	6	124	0	2	0	61	49	0	22	0	1	0	0	0	0	0	265	
7:55 AM	5	114	0	0	0	82	39	0	31	0	1	0	0	0	0	0	272	2242
8:00 AM	1	103	0	1	0	78	43	0	30	0	2	0	0	0	0	0	258	2354
8:05 AM	0	79	0	1	0	61	35	0	40	0	5	0	0	0	0	0	221	2452
8:10 AM	0	101	0	0	0	55	31	0	30	0	4	0	0	0	0	0	221	2548
8:15 AM	0	71	0	0	0	48	27	0	33	0	1	0	0	0	0	0	180	2565
8:20 AM	0	88	0	2	0	54	31	0	25	0	0	0	0	0	0	0	200	2590
8:25 AM	2	89	0	1	0	33	25	0	26	0	0	0	0	0	0	0	176	2601
8:30 AM	3	82	0	0	0	31	28	0	24	0	5	0	0	0	0	0	173	2586
8:35 AM	1	79	0	0	0	33	28	0	17	0	1	0	0	0	0	0	159	2578
8:40 AM	1	69	0	0	0	45	30	0	23	0	3	0	0	0	0	0	171	2527
8:45 AM	1	74	0	0	0	50	39	0	22	0	5	0	0	0	0	0	191	2487
8:50 AM	4	72	0	0	0	55	47	0	26	0	5	0	0	0	0	0	209	2431
8:55 AM	7	78	0	0	0	54	37	0	29	0	2	0	0	0	0	0	207	2366
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	48	1364	0	12	0	884	524	0	332	0	16	0	0	0	0	0	3180	
Heavy Trucks	0	32	0	0	0	48	16	0	0	0	0	0	0	0	0	0	96	
Pedestrians	8				8				8				0				24	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

Report generated on 12/1/2011 10:23 AM

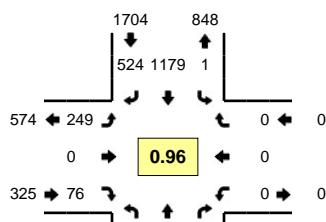
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

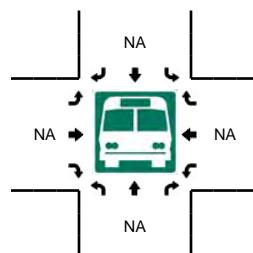
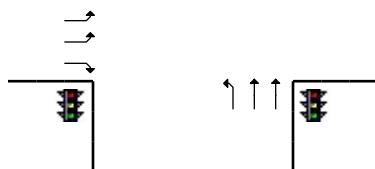
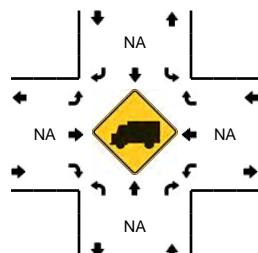
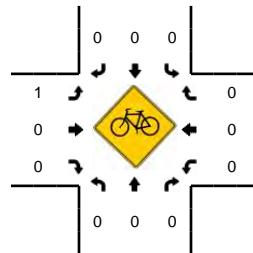
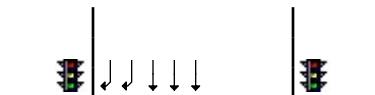
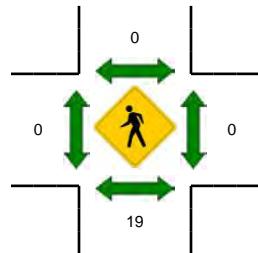
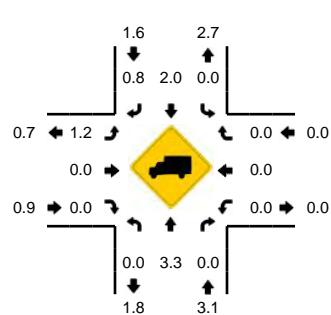
Method for determining peak hour: Total Entering Volume

LOCATION: Webster St -- Willie Stargell Ave
CITY/STATE: Oakland, CA

QC JOB #: 10679616
DATE: Wed, Nov 16 2011



Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:05 PM -- 5:20 PM



5-Min Count Period Beginning At	Webster St (Northbound)				Webster St (Southbound)				Willie Stargell Ave (Eastbound)				Willie Stargell Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	8	63	0	0	0	75	29	2	24	0	3	0	0	0	0	0	204	
4:05 PM	2	60	0	0	0	65	34	0	40	0	7	0	0	0	0	0	208	
4:10 PM	2	67	0	0	0	55	32	0	24	0	2	0	0	0	0	0	182	
4:15 PM	3	47	0	0	0	67	25	0	17	0	8	0	0	0	0	0	167	
4:20 PM	1	57	0	0	0	87	43	0	19	0	4	0	0	0	0	0	211	
4:25 PM	2	60	0	0	0	92	37	0	23	0	1	0	0	0	0	0	215	
4:30 PM	1	73	0	0	0	88	18	0	20	0	5	0	0	0	0	0	205	
4:35 PM	1	59	0	0	0	71	34	0	28	0	7	0	0	0	0	0	200	
4:40 PM	2	61	0	0	0	77	30	0	31	0	4	0	0	0	0	0	205	
4:45 PM	3	56	0	0	0	83	32	0	24	0	4	0	0	0	0	0	202	
4:50 PM	5	70	0	0	0	83	30	0	14	0	6	0	0	0	0	0	208	
4:55 PM	3	51	0	0	0	65	33	0	20	0	5	0	0	0	0	0	177	2384
5:00 PM	3	49	0	0	0	88	32	0	14	0	11	0	0	0	0	0	197	2377
5:05 PM	2	58	0	1	0	105	37	0	30	0	4	0	0	0	0	0	237	2406
5:10 PM	4	59	0	0	0	101	32	1	35	0	13	0	0	0	0	0	245	2469
5:15 PM	8	69	0	0	0	82	36	0	17	0	6	0	0	0	0	0	218	2520
5:20 PM	1	54	0	0	0	101	33	0	27	0	7	0	0	0	0	0	223	2532
5:25 PM	2	41	0	1	0	92	47	0	20	0	5	0	0	0	0	0	208	2525
5:30 PM	4	52	0	0	0	100	41	0	21	0	5	0	0	0	0	0	223	2543
5:35 PM	1	52	0	0	0	95	44	0	15	0	3	0	0	0	0	0	210	2553
5:40 PM	4	52	0	0	0	113	50	0	15	0	9	0	0	0	0	0	243	2591
5:45 PM	9	36	0	1	0	90	56	0	18	0	6	0	0	0	0	0	216	2605
5:50 PM	5	42	0	0	0	112	57	0	17	0	5	0	0	0	0	0	238	2635
5:55 PM	7	34	0	0	0	100	59	0	20	0	2	0	0	0	0	0	222	2680

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	56	744	0	4	0	1152	420	4	328	0	92	0	0	0	0	0	2800
Heavy Trucks	0	24	0	0	0	16	4	0	0	0	0	0	0	0	0	0	44
Pedestrians	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Bicycles	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

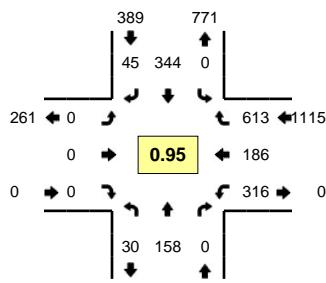
Comments:

Type of peak hour being reported: Intersection Peak

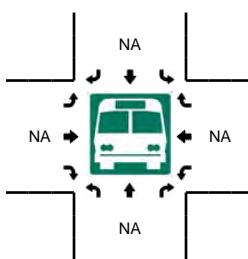
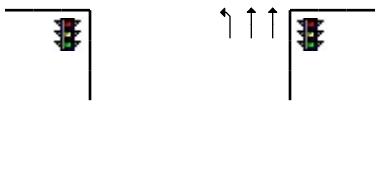
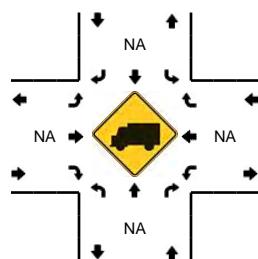
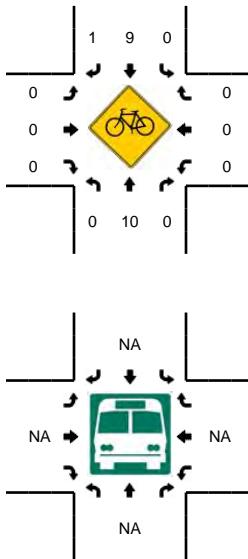
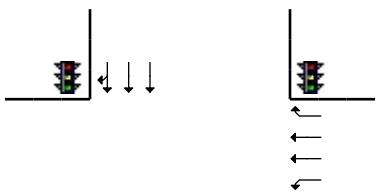
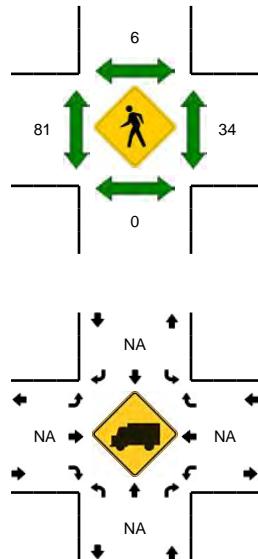
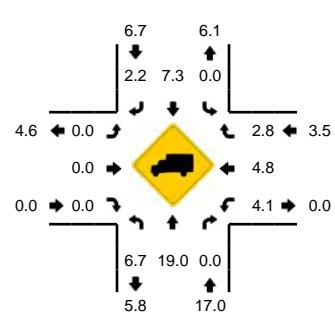
Method for determining peak hour: Total Entering Volume

LOCATION: Broadway -- 6th St
CITY/STATE: Oakland, CA

QC JOB #: 10679613
DATE: Wed, Nov 16 2011



Peak-Hour: 7:55 AM -- 8:55 AM
Peak 15-Min: 8:25 AM -- 8:40 AM



5-Min Count Period Beginning At	Broadway (Northbound)				Broadway (Southbound)				6th St (Eastbound)				6th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	9	0	0	0	14	1	0	0	0	0	0	16	5	23	0	68	
7:05 AM	3	12	0	0	0	12	1	0	0	0	0	0	17	10	30	0	85	
7:10 AM	0	13	0	0	0	24	1	0	0	0	0	0	17	7	46	0	108	
7:15 AM	3	14	0	0	0	14	6	0	0	0	0	0	22	11	33	0	103	
7:20 AM	1	15	0	0	0	18	2	0	0	0	0	0	22	13	46	0	117	
7:25 AM	1	3	0	0	0	18	0	0	0	0	0	0	22	2	18	0	64	
7:30 AM	3	9	0	0	0	16	0	0	0	0	0	0	30	10	40	0	108	
7:35 AM	1	14	0	0	0	20	2	0	0	0	0	0	26	9	52	0	124	
7:40 AM	1	15	0	0	0	31	1	0	0	0	0	0	39	11	42	0	140	
7:45 AM	1	8	0	0	0	26	3	0	0	0	0	0	28	13	42	0	121	
7:50 AM	2	9	0	0	0	21	3	0	0	0	0	0	31	9	54	0	129	
7:55 AM	3	6	0	0	0	31	3	0	0	0	0	0	29	16	55	0	143	1310
8:00 AM	1	15	0	0	0	36	8	0	0	0	0	0	32	14	42	0	148	1390
8:05 AM	1	9	0	0	0	29	1	0	0	0	0	0	26	12	42	0	120	1425
8:10 AM	3	19	0	0	0	30	3	0	0	0	0	0	21	15	51	0	142	1459
8:15 AM	4	10	0	0	0	29	3	0	0	0	0	0	28	16	37	0	127	1483
8:20 AM	3	12	0	0	0	24	5	0	0	0	0	0	27	13	45	0	129	1495
8:25 AM	1	17	0	0	0	33	3	0	0	0	0	0	29	19	60	0	162	1593
8:30 AM	2	12	0	0	0	29	4	0	0	0	0	0	19	17	55	0	138	1623
8:35 AM	4	10	0	0	0	34	3	0	0	0	0	0	26	16	52	0	145	1644
8:40 AM	1	9	0	0	0	21	2	0	0	0	0	0	22	13	54	0	122	1626
8:45 AM	5	19	0	0	0	23	8	0	0	0	0	0	27	16	49	0	147	1652
8:50 AM	2	20	0	0	0	25	2	0	0	0	0	0	30	19	71	0	169	1692
8:55 AM	2	11	0	0	0	28	3	0	0	0	0	0	26	17	54	0	141	1690
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	28	156	0	0	0	384	40	0	0	0	0	0	296	208	668	0	1780	
Heavy Trucks	0	28	0	0	0	32	4	0	0	0	0	0	20	12	4	0	100	
Pedestrians	0	0	0	0	0	8	0	0	0	0	0	0	60	0	0	0	92	
Bicycles	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

Report generated on 12/1/2011 10:23 AM

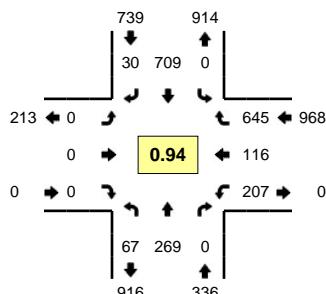
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

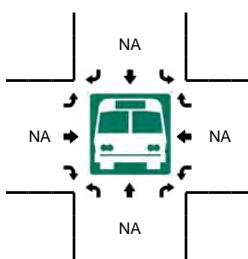
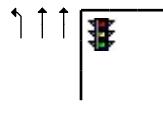
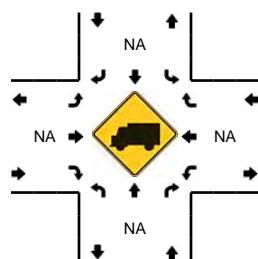
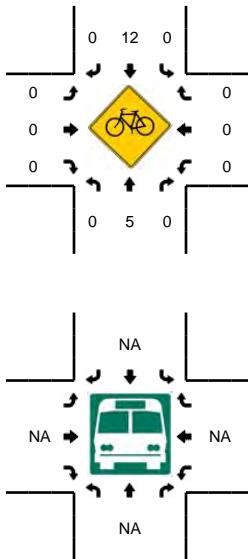
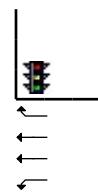
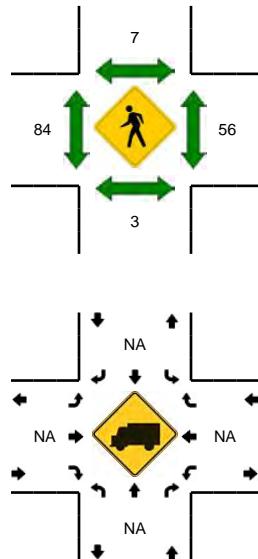
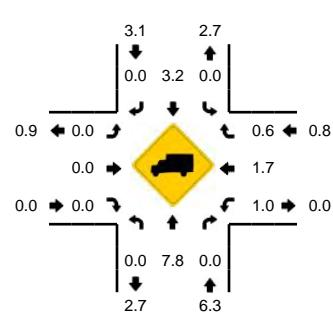
Method for determining peak hour: Total Entering Volume

LOCATION: Broadway -- 6th St
CITY/STATE: Oakland, CA

QC JOB #: 10679614
DATE: Thu, Nov 17 2011



Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:15 PM -- 5:30 PM



5-Min Count Period Beginning At	Broadway (Northbound)				Broadway (Southbound)				6th St (Eastbound)				6th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	25	0	0	0	39	1	0	0	0	0	0	18	7	35	0	129	
4:05 PM	4	15	0	0	0	42	0	0	0	0	0	0	17	5	51	0	134	
4:10 PM	7	15	0	0	0	38	2	0	0	0	0	0	25	7	62	0	156	
4:15 PM	7	30	0	0	0	59	1	0	0	0	0	0	23	9	35	0	164	
4:20 PM	5	18	0	0	0	48	4	0	0	0	0	0	20	10	48	0	153	
4:25 PM	2	14	0	0	0	47	2	0	0	0	0	0	20	11	40	0	136	
4:30 PM	3	17	0	0	0	56	4	0	0	0	0	0	18	3	42	0	143	
4:35 PM	10	19	0	0	0	53	6	0	0	0	0	0	17	8	46	0	159	
4:40 PM	6	14	0	0	0	41	3	0	0	0	0	0	22	10	43	0	139	
4:45 PM	4	39	0	0	0	47	4	0	0	0	0	0	17	13	47	0	171	
4:50 PM	5	21	0	0	0	55	3	0	0	0	0	0	17	8	55	0	164	
4:55 PM	6	13	0	0	0	54	3	0	0	0	0	0	20	7	49	0	152	1800
5:00 PM	3	27	0	0	0	54	3	0	0	0	0	0	13	4	45	0	149	1820
5:05 PM	9	30	0	0	0	49	1	0	0	0	0	0	20	7	48	0	164	1850
5:10 PM	3	18	0	0	0	48	2	0	0	0	0	0	13	8	50	0	142	1836
5:15 PM	10	23	0	0	0	74	5	0	0	0	0	0	11	10	58	0	191	1863
5:20 PM	9	23	0	0	0	59	1	0	0	0	0	0	18	16	53	0	179	1889
5:25 PM	3	20	0	0	0	73	1	0	0	0	0	0	11	9	58	0	175	1928
5:30 PM	1	33	0	0	0	64	1	0	0	0	0	0	18	9	50	0	176	1961
5:35 PM	6	23	0	0	0	62	3	0	0	0	0	0	20	2	53	0	169	1971
5:40 PM	7	15	0	0	0	58	3	0	0	0	0	0	14	12	62	0	171	2003
5:45 PM	8	23	0	0	0	66	4	0	0	0	0	0	22	12	50	0	185	2017
5:50 PM	5	15	0	0	0	57	3	0	0	0	0	0	17	14	59	0	170	2023
5:55 PM	3	19	0	0	0	45	3	0	0	0	0	0	30	13	59	0	172	2043

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	88	264	0	0	0	824	28	0	0	0	0	0	160	140	676	0	2180
Heavy Trucks	0	16	0	0	0	24	0	0	0	0	0	0	0	0	4	0	44
Pedestrians	4	0	0	0	0	0	0	0	88	0	0	0	0	0	52	0	148
Bicycles	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	5
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

Report generated on 12/1/2011 10:23 AM

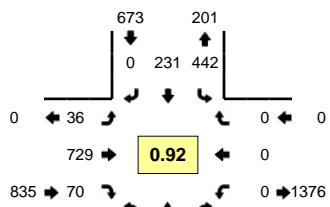
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

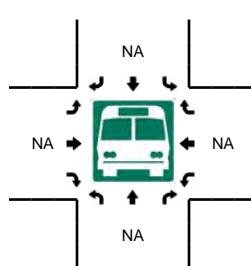
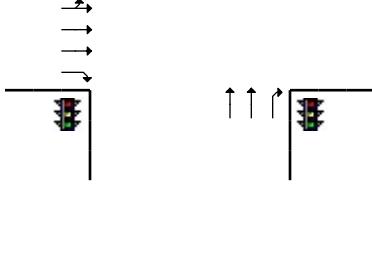
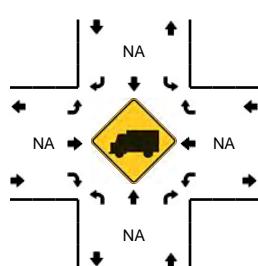
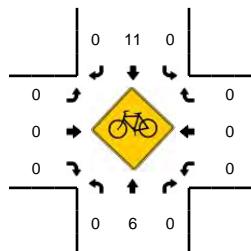
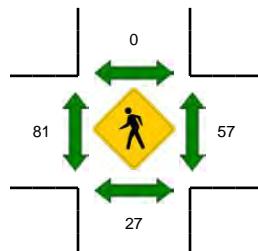
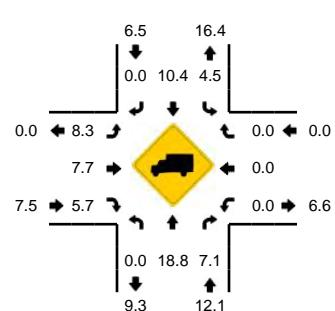
Method for determining peak hour: Total Entering Volume

LOCATION: Broadway -- 5th St
CITY/STATE: Oakland, CA

QC JOB #: 10679611
DATE: Wed, Nov 16 2011



Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM



5-Min Count Period Beginning At	Broadway (Northbound)				Broadway (Southbound)				5th St (Eastbound)				5th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	8	8	0	18	12	0	1	1	48	6	0	0	0	0	0	0	102
7:05 AM	0	10	6	0	20	9	0	0	4	28	2	0	0	0	0	0	0	79
7:10 AM	0	11	6	0	23	14	0	0	1	41	2	0	0	0	0	0	0	98
7:15 AM	0	13	12	0	33	13	0	0	2	50	4	0	0	0	0	0	0	127
7:20 AM	0	8	6	0	29	13	0	0	7	39	6	0	0	0	0	0	0	108
7:25 AM	0	3	18	0	33	19	0	0	3	48	3	0	0	0	0	0	0	127
7:30 AM	0	12	13	0	31	16	0	0	5	48	7	0	0	0	0	0	0	132
7:35 AM	0	11	14	0	27	19	0	1	5	64	7	0	0	0	0	0	0	148
7:40 AM	0	15	10	0	44	22	0	0	1	67	7	0	0	0	0	0	0	166
7:45 AM	0	6	17	0	34	20	0	0	3	60	4	0	0	0	0	0	0	144
7:50 AM	0	9	23	0	28	21	0	1	1	68	4	0	0	0	0	0	0	155
7:55 AM	0	5	21	0	41	16	0	1	2	71	6	0	0	0	0	0	0	163
																		1549
8:00 AM	0	11	19	0	51	18	0	0	4	68	3	0	0	0	0	0	0	174
8:05 AM	0	7	20	0	43	18	0	0	5	60	6	0	0	0	0	0	0	159
8:10 AM	0	18	19	0	31	23	0	1	2	53	5	0	0	0	0	0	0	152
8:15 AM	0	14	22	0	42	17	0	0	1	52	4	0	0	0	0	0	0	152
8:20 AM	0	16	11	1	34	18	0	0	2	72	3	0	0	0	0	0	0	1829
8:25 AM	0	17	11	0	31	26	0	0	3	55	7	0	0	0	0	0	0	150
8:30 AM	0	12	11	0	33	18	0	1	1	53	6	0	0	0	0	0	0	1855
8:35 AM	0	11	17	0	44	16	0	1	5	56	2	0	0	0	0	0	0	152
8:40 AM	0	6	22	0	27	16	0	0	5	49	11	0	0	0	0	0	0	1829
8:45 AM	0	18	11	0	36	17	0	1	3	68	9	0	0	0	0	0	0	163
8:50 AM	0	15	27	0	33	18	0	1	4	73	3	0	0	0	0	0	0	174
8:55 AM	0	15	20	0	32	26	0	0	1	70	11	0	0	0	0	0	0	175
																		1879

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	192	232	0	404	244	0	8	32	844	92	0	0	0	0	0	2048
Heavy Trucks	0	40	12		8	32	0		8	64	0		0	0	0		164
Pedestrians	20								104				24				148
Bicycles	0	0	0		0	3	0		0	0	0		0	0	0		3
Railroad																	
Stopped Buses																	

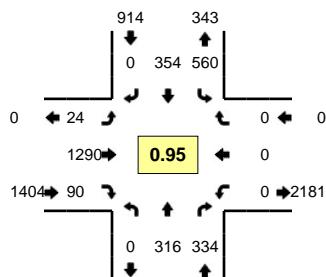
Comments:

Type of peak hour being reported: Intersection Peak

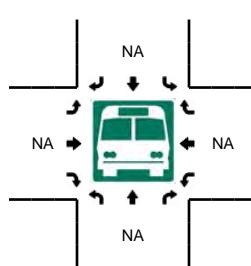
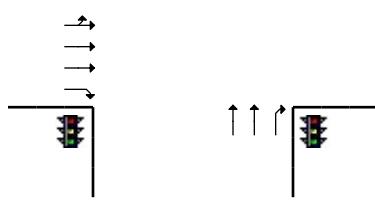
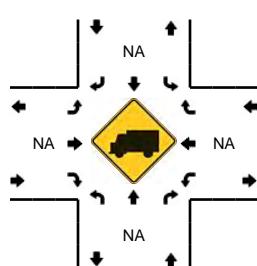
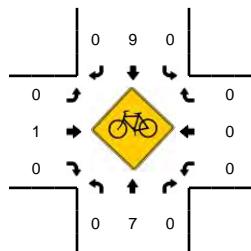
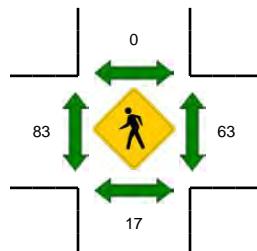
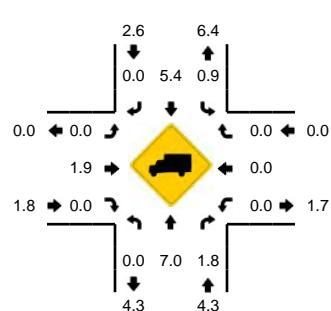
Method for determining peak hour: Total Entering Volume

LOCATION: Broadway -- 5th St
CITY/STATE: Oakland, CA

QC JOB #: 10679612
DATE: Thu, Nov 17 2011



Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:20 PM -- 5:35 PM



5-Min Count Period Beginning At	Broadway (Northbound)				Broadway (Southbound)				5th St (Eastbound)				5th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	17	28	0	35	25	0	0	8	72	11	0	0	0	0	0	0	196
4:05 PM	0	9	25	0	61	11	0	0	6	86	11	0	0	0	0	0	0	209
4:10 PM	0	24	25	0	37	13	0	0	3	91	6	0	0	0	0	0	0	199
4:15 PM	0	27	19	0	51	29	0	0	1	84	3	0	0	0	0	0	0	214
4:20 PM	0	15	19	0	45	27	0	0	5	99	4	0	0	0	0	0	0	214
4:25 PM	0	14	21	0	38	26	0	0	5	96	4	0	0	0	0	0	0	204
4:30 PM	0	20	21	0	51	25	0	0	4	78	3	0	0	0	0	0	0	202
4:35 PM	0	18	17	0	51	31	0	0	21	111	7	0	0	0	0	0	0	256
4:40 PM	0	21	25	0	45	12	0	0	4	109	5	0	0	0	0	0	0	221
4:45 PM	0	32	19	0	49	17	0	0	3	101	10	0	0	0	0	0	0	231
4:50 PM	0	22	27	0	53	21	0	0	2	114	4	0	0	0	0	0	0	243
4:55 PM	0	15	17	0	38	31	0	0	3	102	3	0	0	0	0	0	0	209
5:00 PM	0	27	32	0	52	25	0	1	2	91	10	0	0	0	0	0	0	240
5:05 PM	0	28	22	0	38	22	0	0	2	143	4	0	0	0	0	0	0	2642
5:10 PM	0	32	43	0	41	20	0	0	1	100	4	0	0	0	0	0	0	259
5:15 PM	0	24	19	0	52	33	0	0	1	114	7	0	0	0	0	0	0	2692
5:20 PM	0	25	27	0	37	32	0	1	4	117	11	0	0	0	0	0	0	2734
5:25 PM	0	38	33	0	51	35	0	0	1	105	8	0	0	0	0	0	0	2770
5:30 PM	0	36	32	0	53	33	0	0	0	93	5	0	0	0	0	0	0	2810
5:35 PM	0	20	19	0	49	29	0	0	3	115	10	0	0	0	0	0	0	271
5:40 PM	0	22	27	0	49	23	0	0	4	112	6	0	0	0	0	0	0	2877
5:45 PM	0	26	33	0	48	41	0	0	2	80	9	0	0	0	0	0	0	2946
5:50 PM	0	16	24	0	48	31	0	1	1	107	11	0	0	0	0	0	0	2942
5:55 PM	0	22	23	0	39	30	0	0	3	113	5	0	0	0	0	0	0	2968

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	396	368	0	564	400	0	4	20	1260	96	0	0	0	0	0	3108
Heavy Trucks	0	16	0	0	4	20	0	0	0	24	0	0	0	0	0	0	64
Pedestrians	0	0	0	0	0	0	0	0	100	0	0	0	40	0	0	0	140
Bicycles	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	3
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

Report generated on 12/1/2011 10:23 AM

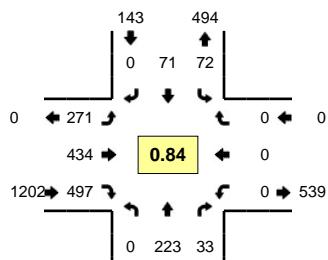
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

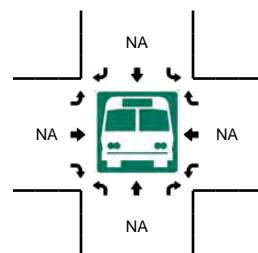
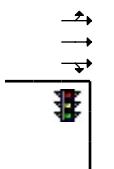
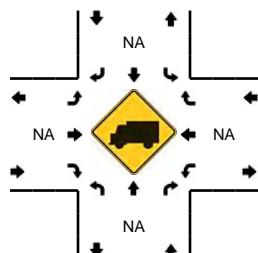
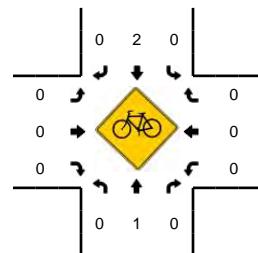
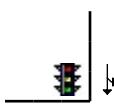
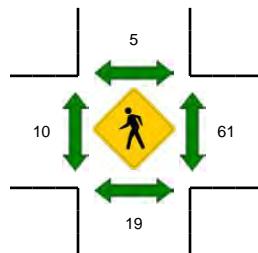
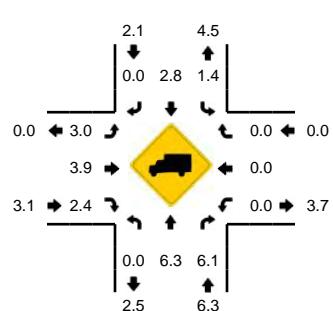
Method for determining peak hour: Total Entering Volume

LOCATION: Jackson St -- 5th St
CITY/STATE: Oakland, CA

QC JOB #: 10679609
DATE: Wed, Nov 16 2011



Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM



5-Min Count Period Beginning At	Jackson St (Northbound)				Jackson St (Southbound)				5th St (Eastbound)				5th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	14	1	0	5	0	0	0	20	12	22	0	0	0	0	0	74	
7:05 AM	0	12	1	0	1	1	0	0	15	16	17	0	0	0	0	0	63	
7:10 AM	0	13	2	0	7	5	0	0	13	8	23	0	0	0	0	0	71	
7:15 AM	0	15	1	0	7	7	0	0	21	21	20	0	0	0	0	0	92	
7:20 AM	0	15	4	0	5	4	0	0	19	9	20	0	0	0	0	0	76	
7:25 AM	0	11	1	0	3	4	0	0	23	20	27	0	0	0	0	0	89	
7:30 AM	0	16	1	0	3	6	0	0	20	25	30	0	0	0	0	0	101	
7:35 AM	0	15	1	0	7	4	0	0	17	30	20	0	0	0	0	0	94	
7:40 AM	0	18	3	0	7	3	0	0	19	23	20	0	0	0	0	0	93	
7:45 AM	0	18	2	0	4	6	0	0	24	16	38	0	0	0	0	0	108	
7:50 AM	0	15	0	0	2	4	0	0	28	37	36	0	0	0	0	0	122	
7:55 AM	0	16	5	0	9	5	0	0	19	30	37	0	0	0	0	0	121	1104
8:00 AM	0	18	4	0	5	0	0	0	25	29	49	0	0	0	0	0	130	1160
8:05 AM	0	18	0	0	3	2	0	0	18	18	28	0	0	0	0	0	87	1184
8:10 AM	0	18	4	0	11	9	0	0	15	29	39	0	0	0	0	0	125	1238
8:15 AM	0	15	5	0	6	6	0	0	26	42	47	0	0	0	0	0	147	1293
8:20 AM	0	23	0	0	5	2	0	0	14	35	29	0	0	0	0	0	108	1325
8:25 AM	0	10	4	0	6	8	0	0	22	42	45	0	0	0	0	0	137	1373
8:30 AM	0	11	1	0	5	4	0	0	21	35	37	0	0	0	0	0	114	1386
8:35 AM	0	30	2	0	4	12	0	0	18	29	47	0	0	0	0	0	142	1434
8:40 AM	0	18	4	0	5	7	0	0	16	44	40	0	0	0	0	0	134	1475
8:45 AM	0	8	3	0	9	7	0	0	28	40	35	0	0	0	0	0	130	1497
8:50 AM	0	25	1	0	5	0	0	0	29	40	49	0	0	0	0	0	149	1524
8:55 AM	0	29	5	0	8	14	0	0	39	51	52	0	0	0	0	0	198	1601
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	248	36	0	88	84	0	0	384	524	544	0	0	0	0	0	1908	
Heavy Trucks	0	0	4		4	0	0		16	28	16		0	0	0		68	
Pedestrians		12															92	
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

Comments:

Report generated on 12/1/2011 10:23 AM

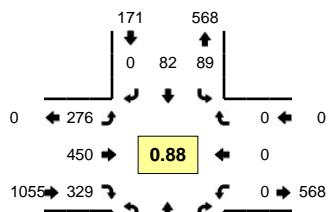
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

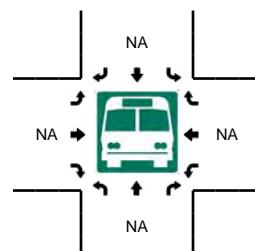
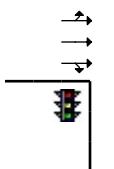
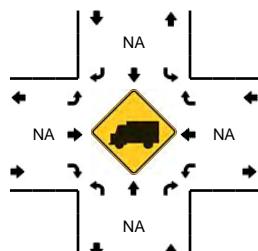
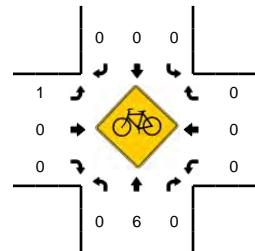
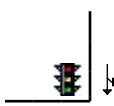
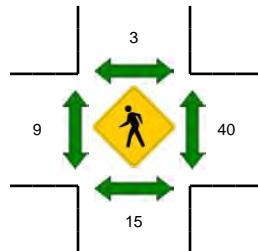
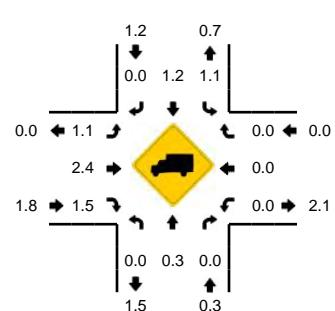
Method for determining peak hour: Total Entering Volume

LOCATION: Jackson St -- 5th St
CITY/STATE: Oakland, CA

QC JOB #: 10679610
DATE: Wed, Nov 16 2011



Peak-Hour: 4:55 PM -- 5:55 PM
Peak 15-Min: 5:25 PM -- 5:40 PM



5-Min Count Period Beginning At	Jackson St (Northbound)				Jackson St (Southbound)				5th St (Eastbound)				5th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	23	2	0	15	4	0	0	15	18	15	0	0	0	0	0	92	
4:05 PM	0	24	1	0	11	9	0	0	14	16	15	0	0	0	0	0	90	
4:10 PM	0	17	5	0	16	3	0	0	24	23	19	0	0	0	0	0	107	
4:15 PM	0	17	1	0	8	7	0	0	17	22	21	0	0	0	0	0	93	
4:20 PM	0	20	3	0	7	9	0	0	25	22	21	0	0	0	0	0	107	
4:25 PM	0	23	1	0	10	5	0	0	15	40	26	0	0	0	0	0	120	
4:30 PM	0	17	3	0	18	5	0	0	16	27	28	0	0	0	0	0	114	
4:35 PM	0	22	1	0	11	7	0	0	22	25	23	0	0	0	0	0	111	
4:40 PM	0	21	1	0	22	4	0	0	18	26	18	0	0	0	0	0	110	
4:45 PM	0	18	2	0	11	7	0	0	19	28	21	0	0	0	0	0	106	
4:50 PM	0	23	3	0	14	10	0	0	15	35	24	0	0	0	0	0	124	
4:55 PM	0	27	2	0	5	10	0	0	20	38	37	0	0	0	0	0	139	1313
5:00 PM	0	34	3	0	9	7	0	0	11	31	27	0	0	0	0	0	122	1343
5:05 PM	0	30	2	0	6	4	0	0	17	27	19	0	0	0	0	0	105	1358
5:10 PM	0	30	5	0	9	9	0	0	21	28	21	0	0	0	0	0	123	1374
5:15 PM	0	14	6	0	6	6	0	0	13	41	25	0	0	0	0	0	111	1392
5:20 PM	0	13	0	0	7	2	0	0	12	40	20	0	0	0	0	0	94	1379
5:25 PM	0	30	0	0	6	8	0	0	34	51	28	0	0	0	0	0	157	1416
5:30 PM	0	24	0	0	12	3	0	0	35	46	26	0	0	0	0	0	146	1448
5:35 PM	0	30	5	0	8	6	0	0	27	35	26	0	0	0	0	0	137	1474
5:40 PM	0	19	3	0	9	9	0	0	26	37	32	0	0	0	0	0	135	1499
5:45 PM	0	14	0	0	7	9	0	0	27	37	30	0	0	0	0	0	124	1517
5:50 PM	0	27	3	0	5	9	0	0	33	39	38	0	0	0	0	0	154	1547
5:55 PM	0	17	3	0	5	4	0	0	20	30	33	0	0	0	0	0	112	1520
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	336	20	0	104	68	0	0	384	528	320	0	0	0	0	0	1760	
Heavy Trucks	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	16
Pedestrians	16																	52
Bicycles	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Railroad																		
Stopped Buses																		

Comments:

Report generated on 12/1/2011 10:23 AM

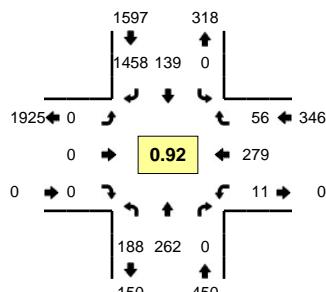
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

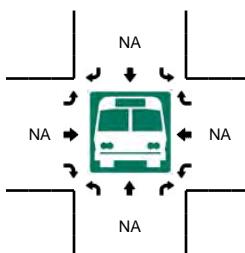
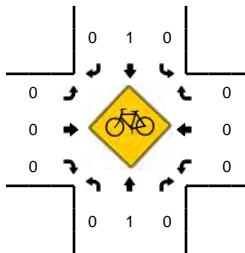
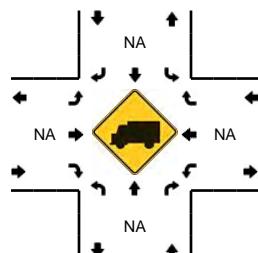
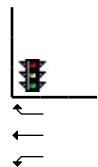
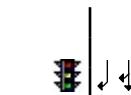
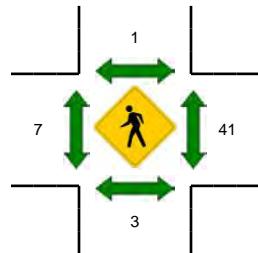
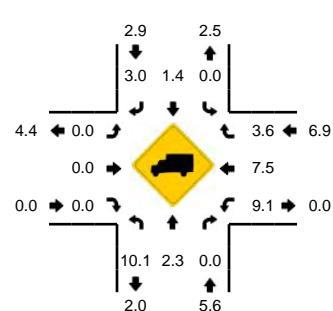
Method for determining peak hour: Total Entering Volume

LOCATION: Jackson St -- 6th St
CITY/STATE: Oakland, CA

QC JOB #: 10679607
DATE: Wed, Nov 16 2011



Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM



5-Min Count Period Beginning At	Jackson St (Northbound)				Jackson St (Southbound)				6th St (Eastbound)				6th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	20	11	0	0	0	6	85	0	0	0	0	0	0	18	2	0	142	
7:05 AM	13	14	0	0	0	2	91	0	0	0	0	0	0	31	0	0	151	
7:10 AM	16	9	0	0	0	9	112	0	0	0	0	0	1	19	4	0	170	
7:15 AM	19	13	0	0	0	14	74	0	0	0	0	0	1	18	3	0	142	
7:20 AM	23	10	0	0	0	10	110	0	0	0	0	0	2	26	1	0	182	
7:25 AM	13	17	0	0	0	6	124	0	0	0	0	0	1	29	2	0	192	
7:30 AM	13	13	0	0	0	8	122	0	0	0	0	0	0	25	5	0	186	
7:35 AM	22	18	0	0	0	12	117	0	0	0	0	0	1	22	3	0	195	
7:40 AM	18	15	0	0	0	10	104	0	0	0	0	0	1	29	1	0	178	
7:45 AM	12	21	0	0	0	11	121	0	0	0	0	0	0	21	4	0	190	
7:50 AM	24	19	0	0	0	5	112	0	0	0	0	0	0	20	5	0	185	
7:55 AM	21	13	0	0	0	12	135	0	0	0	0	0	1	23	3	0	208	2121
8:00 AM	15	22	0	0	0	4	127	0	0	0	0	0	0	26	2	0	196	2175
8:05 AM	15	20	0	0	0	7	124	0	0	0	0	0	0	21	8	0	195	2219
8:10 AM	13	20	0	0	0	16	125	0	0	0	0	0	3	20	4	0	201	2250
8:15 AM	13	21	0	0	0	9	111	0	0	0	0	0	1	19	12	0	186	2294
8:20 AM	14	20	0	0	0	9	128	0	0	0	0	0	1	20	2	0	194	2306
8:25 AM	11	22	0	0	0	16	132	0	0	0	0	0	1	19	4	0	205	2319
8:30 AM	12	14	0	0	0	14	123	0	0	0	0	0	0	22	4	0	189	2322
8:35 AM	20	24	0	0	0	6	105	0	0	0	0	0	3	23	2	0	183	2310
8:40 AM	16	13	0	0	0	15	126	0	0	0	0	0	0	24	3	0	197	2329
8:45 AM	17	20	0	0	0	16	132	0	0	0	0	0	0	26	4	0	215	2354
8:50 AM	22	29	0	0	0	6	110	0	0	0	0	0	0	31	7	0	205	2374
8:55 AM	20	37	0	0	0	21	115	0	0	0	0	0	2	28	4	0	227	2393

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	236	344	0	0	0	172	1428	0	0	0	0	0	8	340	60	0	2588
Heavy Trucks	8	4	0		0	4	40		0	0	0	0	0	24	4		84
Pedestrians	8								8					28			44
Bicycles	0	1	0		0	0	0		0	0	0	0	0	0	0		1
Railroad																	
Stopped Buses																	

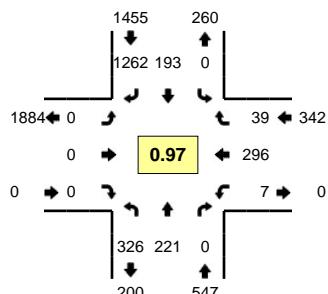
Comments:

Type of peak hour being reported: Intersection Peak

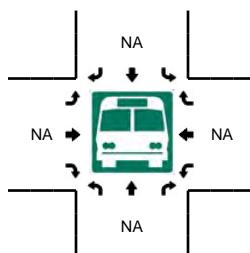
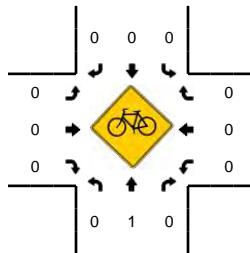
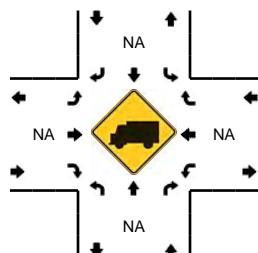
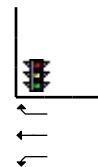
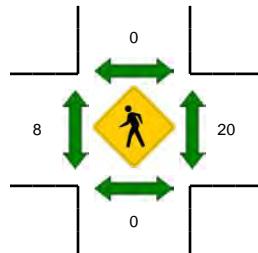
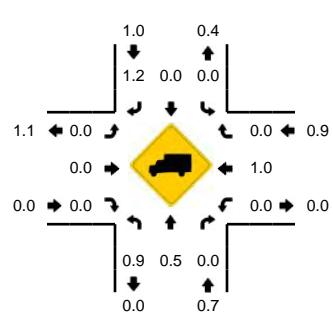
Method for determining peak hour: Total Entering Volume

LOCATION: Jackson St -- 6th St
CITY/STATE: Oakland, CA

QC JOB #: 10679608
DATE: Wed, Nov 16 2011



Peak-Hour: 4:35 PM -- 5:35 PM
Peak 15-Min: 5:20 PM -- 5:35 PM



5-Min Count Period Beginning At	Jackson St (Northbound)				Jackson St (Southbound)				6th St (Eastbound)				6th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	20	11	0	0	0	18	113	0	0	0	0	0	0	34	5	0	201	
4:05 PM	25	19	0	0	0	20	92	0	0	0	0	0	0	35	2	0	193	
4:10 PM	23	13	0	0	0	18	103	0	0	0	0	0	1	26	4	0	188	
4:15 PM	23	17	0	0	0	16	99	0	0	0	0	0	1	32	6	0	194	
4:20 PM	24	20	0	0	0	12	87	0	0	0	0	0	2	31	2	0	178	
4:25 PM	17	18	0	0	0	15	88	0	0	0	0	0	0	24	6	0	168	
4:30 PM	20	18	0	0	0	21	103	0	0	0	0	0	1	26	1	0	190	
4:35 PM	27	21	0	0	0	19	116	0	0	0	0	0	0	23	0	0	206	
4:40 PM	20	18	0	0	0	26	104	0	0	0	0	0	0	30	2	0	200	
4:45 PM	24	13	0	0	0	17	110	0	0	0	0	0	1	29	4	0	198	
4:50 PM	29	13	0	0	0	24	105	0	0	0	0	0	0	19	1	0	191	
4:55 PM	29	17	0	0	0	14	105	0	0	0	0	0	1	16	0	0	182	2289
5:00 PM	36	16	0	0	0	14	96	0	0	0	0	0	1	27	5	0	195	2283
5:05 PM	32	15	0	0	0	11	113	0	0	0	0	0	1	31	4	0	207	2297
5:10 PM	28	20	0	0	0	14	95	0	0	0	0	0	1	18	6	0	182	2291
5:15 PM	15	12	0	0	0	14	109	0	0	0	0	0	1	23	4	0	178	2275
5:20 PM	22	8	0	0	0	10	105	0	0	0	0	0	0	20	2	0	167	2264
5:25 PM	27	30	0	0	0	17	99	0	0	0	0	0	1	28	8	0	210	2306
5:30 PM	37	38	0	0	0	13	105	0	0	0	0	0	0	32	3	0	228	2344
5:35 PM	24	27	0	0	0	11	99	0	0	0	0	0	0	32	1	0	194	2332
5:40 PM	35	20	0	0	0	15	100	0	0	0	0	0	0	27	1	0	198	2330
5:45 PM	24	19	0	0	0	19	96	0	0	0	0	0	1	28	1	0	188	2320
5:50 PM	29	34	0	0	0	11	78	0	0	0	0	0	1	24	3	0	180	2309
5:55 PM	21	21	0	0	0	9	81	0	0	0	0	0	1	26	4	0	163	2290
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	344	304	0	0	0	160	1236	0	0	0	0	0	4	320	52	0	2420	
Heavy Trucks	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	8	
Pedestrians	0								4					32			36	
Bicycles	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Railroad																		
Stopped Buses																		

Comments:

Report generated on 12/1/2011 10:23 AM

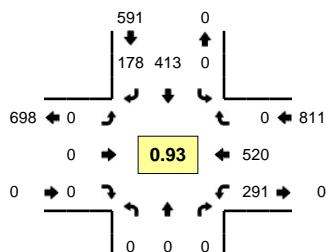
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

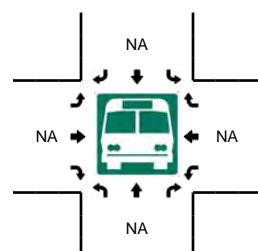
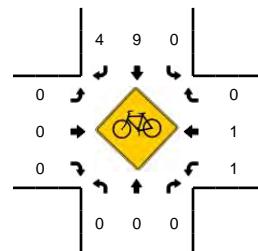
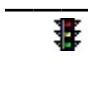
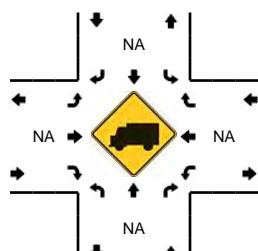
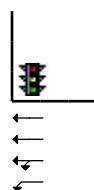
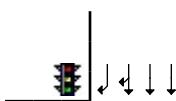
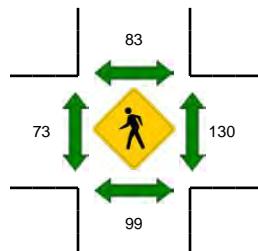
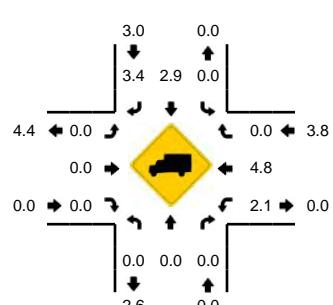
Method for determining peak hour: Total Entering Volume

LOCATION: Webster St -- 8th St
CITY/STATE: Oakland, CA

QC JOB #: 10679605
DATE: Wed, Nov 16 2011



Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:25 AM -- 8:40 AM



5-Min Count Period Beginning At	Webster St (Northbound)				Webster St (Southbound)				8th St (Eastbound)				8th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	12	5	0	0	0	0	0	5	18	0	0	40	
7:05 AM	0	0	0	0	0	9	6	0	0	0	0	0	7	16	0	0	38	
7:10 AM	0	0	0	0	0	28	5	0	0	0	0	0	9	20	0	0	62	
7:15 AM	0	0	0	0	0	15	5	0	0	0	0	0	10	23	0	0	53	
7:20 AM	0	0	0	0	0	14	10	0	0	0	0	0	13	24	0	0	61	
7:25 AM	0	0	0	0	0	28	9	0	0	0	0	0	10	30	0	0	77	
7:30 AM	0	0	0	0	0	29	6	0	0	0	0	0	9	37	0	0	81	
7:35 AM	0	0	0	0	0	34	5	0	0	0	0	0	9	30	0	0	78	
7:40 AM	0	0	0	0	0	43	11	0	0	0	0	0	17	36	0	0	107	
7:45 AM	0	0	0	0	0	29	13	0	0	0	0	0	29	40	0	0	111	
7:50 AM	0	0	0	0	0	30	8	0	0	0	0	0	22	41	0	0	101	
7:55 AM	0	0	0	0	0	46	10	0	0	0	0	0	25	25	0	0	106	915
8:00 AM	0	0	0	0	0	31	7	0	0	0	0	0	31	40	0	0	109	984
8:05 AM	0	0	0	0	0	19	12	0	0	0	0	0	14	40	0	0	85	1031
8:10 AM	0	0	0	0	0	41	12	0	0	0	0	0	25	37	0	0	115	1084
8:15 AM	0	0	0	0	0	33	12	0	0	0	0	0	33	49	0	0	127	1158
8:20 AM	0	0	0	0	0	31	14	0	0	0	0	0	13	43	0	0	101	1198
8:25 AM	0	0	0	0	0	36	19	0	0	0	0	0	23	53	0	0	131	1252
8:30 AM	0	0	0	0	0	38	14	0	0	0	0	0	21	40	0	0	113	1284
8:35 AM	0	0	0	0	0	38	14	0	0	0	0	0	25	55	0	0	132	1338
8:40 AM	0	0	0	0	0	36	20	0	0	0	0	0	25	38	0	0	119	1350
8:45 AM	0	0	0	0	0	33	16	0	0	0	0	0	28	36	0	0	113	1352
8:50 AM	0	0	0	0	0	28	15	0	0	0	0	0	28	45	0	0	116	1367
8:55 AM	0	0	0	0	0	49	23	0	0	0	0	0	25	44	0	0	141	1402

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	448	188	0	0	0	0	0	276	592	0	0	1504
Heavy Trucks	0	0	0	0	0	4	8	0	0	0	0	0	4	28	0	0	44
Pedestrians	64				40				60				132				296
Bicycles	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	6
Railroad																	
Stopped Buses																	

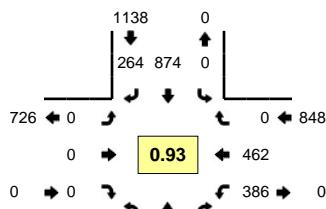
Comments:

Type of peak hour being reported: Intersection Peak

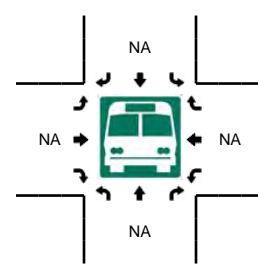
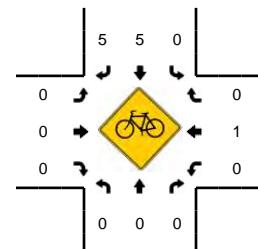
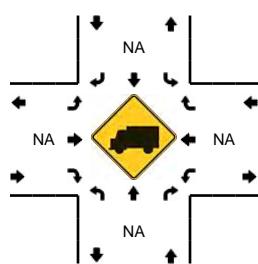
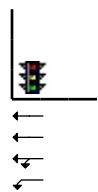
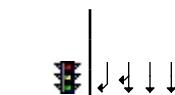
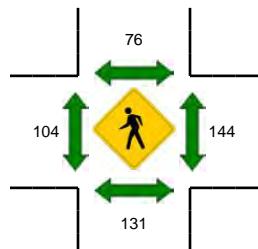
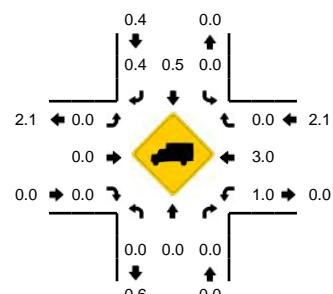
Method for determining peak hour: Total Entering Volume

LOCATION: Webster St -- 8th St
CITY/STATE: Oakland, CA

QC JOB #: 10679606
DATE: Wed, Nov 16 2011



Peak-Hour: 4:55 PM -- 5:55 PM
Peak 15-Min: 5:10 PM -- 5:25 PM



5-Min Count Period Beginning At	Webster St (Northbound)				Webster St (Southbound)				8th St (Eastbound)				8th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	52	21	0	0	0	0	0	25	41	0	0	139	
4:05 PM	0	0	0	0	0	49	16	0	0	0	0	0	30	32	0	0	127	
4:10 PM	0	0	0	0	0	63	16	0	0	0	0	0	15	31	0	0	125	
4:15 PM	0	0	0	0	0	51	24	0	0	0	0	0	31	38	0	0	144	
4:20 PM	0	0	0	0	0	59	17	0	0	0	0	0	23	36	0	0	135	
4:25 PM	0	0	0	0	0	63	33	0	0	0	0	0	17	31	0	0	144	
4:30 PM	0	0	0	0	0	65	24	0	0	0	0	0	27	38	0	0	154	
4:35 PM	0	0	0	0	0	60	29	0	0	0	0	0	23	32	0	0	144	
4:40 PM	0	0	0	0	0	76	28	0	0	0	0	0	24	24	0	0	152	
4:45 PM	0	0	0	0	0	55	27	0	0	0	0	0	21	41	0	0	144	
4:50 PM	0	0	0	0	0	57	16	0	0	0	0	0	21	36	0	0	130	
4:55 PM	0	0	0	0	0	60	30	0	0	0	0	0	28	38	0	0	156	1694
5:00 PM	0	0	0	0	0	53	25	0	0	0	0	0	21	38	0	0	137	1692
5:05 PM	0	0	0	0	0	62	15	0	0	0	0	0	34	37	0	0	148	1713
5:10 PM	0	0	0	0	0	87	29	0	0	0	0	0	29	38	0	0	183	1771
5:15 PM	0	0	0	0	0	81	18	0	0	0	0	0	33	51	0	0	183	1810
5:20 PM	0	0	0	0	0	75	25	0	0	0	0	0	24	44	0	0	168	1843
5:25 PM	0	0	0	0	0	95	26	0	0	0	0	0	25	36	0	0	182	1881
5:30 PM	0	0	0	0	0	75	20	0	0	0	0	0	42	31	0	0	168	1895
5:35 PM	0	0	0	0	0	69	20	0	0	0	0	0	40	45	0	0	174	1925
5:40 PM	0	0	0	0	0	99	20	0	0	0	0	0	32	32	0	0	183	1956
5:45 PM	0	0	0	0	0	68	18	0	0	0	0	0	41	38	0	0	165	1977
5:50 PM	0	0	0	0	0	50	18	0	0	0	0	0	37	34	0	0	139	1986
5:55 PM	0	0	0	0	0	58	26	0	0	0	0	0	31	29	0	0	144	1974
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	972	288	0	0	0	0	0	344	532	0	0	2136	
Heavy Trucks	0	0	0		0	8	4		0	0	0		8	12	0		32	
Pedestrians	164				56				128					156			504	
Bicycles	0	0	0		0	1	2		0	0	0		0	1	0		4	
Railroad																		
Stopped Buses																		

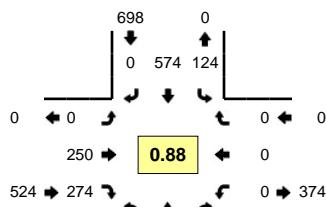
Comments:

Type of peak hour being reported: Intersection Peak

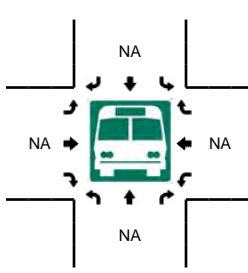
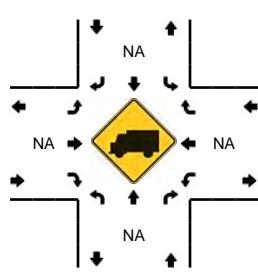
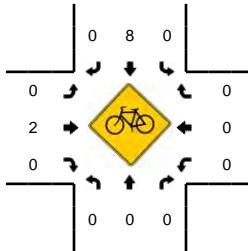
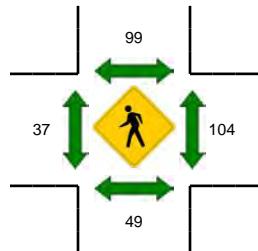
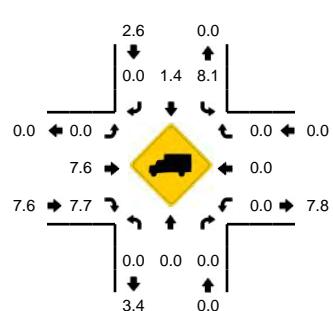
Method for determining peak hour: Total Entering Volume

LOCATION: Webster St -- 7th St
CITY/STATE: Oakland, CA

QC JOB #: 10679603
DATE: Wed, Nov 16 2011



Peak-Hour: 7:45 AM -- 8:45 AM
Peak 15-Min: 7:50 AM -- 8:05 AM



5-Min Count Period Beginning At	Webster St (Northbound)				Webster St (Southbound)				7th St (Eastbound)				7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	3	16	0	0	0	3	19	0	0	0	0	0	0	41
7:05 AM	0	0	0	0	2	13	0	0	0	9	15	0	0	0	0	0	0	39
7:10 AM	0	0	0	0	8	25	0	0	0	16	25	0	0	0	0	0	0	74
7:15 AM	0	0	0	0	3	25	0	0	0	14	25	0	0	0	0	0	0	67
7:20 AM	0	0	0	0	1	25	0	0	0	9	18	0	0	0	0	0	0	53
7:25 AM	0	0	0	0	11	23	0	0	0	15	16	0	0	0	0	0	0	65
7:30 AM	0	0	0	0	8	40	0	0	0	11	13	0	0	0	0	0	0	72
7:35 AM	0	0	0	0	7	33	0	0	0	14	19	0	0	0	0	0	0	73
7:40 AM	0	0	0	0	6	45	0	0	0	12	24	0	0	0	0	0	0	87
7:45 AM	0	0	0	0	3	58	0	0	0	17	28	0	0	0	0	0	0	106
7:50 AM	0	0	0	0	7	47	0	0	0	19	30	0	0	0	0	0	0	103
7:55 AM	0	0	0	0	6	57	0	0	0	22	36	0	0	0	0	0	0	121
8:00 AM	0	0	0	0	11	57	0	0	0	20	35	0	0	0	0	0	0	901 983
8:05 AM	0	0	0	0	6	31	0	0	0	23	22	0	0	0	0	0	0	82 1026
8:10 AM	0	0	0	0	12	48	0	0	0	24	24	0	0	0	0	0	0	108 1060
8:15 AM	0	0	0	0	13	54	0	0	0	16	17	0	0	0	0	0	0	100 1093
8:20 AM	0	0	0	0	10	42	0	0	0	22	17	0	0	0	0	0	0	91 1131
8:25 AM	0	0	0	0	9	50	0	0	0	22	18	0	0	0	0	0	0	99 1165
8:30 AM	0	0	0	0	12	46	0	0	0	23	15	0	0	0	0	0	0	96 1189
8:35 AM	0	0	0	0	19	46	0	0	0	19	14	0	0	0	0	0	0	98 1214
8:40 AM	0	0	0	0	16	38	0	0	0	23	18	0	0	0	0	0	0	95 1222
8:45 AM	0	0	0	0	12	39	0	0	0	16	22	0	0	0	0	0	0	89 1205
8:50 AM	0	0	0	0	10	51	0	0	0	28	28	0	0	0	0	0	0	117 1219
8:55 AM	0	0	0	0	12	55	0	0	0	26	19	0	0	0	0	0	0	112 1210
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	96	644	0	0	0	244	404	0	0	0	0	0	0	1388
Heavy Trucks	0	0	0	0	16	4	0	0	0	16	28	0	0	0	0	0	0	64
Pedestrians	28	0	0	0	96	0	0	0	36	0	0	0	92	0	0	0	0	252
Bicycles	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

Report generated on 12/1/2011 10:23 AM

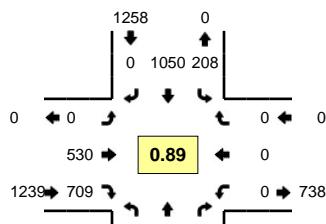
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

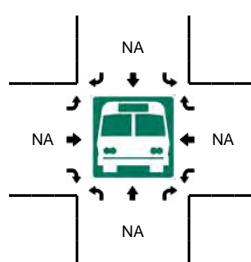
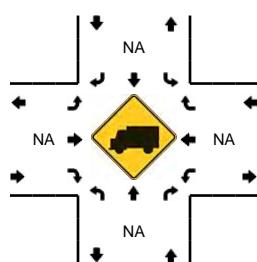
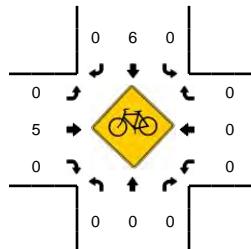
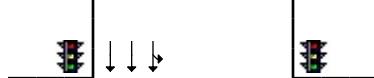
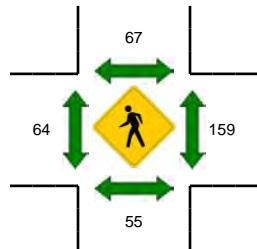
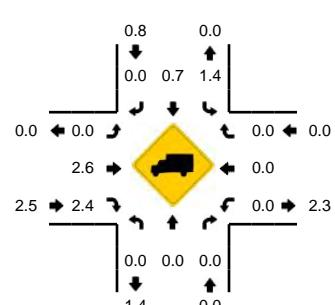
Method for determining peak hour: Total Entering Volume

LOCATION: Webster St -- 7th St
CITY/STATE: Oakland, CA

QC JOB #: 10679604
DATE: Wed, Nov 16 2011



Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:35 PM -- 5:50 PM



5-Min Count Period Beginning At	Webster St (Northbound)				Webster St (Southbound)				7th St (Eastbound)				7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	21	47	0	0	0	28	26	0	0	0	0	0	0	122
4:05 PM	0	0	0	0	26	64	0	0	0	25	27	0	0	0	0	0	0	142
4:10 PM	0	0	0	0	21	51	0	0	0	28	34	0	0	0	0	0	0	134
4:15 PM	0	0	0	0	18	65	0	0	0	36	47	0	0	0	0	0	0	166
4:20 PM	0	0	0	0	16	63	0	0	0	36	43	0	0	0	0	0	0	158
4:25 PM	0	0	0	0	13	66	0	0	0	42	49	0	0	0	0	0	0	170
4:30 PM	0	0	0	0	20	63	0	0	0	33	34	0	0	0	0	0	0	150
4:35 PM	0	0	0	0	17	75	0	0	0	38	40	0	0	0	0	0	0	170
4:40 PM	0	0	0	0	20	74	0	0	0	41	45	0	0	0	0	0	0	180
4:45 PM	0	0	0	0	12	61	0	0	0	40	38	0	0	0	0	0	0	151
4:50 PM	0	0	0	0	16	71	0	0	0	41	40	0	0	0	0	0	0	168
4:55 PM	0	0	0	0	15	62	0	0	0	40	51	0	0	0	0	0	0	168
5:00 PM	0	0	0	0	17	65	0	0	0	35	46	0	0	0	0	0	0	163
5:05 PM	0	0	0	0	15	82	0	0	0	43	52	0	0	0	0	0	0	192
5:10 PM	0	0	0	0	22	88	0	0	0	53	55	0	0	0	0	0	0	218
5:15 PM	0	0	0	0	23	83	0	0	0	41	44	0	0	0	0	0	0	191
5:20 PM	0	0	0	0	21	93	0	0	0	47	69	0	0	0	0	0	0	230
5:25 PM	0	0	0	0	18	89	0	0	0	50	45	0	0	0	0	0	0	2151
5:30 PM	0	0	0	0	16	96	0	0	0	36	57	0	0	0	0	0	0	202
5:35 PM	0	0	0	0	15	97	0	0	0	45	74	0	0	0	0	0	0	2299
5:40 PM	0	0	0	0	25	97	0	0	0	49	75	0	0	0	0	0	0	246
5:45 PM	0	0	0	0	8	104	0	0	0	53	62	0	0	0	0	0	0	2441
5:50 PM	0	0	0	0	16	81	0	0	0	43	62	0	0	0	0	0	0	2475
5:55 PM	0	0	0	0	12	75	0	0	0	35	68	0	0	0	0	0	0	2497

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	192	1192	0	0	0	588	844	0	0	0	0	0	2816
Heavy Trucks	0	0	0	0	0	0	0	0	0	16	12	0	0	0	0	0	28
Pedestrians	52	0	0	0	80	0	0	0	48	0	0	0	116	0	0	0	296
Bicycles	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	3
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

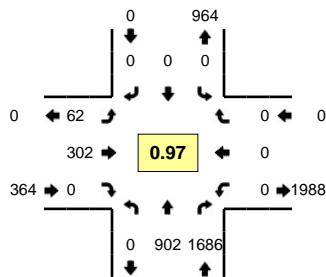
Comments:

Type of peak hour being reported: Intersection Peak

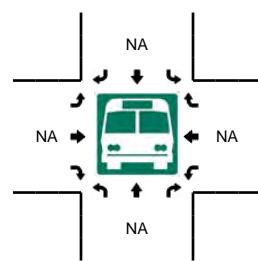
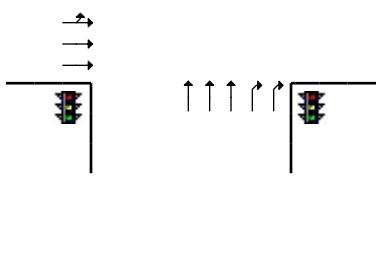
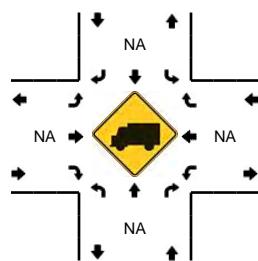
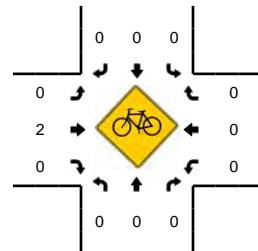
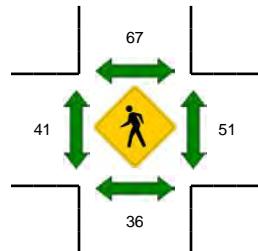
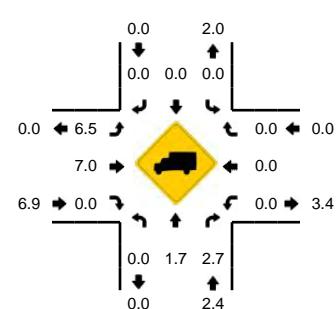
Method for determining peak hour: Total Entering Volume

LOCATION: Harrison St -- 7th St
CITY/STATE: Oakland, CA

QC JOB #: 10679601
DATE: Wed, Nov 16 2011



Peak-Hour: 7:55 AM -- 8:55 AM
Peak 15-Min: 7:55 AM -- 8:10 AM



5-Min Count Period Beginning At	Harrison St (Northbound)				Harrison St (Southbound)				7th St (Eastbound)				7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	26	119	0	0	0	0	0	0	4	0	0	0	0	0	0	149	
7:05 AM	0	22	97	0	0	0	0	0	1	8	0	0	0	0	0	0	128	
7:10 AM	0	35	126	0	0	0	0	0	3	18	0	0	0	0	0	0	182	
7:15 AM	0	33	100	0	0	0	0	0	10	14	0	0	0	0	0	0	157	
7:20 AM	0	50	139	0	0	0	0	0	1	9	0	0	0	0	0	0	199	
7:25 AM	0	53	142	0	0	0	0	0	4	19	0	0	0	0	0	0	218	
7:30 AM	0	53	151	0	0	0	0	0	3	11	0	0	0	0	0	0	218	
7:35 AM	0	50	151	0	0	0	0	0	4	19	0	0	0	0	0	0	224	
7:40 AM	0	63	147	0	0	0	0	0	2	18	0	0	0	0	0	0	230	
7:45 AM	0	63	147	0	0	0	0	0	4	18	0	0	0	0	0	0	232	
7:50 AM	0	69	138	0	0	0	0	0	2	15	0	0	0	0	0	0	224	
7:55 AM	0	82	155	0	0	0	0	0	10	23	0	0	0	0	0	0	270	2431
8:00 AM	0	63	147	0	0	0	0	0	6	19	0	0	0	0	0	0	235	2517
8:05 AM	0	71	150	0	0	0	0	0	5	28	0	0	0	0	0	0	254	2643
8:10 AM	0	74	128	0	0	0	0	0	5	23	0	0	0	0	0	0	230	2691
8:15 AM	0	88	129	0	0	0	0	0	2	25	0	0	0	0	0	0	244	2778
8:20 AM	0	82	158	0	0	0	0	0	4	25	0	0	0	0	0	0	269	2848
8:25 AM	0	79	138	0	0	0	0	0	4	24	0	0	0	0	0	0	245	2875
8:30 AM	0	78	127	0	0	0	0	0	8	24	0	0	0	0	0	0	237	2894
8:35 AM	0	76	136	0	0	0	0	0	6	28	0	0	0	0	0	0	246	2916
8:40 AM	0	65	139	0	0	0	0	0	3	32	0	0	0	0	0	0	239	2925
8:45 AM	0	67	130	0	0	0	0	0	1	25	0	0	0	0	0	0	223	2916
8:50 AM	0	77	149	0	0	0	0	0	8	26	0	0	0	0	0	0	260	2952
8:55 AM	0	82	124	0	0	0	0	0	7	30	0	0	0	0	0	0	243	2925
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	864	1808	0	0	0	0	0	84	280	0	0	0	0	0	0	3036	
Heavy Trucks	0	0	52	0	0	0	0	0	12	24	0	0	0	0	0	0	88	
Pedestrians	20				44				24				36				124	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

Report generated on 12/1/2011 10:23 AM

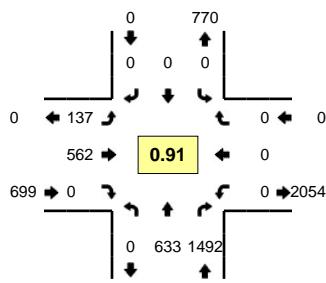
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

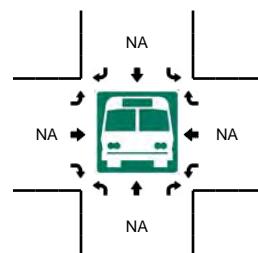
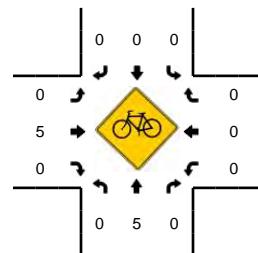
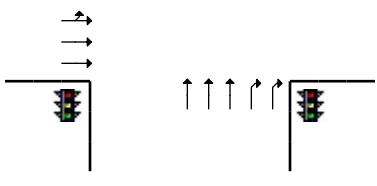
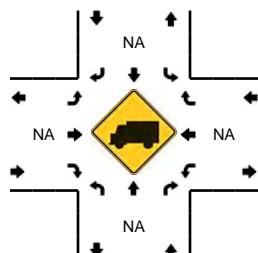
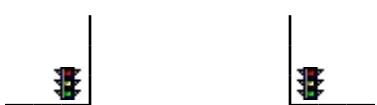
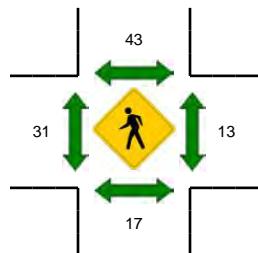
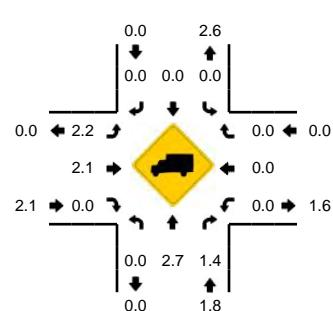
Method for determining peak hour: Total Entering Volume

LOCATION: Harrison St -- 7th St
CITY/STATE: Oakland, CA

QC JOB #: 10679602
DATE: Wed, Nov 16 2011



Peak-Hour: 4:35 PM -- 5:35 PM
Peak 15-Min: 5:10 PM -- 5:25 PM



5-Min Count Period Beginning At	Harrison St (Northbound)				Harrison St (Southbound)				7th St (Eastbound)				7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	38	133	0	0	0	0	0	12	34	0	0	0	0	0	0	217	
4:05 PM	0	48	106	0	0	0	0	0	6	45	0	0	0	0	0	0	205	
4:10 PM	0	40	125	0	0	0	0	0	7	39	0	0	0	0	0	0	211	
4:15 PM	0	42	116	0	0	0	0	0	12	45	0	0	0	0	0	0	215	
4:20 PM	0	52	112	0	0	0	0	0	12	34	0	0	0	0	0	0	210	
4:25 PM	0	50	103	0	0	0	0	0	11	45	0	0	0	0	0	0	209	
4:30 PM	0	43	115	0	0	0	0	0	5	47	0	0	0	0	0	0	210	
4:35 PM	0	51	132	0	0	0	0	0	7	40	0	0	0	0	0	0	230	
4:40 PM	0	53	124	0	0	0	0	0	8	43	0	0	0	0	0	0	228	
4:45 PM	0	39	127	0	0	0	0	0	9	50	0	0	0	0	0	0	225	
4:50 PM	0	53	123	0	0	0	0	0	12	39	0	0	0	0	0	0	227	
4:55 PM	0	51	119	0	0	0	0	0	15	42	0	0	0	0	0	0	227	2614
5:00 PM	0	42	113	0	0	0	0	0	13	40	0	0	0	0	0	0	208	2605
5:05 PM	0	62	136	0	0	0	0	0	11	47	0	0	0	0	0	0	256	2656
5:10 PM	0	59	141	0	0	0	0	0	15	53	0	0	0	0	0	0	268	2713
5:15 PM	0	63	124	0	0	0	0	0	10	54	0	0	0	0	0	0	251	2749
5:20 PM	0	59	135	0	0	0	0	0	15	51	0	0	0	0	0	0	260	2799
5:25 PM	0	49	101	0	0	0	0	0	10	56	0	0	0	0	0	0	216	2806
5:30 PM	0	52	117	0	0	0	0	0	12	47	0	0	0	0	0	0	228	2824
5:35 PM	0	54	111	0	0	0	0	0	9	47	0	0	0	0	0	0	221	2815
5:40 PM	0	46	104	0	0	0	0	0	15	57	0	0	0	0	0	0	222	2809
5:45 PM	0	47	110	0	0	0	0	0	5	52	0	0	0	0	0	0	214	2798
5:50 PM	0	36	96	0	0	0	0	0	14	46	0	0	0	0	0	0	192	2763
5:55 PM	0	41	84	0	0	0	0	0	15	40	0	0	0	0	0	0	180	2716
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	724	1600	0	0	0	0	0	160	632	0	0	0	0	0	0	3116	
Heavy Trucks	0	4	16	0	0	0	0	0	8	16	0	0	0	0	0	0	44	
Pedestrians	0																88	
Bicycles	0	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	5	
Railroad																		
Stopped Buses																		

Comments:

Report generated on 12/1/2011 10:23 AM

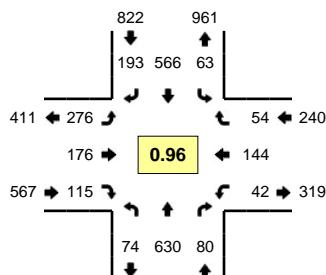
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

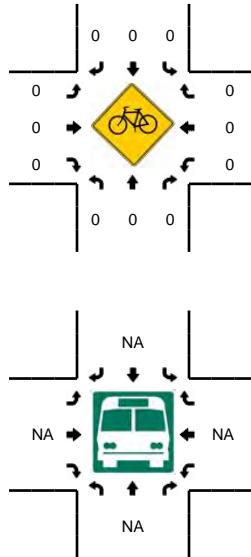
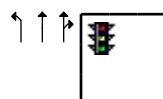
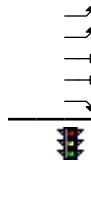
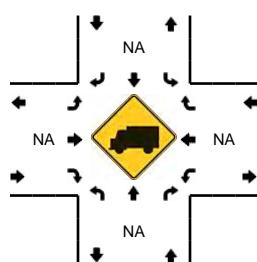
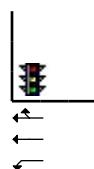
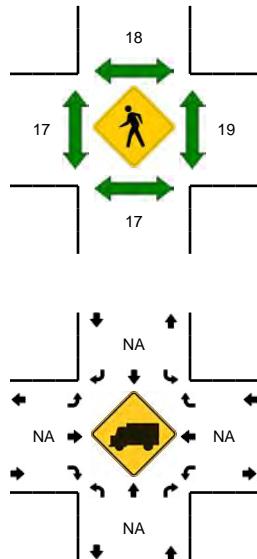
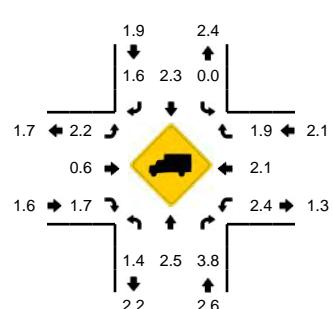
Method for determining peak hour: Total Entering Volume

LOCATION: Webster St -- Atlantic Ave
CITY/STATE: Alameda, CA

QC JOB #: 10679633
DATE: Sat, Dec 03 2011



Peak-Hour: 11:00 AM -- 12:00 PM
Peak 15-Min: 11:35 AM -- 11:50 AM



5-Min Count Period Beginning At	Webster St (Northbound)				Webster St (Southbound)				Atlantic Ave (Eastbound)				Atlantic Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	8	51	9	0	3	23	19	0	17	11	3	0	4	12	2	0	162	
10:05 AM	6	44	2	0	5	35	28	0	8	26	11	0	4	11	5	0	185	
10:10 AM	7	45	7	0	3	28	14	0	12	17	8	0	3	7	5	0	156	
10:15 AM	4	56	3	0	5	54	27	0	12	6	10	0	4	12	5	0	198	
10:20 AM	2	31	2	0	4	33	28	0	18	14	8	0	3	17	6	0	166	
10:25 AM	6	37	6	0	3	23	22	0	15	18	5	0	3	9	3	0	150	
10:30 AM	4	49	3	0	7	17	15	0	28	15	10	0	2	11	2	0	163	
10:35 AM	5	47	1	0	7	39	13	0	41	32	13	0	4	3	5	0	210	
10:40 AM	9	41	8	0	7	37	10	0	14	12	10	0	2	8	3	0	161	
10:45 AM	2	46	7	0	2	56	21	0	23	16	16	0	3	16	3	0	211	
10:50 AM	8	60	7	0	2	39	16	0	30	18	8	0	3	14	3	0	208	
10:55 AM	6	44	7	0	5	58	23	0	12	13	9	0	3	9	5	0	194	2164
11:00 AM	4	55	12	0	5	42	15	0	18	12	9	0	3	6	5	0	186	2188
11:05 AM	7	41	3	0	6	37	21	0	23	20	2	0	7	17	3	0	187	2190
11:10 AM	5	61	7	0	7	51	20	0	16	11	12	0	4	12	4	0	210	2244
11:15 AM	9	57	10	0	3	61	18	0	17	6	4	0	1	11	2	0	199	2245
11:20 AM	4	52	4	0	3	38	19	0	24	17	6	0	5	11	4	0	187	2266
11:25 AM	9	46	10	0	8	47	14	0	13	15	13	0	3	13	7	0	198	2314
11:30 AM	7	37	3	0	6	33	12	1	32	20	9	0	4	21	6	0	191	2342
11:35 AM	5	59	4	0	4	53	17	0	40	11	12	0	6	13	3	0	227	2359
11:40 AM	7	61	6	0	4	46	15	0	28	11	7	0	1	9	5	0	200	2398
11:45 AM	9	52	9	0	7	50	12	0	26	14	10	0	1	5	6	1	202	2389
11:50 AM	3	61	6	0	5	41	17	0	13	14	12	0	5	10	1	0	188	2369
11:55 AM	5	48	6	0	4	67	13	0	26	25	19	0	1	16	8	0	238	2413
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	84	688	76	0	60	596	176	0	376	144	116	0	32	108	56	4	2516	
Heavy Trucks	0	24	0		0	24	4		12	0	4	0	0	4	0		72	
Pedestrians	28																80	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

Report generated on 12/12/2011 10:16 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

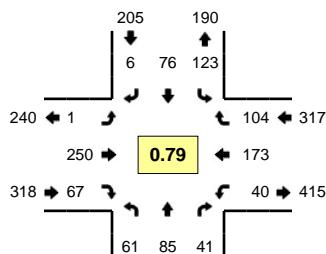
Method for determining peak hour: Total Entering Volume

LOCATION: Main St -- Atlantic Ave

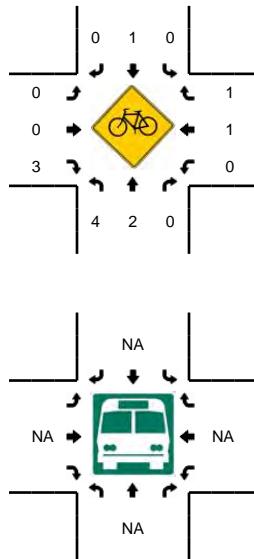
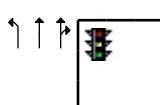
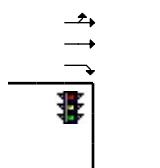
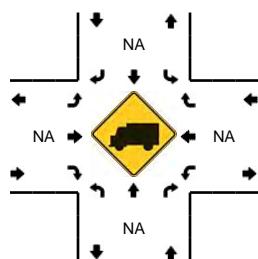
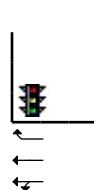
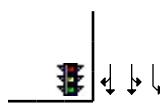
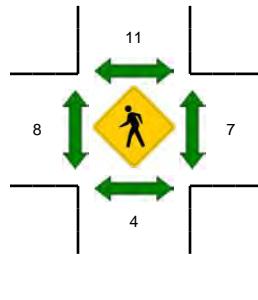
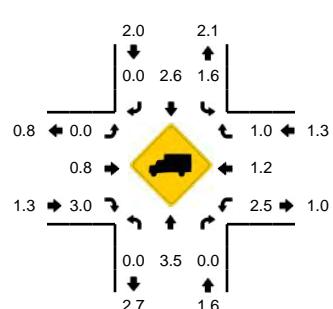
QC JOB #: 10679632

CITY/STATE: Alameda, CA

DATE: Sat, Dec 03 2011



Peak-Hour: 11:00 AM -- 12:00 PM
Peak 15-Min: 11:45 AM -- 12:00 PM



5-Min Count Period Beginning At	Main St (Northbound)				Main St (Southbound)				Atlantic Ave (Eastbound)				Atlantic Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	8	11	6	0	3	9	1	0	0	6	1	0	3	12	9	0	69	
10:05 AM	7	6	7	0	12	8	1	0	0	12	3	0	2	24	6	0	88	
10:10 AM	4	5	10	0	12	9	1	0	1	13	5	0	3	21	5	0	89	
10:15 AM	8	4	2	0	11	5	1	0	0	8	4	0	2	13	8	0	66	
10:20 AM	12	4	2	0	8	9	0	0	0	9	4	0	1	21	6	0	76	
10:25 AM	8	8	2	0	3	4	0	0	0	9	5	0	3	22	13	0	77	
10:30 AM	5	3	3	0	4	4	1	0	0	37	8	0	2	19	6	0	92	
10:35 AM	6	3	3	0	9	3	0	0	1	42	11	0	4	17	4	0	103	
10:40 AM	5	6	2	0	0	4	2	0	0	37	9	0	4	8	5	0	82	
10:45 AM	2	1	1	0	6	6	1	0	1	21	5	0	5	8	5	0	62	
10:50 AM	4	3	1	0	2	6	2	0	0	15	2	0	4	15	6	0	60	
10:55 AM	2	7	1	0	12	9	1	0	1	20	7	0	4	18	10	0	92	956
11:00 AM	9	5	4	0	12	4	0	0	0	8	6	0	4	16	7	0	75	962
11:05 AM	3	6	3	0	16	5	0	0	0	14	1	0	4	13	2	0	67	941
11:10 AM	4	4	4	0	8	3	1	0	0	7	11	0	4	14	6	0	66	918
11:15 AM	6	9	3	0	4	2	1	0	0	22	5	0	6	19	5	0	82	934
11:20 AM	4	3	2	0	6	5	0	0	0	22	3	0	2	12	9	0	68	926
11:25 AM	5	7	2	0	4	2	0	0	0	23	4	0	2	16	11	0	76	925
11:30 AM	6	7	7	0	8	3	0	0	1	30	4	0	4	23	5	0	98	931
11:35 AM	4	11	3	0	6	4	0	0	0	37	5	0	3	18	14	0	105	933
11:40 AM	4	6	7	0	5	4	0	0	0	17	3	0	2	7	11	1	67	918
11:45 AM	8	6	2	0	11	14	0	0	0	19	8	0	3	13	10	0	94	950
11:50 AM	1	5	3	0	27	20	2	0	0	25	8	0	2	11	8	0	112	1002
11:55 AM	7	16	1	0	16	10	2	0	0	26	9	0	3	11	16	0	117	1027

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	64	108	24	0	216	176	16	0	0	280	100	0	32	140	136	0	1292
Heavy Trucks	0	4	0	0	4	4	0	0	0	0	4	0	4	0	4	0	24
Pedestrians	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4
Bicycles	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

Type of peak hour being reported: Intersection Peak

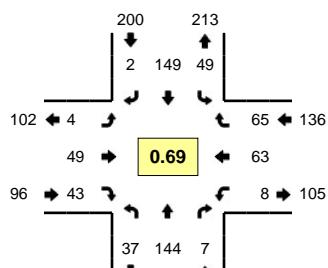
Method for determining peak hour: Total Entering Volume

LOCATION: Main St -- Willie Stargell Ave

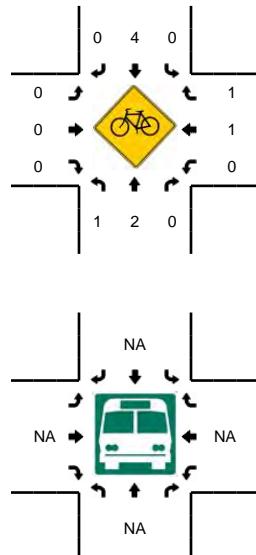
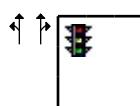
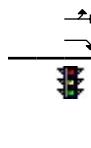
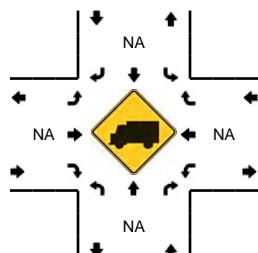
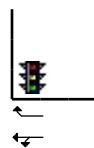
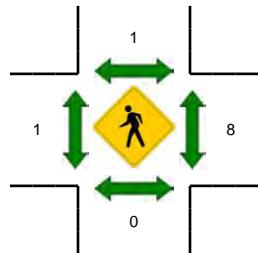
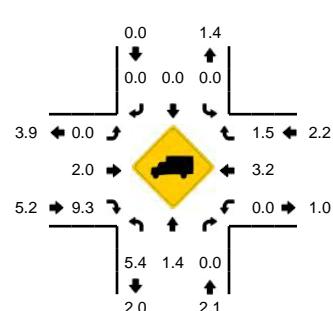
QC JOB #: 10679631

CITY/STATE: Alameda, CA

DATE: Sat, Dec 03 2011



Peak-Hour: 11:00 AM -- 12:00 PM
Peak 15-Min: 11:45 AM -- 12:00 PM



5-Min Count Period Beginning At	Main St (Northbound)				Main St (Southbound)				Willie Stargell Ave (Eastbound)				Willie Stargell Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	2	18	0	0	3	8	0	0	0	3	1	0	1	5	9	0	50	
10:05 AM	2	10	0	0	3	17	0	0	0	1	4	0	3	4	2	0	46	
10:10 AM	1	8	3	0	4	24	0	0	1	1	2	0	0	6	4	0	54	
10:15 AM	0	8	5	0	7	10	0	0	1	3	3	0	1	13	7	0	58	
10:20 AM	2	7	0	0	4	8	1	0	0	5	3	0	3	5	3	0	41	
10:25 AM	2	19	1	0	8	4	1	0	0	5	2	0	0	11	5	0	58	
10:30 AM	4	6	0	0	0	6	0	0	0	4	0	0	3	7	3	0	33	
10:35 AM	2	2	2	0	2	8	0	0	0	7	4	0	0	6	5	0	38	
10:40 AM	3	8	0	0	3	5	0	0	0	7	1	0	1	6	8	0	42	
10:45 AM	2	4	0	0	5	9	1	0	0	3	4	0	2	4	3	0	37	
10:50 AM	2	5	0	0	3	8	0	0	0	2	2	0	2	4	6	0	34	
10:55 AM	2	20	0	0	2	17	0	0	0	7	5	0	1	9	6	0	69	560
11:00 AM	4	4	0	0	5	9	0	0	1	3	5	0	0	2	8	0	41	551
11:05 AM	0	11	0	0	4	13	0	0	0	6	5	0	1	7	6	0	53	558
11:10 AM	2	9	0	0	1	5	0	0	0	3	6	0	0	6	8	0	40	544
11:15 AM	2	6	0	0	4	4	0	0	1	5	2	0	1	6	3	0	34	520
11:20 AM	5	10	0	0	5	10	1	0	0	4	1	0	0	2	4	0	42	521
11:25 AM	5	13	1	0	2	6	0	0	0	6	1	0	0	6	6	0	46	509
11:30 AM	1	9	2	0	4	6	0	0	1	4	4	0	1	5	1	0	38	514
11:35 AM	4	22	1	0	3	9	0	0	0	3	1	0	0	6	5	0	54	530
11:40 AM	4	9	0	0	6	9	0	0	0	4	1	0	1	6	6	0	46	534
11:45 AM	1	12	0	0	5	21	1	0	1	3	6	0	1	2	5	0	58	555
11:50 AM	3	13	0	0	6	42	0	0	0	7	5	0	3	6	7	0	92	613
11:55 AM	6	26	3	0	4	15	0	0	0	1	6	0	0	9	6	0	76	620

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	40	204	12	0	60	312	4	0	4	44	68	0	16	68	72	0	904
Heavy Trucks	0	8	0	0	0	0	0	0	0	0	8	0	0	0	4	0	20
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

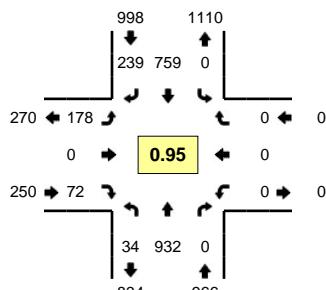
Comments:

Type of peak hour being reported: Intersection Peak

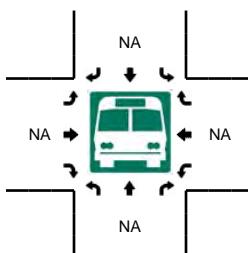
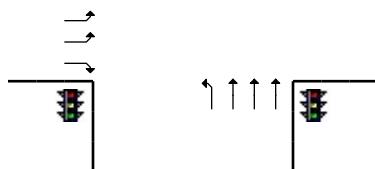
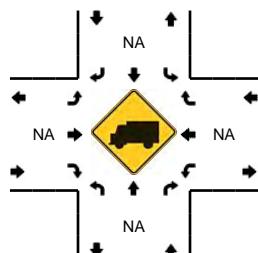
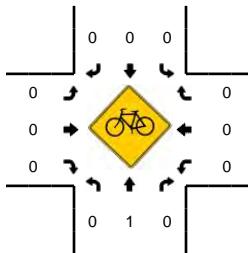
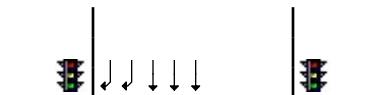
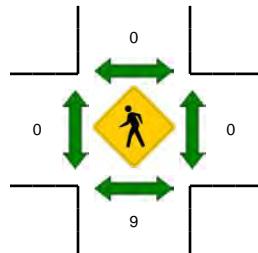
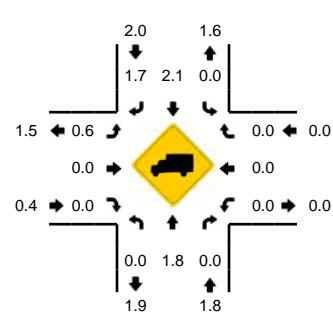
Method for determining peak hour: Total Entering Volume

LOCATION: Webster St -- Willie Stargell Ave
CITY/STATE: Oakland, CA

QC JOB #: 10679630
DATE: Sat, Dec 03 2011



Peak-Hour: 11:00 AM -- 12:00 PM
Peak 15-Min: 11:35 AM -- 11:50 AM



5-Min Count Period Beginning At	Webster St (Northbound)				Webster St (Southbound)				Willie Stargell Ave (Eastbound)				Willie Stargell Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	2	55	0	0	0	46	12	0	16	0	6	0	0	0	0	0	0	137
10:05 AM	1	47	0	0	0	63	16	0	15	0	5	0	0	0	0	0	0	147
10:10 AM	7	64	0	0	0	45	17	0	14	0	6	0	0	0	0	0	0	153
10:15 AM	6	58	0	1	0	59	21	0	13	0	9	0	0	0	0	0	0	167
10:20 AM	2	60	0	0	0	63	23	0	12	0	5	0	0	0	0	0	0	165
10:25 AM	7	53	0	0	0	49	32	0	12	0	5	0	0	0	0	0	0	158
10:30 AM	0	54	0	0	0	35	15	0	20	0	5	0	0	0	0	0	0	129
10:35 AM	5	117	0	0	0	49	13	0	15	0	8	0	0	0	0	0	0	207
10:40 AM	2	50	0	0	0	42	13	0	20	0	9	0	0	0	0	0	0	136
10:45 AM	1	64	0	0	0	72	18	0	14	0	6	0	0	0	0	0	0	175
10:50 AM	3	87	0	1	0	51	19	0	6	0	4	0	0	0	0	0	0	171
10:55 AM	7	57	0	0	0	80	27	0	13	0	1	0	0	0	0	0	0	185
																		1930
11:00 AM	6	75	0	0	0	58	25	0	13	0	6	0	0	0	0	0	0	183
11:05 AM	2	70	0	1	0	72	13	0	7	0	7	0	0	0	0	0	0	172
11:10 AM	5	59	0	0	0	60	23	0	22	0	9	0	0	0	0	0	0	178
11:15 AM	1	81	0	0	0	69	18	0	15	0	7	0	0	0	0	0	0	2050
11:20 AM	1	75	0	0	0	67	22	0	15	0	2	0	0	0	0	0	0	182
11:25 AM	3	78	0	1	0	60	19	0	19	0	5	0	0	0	0	0	0	185
11:30 AM	1	70	0	0	0	61	18	0	8	0	2	0	0	0	0	0	0	160
11:35 AM	3	88	0	0	0	67	25	0	18	0	2	0	0	0	0	0	0	203
11:40 AM	2	83	0	0	0	56	16	0	13	0	11	0	0	0	0	0	0	181
11:45 AM	1	98	0	0	0	61	20	0	13	0	6	0	0	0	0	0	0	199
11:50 AM	2	72	0	1	0	50	25	0	16	0	6	0	0	0	0	0	0	172
11:55 AM	4	83	0	0	0	78	15	0	19	0	9	0	0	0	0	0	0	208
																		2214
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	1076	0	0	0	736	244	0	176	0	76	0	0	0	0	0	2332	
Heavy Trucks	0	28	0	0	0	28	0	0	0	0	0	0	0	0	0	0	56	
Pedestrians	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

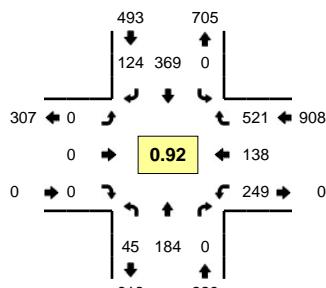
Comments:

Type of peak hour being reported: Intersection Peak

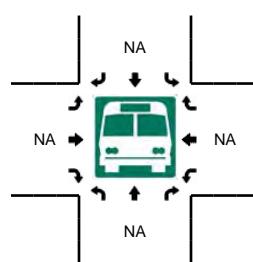
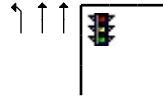
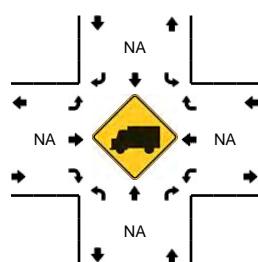
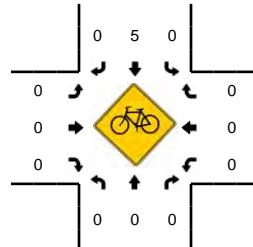
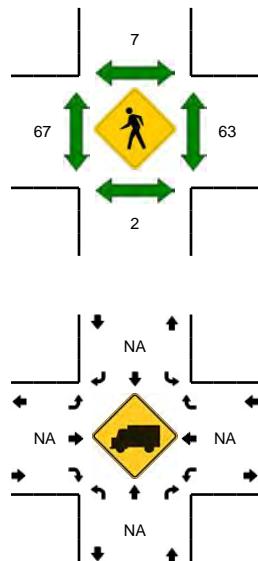
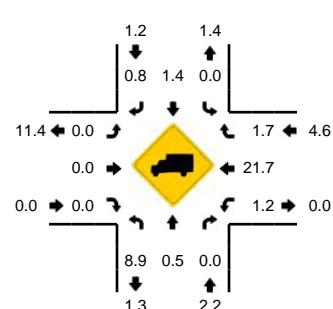
Method for determining peak hour: Total Entering Volume

LOCATION: Broadway -- 6th St
CITY/STATE: Oakland, CA

QC JOB #: 10679629
DATE: Sat, Dec 03 2011



Peak-Hour: 11:00 AM -- 12:00 PM
Peak 15-Min: 11:45 AM -- 12:00 PM



5-Min Count Period Beginning At	Broadway (Northbound)				Broadway (Southbound)				6th St (Eastbound)				6th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	2	13	0	0	0	37	1	0	0	0	0	0	20	7	38	0	118	
10:05 AM	1	9	0	0	0	30	1	0	0	0	0	0	21	8	59	0	129	
10:10 AM	4	17	0	0	0	32	0	0	0	0	0	0	13	6	50	0	122	
10:15 AM	2	10	0	0	0	22	0	0	0	0	0	0	18	4	45	0	101	
10:20 AM	2	15	0	0	0	21	3	0	0	0	0	0	15	5	41	0	102	
10:25 AM	5	7	0	0	0	35	0	0	0	0	0	0	18	10	48	0	123	
10:30 AM	2	18	0	0	0	26	1	0	0	0	0	0	13	6	44	0	110	
10:35 AM	3	13	0	0	0	24	5	0	0	0	0	0	19	6	44	0	114	
10:40 AM	2	19	0	0	0	26	2	0	0	0	0	0	18	14	43	0	124	
10:45 AM	1	11	0	0	0	19	5	0	0	0	0	0	26	11	44	0	117	
10:50 AM	1	13	0	0	0	36	0	0	0	0	0	0	19	6	54	0	129	
10:55 AM	1	14	0	0	0	23	4	0	0	0	0	0	26	7	49	0	124	1413
11:00 AM	5	26	0	0	0	37	7	0	0	0	0	0	16	4	47	0	142	1437
11:05 AM	3	18	0	0	0	27	10	0	0	0	0	0	23	11	49	0	141	1449
11:10 AM	2	11	0	0	0	30	14	0	0	0	0	0	17	10	52	0	136	1463
11:15 AM	5	11	0	0	0	36	11	0	0	0	0	0	17	9	38	0	127	1489
11:20 AM	6	11	0	0	0	30	6	0	0	0	0	0	10	12	33	0	108	1495
11:25 AM	4	17	0	0	0	35	6	0	0	0	0	0	24	13	49	0	148	1520
11:30 AM	1	14	0	0	0	22	13	0	0	0	0	0	27	7	45	0	129	1539
11:35 AM	2	14	0	0	0	28	7	0	0	0	0	0	23	14	42	0	130	1555
11:40 AM	2	16	0	0	0	26	15	0	0	0	0	0	14	11	43	0	127	1558
11:45 AM	3	13	0	0	0	30	11	0	0	0	0	0	23	13	49	0	142	1583
11:50 AM	7	18	0	0	0	28	11	0	0	0	0	0	27	13	38	0	142	1596
11:55 AM	5	15	0	0	0	40	13	0	0	0	0	0	28	21	36	0	158	1630

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	60	184	0	0	0	392	140	0	0	0	0	0	312	188	492	0	1768
Heavy Trucks	4	0	0	0	0	4	4	0	0	0	0	0	8	20	12	0	52
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	124
Bicycles	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

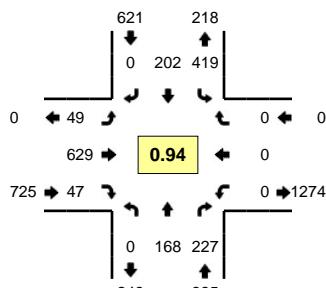
Comments:

Type of peak hour being reported: Intersection Peak

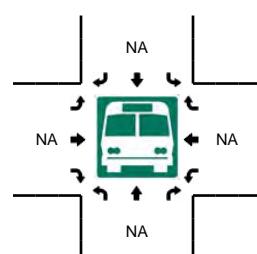
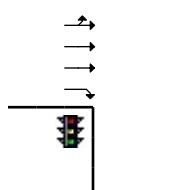
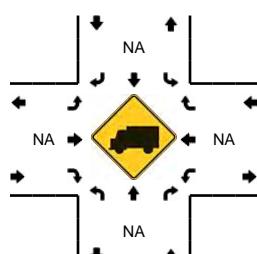
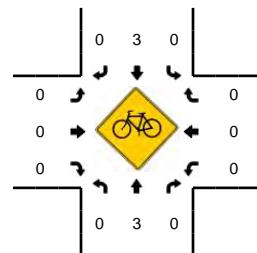
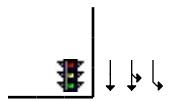
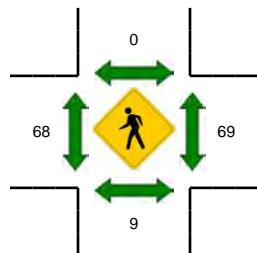
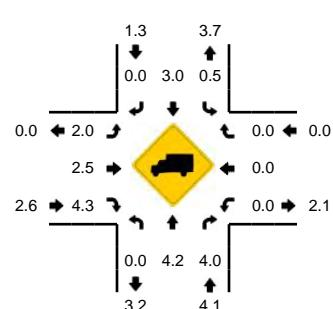
Method for determining peak hour: Total Entering Volume

LOCATION: Broadway -- 5th St
CITY/STATE: Oakland, CA

QC JOB #: 10679628
DATE: Sat, Dec 03 2011



Peak-Hour: 11:00 AM -- 12:00 PM
Peak 15-Min: 11:45 AM -- 12:00 PM



5-Min Count Period Beginning At	Broadway (Northbound)				Broadway (Southbound)				5th St (Eastbound)				5th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	0	9	7	0	33	21	0	0	6	35	5	0	0	0	0	0	0	116
10:05 AM	0	6	13	0	35	19	0	0	2	50	1	0	0	0	0	0	0	126
10:10 AM	0	15	10	0	39	8	0	0	7	44	2	0	0	0	0	0	0	125
10:15 AM	0	10	14	0	27	12	0	0	3	49	5	0	0	0	0	0	0	120
10:20 AM	0	13	17	0	29	9	0	0	2	52	4	0	0	0	0	0	0	126
10:25 AM	0	11	11	0	36	18	0	0	2	55	4	0	0	0	0	0	0	137
10:30 AM	0	18	17	0	25	14	0	0	1	42	4	0	0	0	0	0	0	121
10:35 AM	0	14	19	0	25	17	0	0	3	46	2	0	0	0	0	0	0	126
10:40 AM	0	13	7	0	27	15	0	0	7	60	8	0	0	0	0	0	0	137
10:45 AM	0	12	23	0	26	19	0	0	2	49	0	0	0	0	0	0	0	131
10:50 AM	0	11	8	0	25	28	0	0	3	45	7	0	0	0	0	0	0	127
10:55 AM	0	13	14	0	32	16	0	0	2	57	1	0	0	0	0	0	0	135
11:00 AM	0	28	17	0	38	18	0	0	4	48	3	0	0	0	0	0	0	156
11:05 AM	0	16	14	0	34	14	0	0	3	39	7	0	0	0	0	0	0	127
11:10 AM	0	13	19	0	37	11	0	0	0	59	6	0	0	0	0	0	0	145
11:15 AM	0	11	20	0	37	16	0	0	8	31	4	0	0	0	0	0	0	1595
11:20 AM	0	12	15	0	25	22	0	1	0	63	3	0	0	0	0	0	0	141
11:25 AM	0	10	21	0	34	13	0	0	5	54	1	0	0	0	0	0	0	1610
11:30 AM	0	13	22	0	33	20	0	0	3	50	6	0	0	0	0	0	0	138
11:35 AM	0	11	15	0	39	16	0	0	6	64	2	0	0	0	0	0	0	1664
11:40 AM	0	13	17	0	28	11	0	0	6	60	7	0	0	0	0	0	0	142
11:45 AM	0	10	20	0	34	19	0	0	4	53	1	0	0	0	0	0	0	141
11:50 AM	0	18	26	0	36	19	0	0	5	50	4	0	0	0	0	0	0	158
11:55 AM	0	13	21	0	43	23	0	0	5	58	3	0	0	0	0	0	0	166
11:45 AM	0	10	20	0	34	19	0	0	4	53	1	0	0	0	0	0	0	1679
11:50 AM	0	18	26	0	36	19	0	0	5	50	4	0	0	0	0	0	0	1710
11:55 AM	0	13	21	0	43	23	0	0	5	58	3	0	0	0	0	0	0	1741

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	164	268	0	452	244	0	0	56	644	32	0	0	0	0	0	1860
Heavy Trucks	0	4	0	0	4	4	0	0	0	12	4	0	0	0	0	0	28
Pedestrians	20	0	0	0	0	0	0	0	44	0	0	0	96	0	0	0	160
Bicycles	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

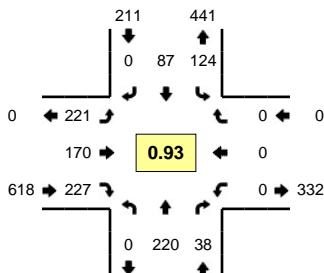
Comments:

Type of peak hour being reported: Intersection Peak

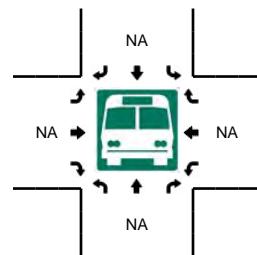
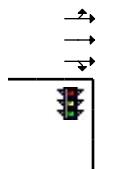
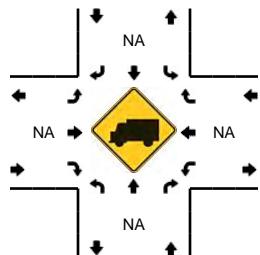
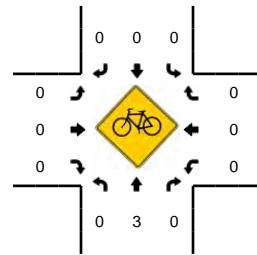
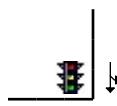
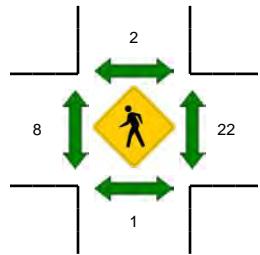
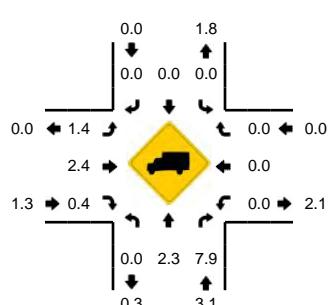
Method for determining peak hour: Total Entering Volume

LOCATION: Jackson St -- 5th St
CITY/STATE: Oakland, CA

QC JOB #: 10679627
DATE: Sat, Dec 03 2011



Peak-Hour: 11:00 AM -- 12:00 PM
Peak 15-Min: 11:45 AM -- 12:00 PM



5-Min Count Period Beginning At	Jackson St (Northbound)				Jackson St (Southbound)				5th St (Eastbound)				5th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	0	18	2	0	11	7	0	0	17	12	13	0	0	0	0	0	80	
10:05 AM	0	15	0	0	12	8	0	0	11	13	9	0	0	0	0	0	68	
10:10 AM	0	8	4	0	9	8	0	0	12	13	16	0	0	0	0	0	70	
10:15 AM	0	19	1	0	6	4	0	0	12	15	9	0	0	0	0	0	66	
10:20 AM	0	22	1	0	4	8	0	0	10	12	17	0	0	0	0	0	74	
10:25 AM	0	21	7	0	11	12	0	0	16	12	17	0	0	0	0	0	96	
10:30 AM	0	18	5	0	8	14	0	0	11	9	16	0	0	0	0	0	81	
10:35 AM	0	15	3	0	8	4	0	0	14	5	20	0	0	0	0	0	69	
10:40 AM	0	13	1	0	15	8	0	0	19	15	17	0	0	0	0	0	88	
10:45 AM	0	21	6	0	7	4	0	0	17	12	16	0	0	0	0	0	83	
10:50 AM	0	21	2	0	12	11	0	0	12	10	13	0	0	0	0	0	81	
10:55 AM	0	20	4	0	3	5	0	0	10	19	13	0	0	0	0	0	74	930
11:00 AM	0	21	5	0	12	6	0	0	17	12	25	0	0	0	0	0	98	948
11:05 AM	0	20	7	0	9	10	0	0	22	17	15	0	0	0	0	0	100	980
11:10 AM	0	16	1	0	8	6	0	0	17	7	20	0	0	0	0	0	75	985
11:15 AM	0	17	6	0	11	6	0	0	17	19	22	0	0	0	0	0	98	1017
11:20 AM	0	22	1	0	10	5	0	0	27	9	20	0	0	0	0	0	94	1037
11:25 AM	0	15	3	0	13	7	0	0	15	15	19	0	0	0	0	0	87	1028
11:30 AM	0	22	2	0	10	5	0	0	15	11	24	0	0	0	0	0	89	1036
11:35 AM	0	14	3	0	8	8	0	0	10	14	15	0	0	0	0	0	72	1039
11:40 AM	0	19	1	0	11	5	0	0	16	15	14	0	0	0	0	0	81	1032
11:45 AM	0	20	1	0	14	6	0	0	16	19	17	0	0	0	0	0	93	1042
11:50 AM	0	19	3	0	10	11	0	0	23	16	16	0	0	0	0	0	98	1059
11:55 AM	0	15	5	0	8	12	0	0	26	16	20	0	0	0	0	0	102	1087

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	216	36	0	128	116	0	0	260	204	212	0	0	0	0	0	1172
Heavy Trucks	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4
Pedestrians	4									12							44
Bicycles	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Railroad																	
Stopped Buses																	

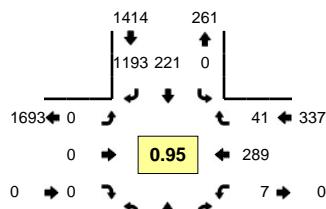
Comments:

Type of peak hour being reported: Intersection Peak

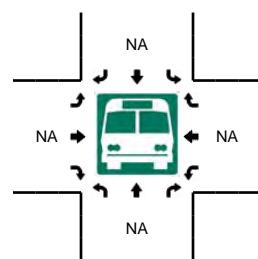
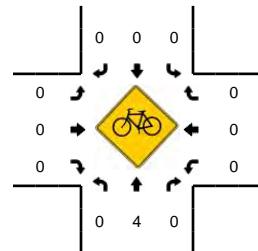
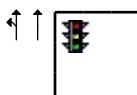
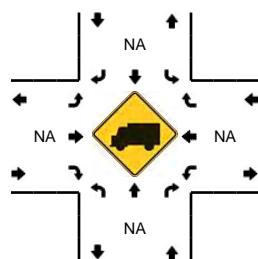
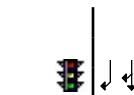
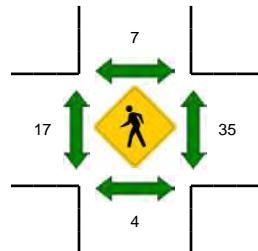
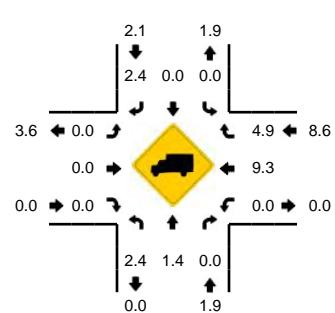
Method for determining peak hour: Total Entering Volume

LOCATION: Jackson St -- 6th St
CITY/STATE: Oakland, CA

QC JOB #: 10679626
DATE: Sat, Dec 03 2011



Peak-Hour: 11:00 AM -- 12:00 PM
Peak 15-Min: 11:45 AM -- 12:00 PM



5-Min Count Period Beginning At	Jackson St (Northbound)				Jackson St (Southbound)				6th St (Eastbound)				6th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	18	13	0	0	0	17	68	0	0	0	0	0	0	26	2	0	144	144
10:05 AM	19	11	0	0	0	15	85	0	0	0	0	0	1	30	2	0	163	163
10:10 AM	14	13	0	0	0	18	71	0	0	0	0	0	1	19	4	0	140	140
10:15 AM	16	12	0	0	0	11	91	0	0	0	0	0	0	17	3	0	150	150
10:20 AM	21	7	0	0	0	14	74	0	0	0	0	0	1	23	5	0	145	145
10:25 AM	21	16	0	0	0	25	81	0	0	0	0	0	1	27	2	0	173	173
10:30 AM	12	17	0	0	0	15	86	0	0	0	0	0	2	25	2	0	159	159
10:35 AM	17	12	0	0	0	14	99	0	0	0	0	0	0	29	2	0	173	173
10:40 AM	14	21	0	0	0	21	89	0	0	0	0	0	0	20	6	0	171	171
10:45 AM	10	18	0	0	0	19	80	0	0	0	0	0	0	33	4	0	164	164
10:50 AM	25	19	0	0	0	13	88	0	0	0	0	0	1	28	2	0	176	176
10:55 AM	20	11	0	0	0	8	93	0	0	0	0	0	0	15	3	0	150	1908
11:00 AM	13	20	0	0	0	24	76	0	0	0	0	0	2	19	1	0	155	1919
11:05 AM	24	17	0	0	0	13	74	0	0	0	0	0	1	34	3	0	166	1922
11:10 AM	19	16	0	0	0	13	99	0	0	0	0	0	0	30	1	0	178	1960
11:15 AM	15	20	0	0	0	18	95	0	0	0	0	0	0	20	2	0	170	1980
11:20 AM	20	23	0	0	0	14	104	0	0	0	0	0	0	33	7	0	201	2036
11:25 AM	19	15	0	0	0	25	104	0	0	0	0	0	1	15	4	0	183	2046
11:30 AM	19	18	0	0	0	13	96	0	0	0	0	0	0	26	3	0	175	2062
11:35 AM	9	13	0	0	0	17	104	0	0	0	0	0	1	31	4	0	179	2068
11:40 AM	16	20	0	0	0	25	114	0	0	0	0	0	0	21	5	0	201	2098
11:45 AM	11	17	0	0	0	18	107	0	0	0	0	0	0	16	6	0	175	2109
11:50 AM	24	21	0	0	0	21	101	0	0	0	0	1	22	1	0	191	2124	
11:55 AM	22	20	0	0	0	20	119	0	0	0	0	1	22	4	0	208	2182	

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	228	232	0	0	0	236	1308	0	0	0	0	0	8	240	44	0	2296
Heavy Trucks	0	0	0	0	0	0	20	0	0	0	0	0	0	20	0	0	40
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	80
Bicycles	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

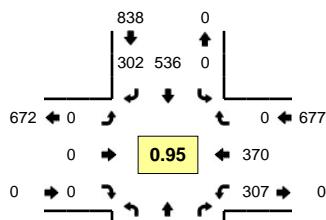
Comments:

Type of peak hour being reported: Intersection Peak

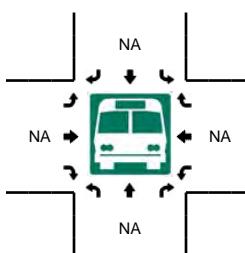
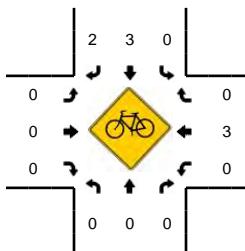
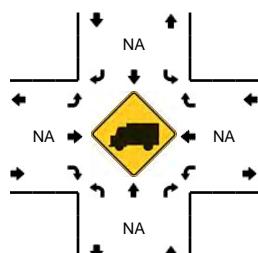
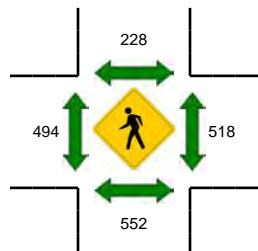
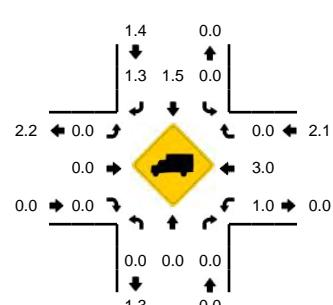
Method for determining peak hour: Total Entering Volume

LOCATION: Webster St -- 8th St
CITY/STATE: Oakland, CA

QC JOB #: 10679625
DATE: Sat, Dec 03 2011



Peak-Hour: 10:45 AM -- 11:45 AM
Peak 15-Min: 10:45 AM -- 11:00 AM



5-Min Count Period Beginning At	Webster St (Northbound)				Webster St (Southbound)				8th St (Eastbound)				8th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	0	0	0	0	0	29	16	0	0	0	0	0	26	43	0	0	114	
10:05 AM	0	0	0	0	0	32	12	0	0	0	0	0	23	33	0	0	100	
10:10 AM	0	0	0	0	0	36	25	0	0	0	0	0	19	27	0	0	107	
10:15 AM	0	0	0	0	0	31	22	0	0	0	0	0	36	32	0	0	121	
10:20 AM	0	0	0	0	0	37	14	0	0	0	0	0	16	32	0	0	99	
10:25 AM	0	0	0	0	0	38	25	0	0	0	0	0	16	26	0	0	105	
10:30 AM	0	0	0	0	0	41	23	0	0	0	0	0	26	35	0	0	125	
10:35 AM	0	0	0	0	0	35	16	0	0	0	0	0	17	36	0	0	104	
10:40 AM	0	0	0	0	0	24	35	0	0	0	0	0	16	34	0	0	109	
10:45 AM	0	0	0	0	0	41	29	0	0	0	0	0	38	35	0	0	143	
10:50 AM	0	0	0	0	0	43	19	0	0	0	0	0	32	34	0	0	128	
10:55 AM	0	0	0	0	0	46	35	0	0	0	0	0	24	23	0	0	128	1383
11:00 AM	0	0	0	0	0	42	28	0	0	0	0	0	24	42	0	0	136	1405
11:05 AM	0	0	0	0	0	44	23	0	0	0	0	0	20	25	0	0	112	1417
11:10 AM	0	0	0	0	0	57	34	0	0	0	0	0	22	24	0	0	137	1447
11:15 AM	0	0	0	0	0	45	20	0	0	0	0	0	36	48	0	0	149	1475
11:20 AM	0	0	0	0	0	38	21	0	0	0	0	0	29	21	0	0	109	1485
11:25 AM	0	0	0	0	0	51	26	0	0	0	0	0	13	25	0	0	115	1495
11:30 AM	0	0	0	0	0	43	27	0	0	0	0	0	28	34	0	0	132	1502
11:35 AM	0	0	0	0	0	39	15	0	0	0	0	0	23	32	0	0	109	1507
11:40 AM	0	0	0	0	0	47	25	0	0	0	0	0	18	27	0	0	117	1515
11:45 AM	0	0	0	0	0	39	16	0	0	0	0	0	16	39	0	0	110	1482
11:50 AM	0	0	0	0	0	31	22	0	0	0	0	0	22	34	0	0	109	1463
11:55 AM	0	0	0	0	0	61	31	0	0	0	0	0	9	23	0	0	124	1459
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	520	332	0	0	0	0	0	376	368	0	0	1596	
Heavy Trucks	0	0	0		0	4	8		0	0	0	0	0	12	0	0	24	
Pedestrians	512				264				444				500				1720	
Bicycles	0	0	0		0	0	0		0	0	0	0	0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

Report generated on 12/12/2011 10:16 AM

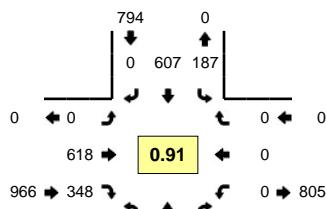
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

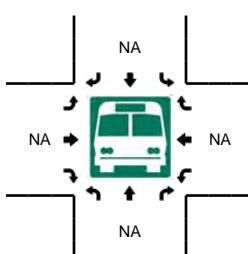
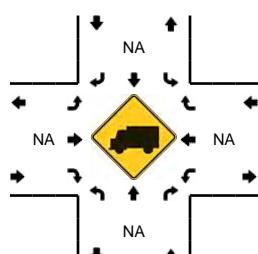
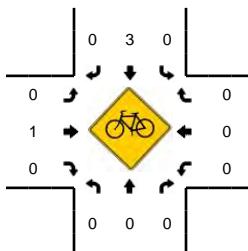
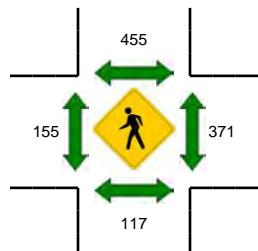
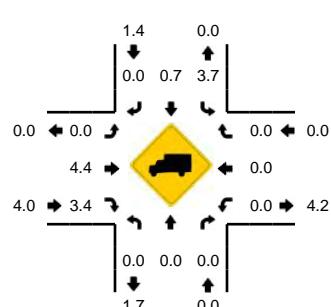
Method for determining peak hour: Total Entering Volume

LOCATION: Webster St -- 7th St
CITY/STATE: Oakland, CA

QC JOB #: 10679624
DATE: Sat, Dec 03 2011



Peak-Hour: 11:00 AM -- 12:00 PM
Peak 15-Min: 11:30 AM -- 11:45 AM



5-Min Count Period Beginning At	Webster St (Northbound)				Webster St (Southbound)				7th St (Eastbound)				7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	0	0	0	0	20	38	0	0	0	23	24	0	0	0	0	0	0	105
10:05 AM	0	0	0	0	14	35	0	0	0	38	29	0	0	0	0	0	0	116
10:10 AM	0	0	0	0	12	45	0	0	0	21	17	0	0	0	0	0	0	95
10:15 AM	0	0	0	0	16	46	0	0	0	37	31	0	0	0	0	0	0	130
10:20 AM	0	0	0	0	14	40	0	0	0	28	24	0	0	0	0	0	0	106
10:25 AM	0	0	0	0	20	32	0	0	0	34	32	0	0	0	0	0	0	118
10:30 AM	0	0	0	0	16	40	0	0	0	30	30	0	0	0	0	0	0	116
10:35 AM	0	0	0	0	20	44	0	0	0	30	23	0	0	0	0	0	0	117
10:40 AM	0	0	0	0	12	27	0	0	0	28	20	0	0	0	0	0	0	87
10:45 AM	0	0	0	0	13	61	0	0	0	29	26	0	0	0	0	0	0	129
10:50 AM	0	0	0	0	22	58	0	0	0	30	35	0	0	0	0	0	0	145
10:55 AM	0	0	0	0	21	54	0	0	0	29	36	0	0	0	0	0	0	140
11:00 AM	0	0	0	0	21	43	0	0	0	29	16	0	0	0	0	0	0	109
11:05 AM	0	0	0	0	13	46	0	0	0	28	32	0	0	0	0	0	0	119
11:10 AM	0	0	0	0	20	60	0	0	0	38	31	0	0	0	0	0	0	149
11:15 AM	0	0	0	0	12	65	0	0	0	46	28	0	0	0	0	0	0	1486
11:20 AM	0	0	0	0	18	55	0	0	0	48	27	0	0	0	0	0	0	151
11:25 AM	0	0	0	0	13	50	0	0	0	34	34	0	0	0	0	0	0	1528
11:30 AM	0	0	0	0	18	48	0	0	0	60	32	0	0	0	0	0	0	1583
11:35 AM	0	0	0	0	17	50	0	0	0	66	31	0	0	0	0	0	0	1630
11:40 AM	0	0	0	0	13	47	0	0	0	75	29	0	0	0	0	0	0	1707
11:45 AM	0	0	0	0	11	46	0	0	0	60	37	0	0	0	0	0	0	154
11:50 AM	0	0	0	0	12	40	0	0	0	76	25	0	0	0	0	0	0	1740
11:55 AM	0	0	0	0	19	57	0	0	0	58	26	0	0	0	0	0	0	1760

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	192	580	0	0	0	804	368	0	0	0	0	0	1944
Heavy Trucks	0	0	0	0	0	4	0	0	0	24	12	0	0	0	0	0	40
Pedestrians	100				472				180				364				1116
Bicycles	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/12/2011 10:16 AM

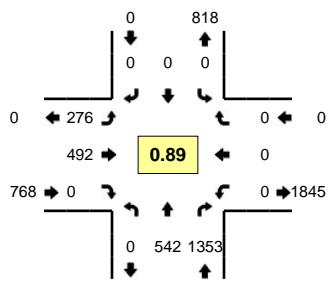
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

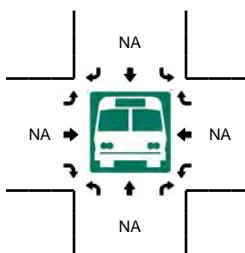
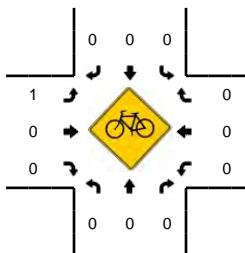
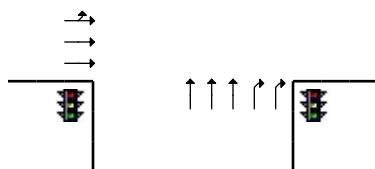
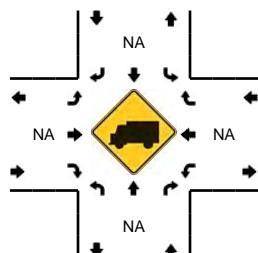
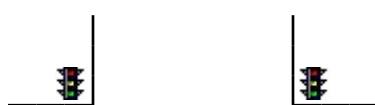
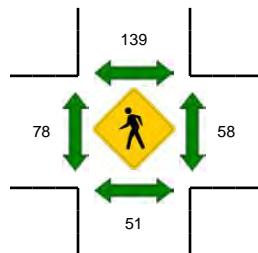
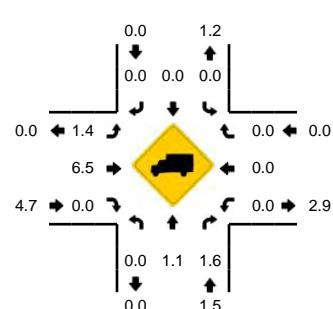
Method for determining peak hour: Total Entering Volume

LOCATION: Harrison St -- 7th St
CITY/STATE: Oakland, CA

QC JOB #: 10679623
DATE: Sat, Dec 03 2011



Peak-Hour: 11:00 AM -- 12:00 PM
Peak 15-Min: 11:45 AM -- 12:00 PM



5-Min Count Period Beginning At	Harrison St (Northbound)				Harrison St (Southbound)				7th St (Eastbound)				7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	0	43	89	0	0	0	0	0	9	30	0	0	0	0	0	0	171	
10:05 AM	0	36	90	0	0	0	0	0	9	33	0	0	0	0	0	0	168	
10:10 AM	0	49	91	0	0	0	0	0	8	27	0	0	0	0	0	0	175	
10:15 AM	0	28	87	0	0	0	0	0	9	36	0	0	0	0	0	0	160	
10:20 AM	0	44	104	0	0	0	0	0	9	32	0	0	0	0	0	0	189	
10:25 AM	0	29	88	0	0	0	0	0	11	39	0	0	0	0	0	0	167	
10:30 AM	0	43	89	0	0	0	0	0	11	27	0	0	0	0	0	0	170	
10:35 AM	0	45	118	0	0	0	0	0	13	35	0	0	0	0	0	0	211	
10:40 AM	0	43	101	0	0	0	0	0	6	32	0	0	0	0	0	0	182	
10:45 AM	0	48	102	0	0	0	0	0	5	32	0	0	0	0	0	0	187	
10:50 AM	0	42	103	0	0	0	0	0	7	34	0	0	0	0	0	0	186	
10:55 AM	0	36	112	0	0	0	0	0	15	29	0	0	0	0	0	0	192	2158
11:00 AM	0	38	95	0	0	0	0	0	10	39	0	0	0	0	0	0	182	2169
11:05 AM	0	52	90	0	0	0	0	0	11	25	0	0	0	0	0	0	178	2179
11:10 AM	0	48	108	0	0	0	0	0	23	35	0	0	0	0	0	0	214	2218
11:15 AM	0	52	104	0	0	0	0	0	20	41	0	0	0	0	0	0	217	2275
11:20 AM	0	42	121	0	0	0	0	0	17	45	0	0	0	0	0	0	225	2311
11:25 AM	0	39	126	0	0	0	0	0	17	32	0	0	0	0	0	0	214	2358
11:30 AM	0	37	106	0	0	0	0	0	22	43	0	0	0	0	0	0	208	2396
11:35 AM	0	42	112	0	0	0	0	0	36	49	0	0	0	0	0	0	239	2424
11:40 AM	0	51	118	0	0	0	0	0	26	44	0	0	0	0	0	0	239	2481
11:45 AM	0	50	129	0	0	0	0	0	32	41	0	0	0	0	0	0	252	2546
11:50 AM	0	51	122	0	0	0	0	0	30	51	0	0	0	0	0	0	254	2614
11:55 AM	0	40	122	0	0	0	0	0	32	47	0	0	0	0	0	0	241	2663

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	564	1492	0	0	0	0	0	376	556	0	0	0	0	0	0	2988
Heavy Trucks	0	4	20	0	0	0	0	0	8	28	0	0	0	0	0	0	60
Pedestrians	52				116				116				40				324
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Appendix B

Intersection Level of Service Calculations

Existing Conditions

HCM Signalized Intersection Capacity Analysis

1: 8th & Webster

Existing No Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	291	520	0	0	0	0	0	413	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	4.0
Lane Util. Factor				0.86	0.86						0.86	0.86
Frt				1.00	1.00						0.98	0.85
Flt Protected				0.95	0.99						1.00	1.00
Satd. Flow (prot)				1522	4770						4733	1362
Flt Permitted				0.95	0.99						1.00	1.00
Satd. Flow (perm)				1522	4770						4733	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.92	0.92	0.93	0.93	
Adj. Flow (vph)	0	0	0	313	559	0	0	0	0	0	444	191
RTOR Reduction (vph)	0	0	0	149	26	0	0	0	0	0	14	96
Lane Group Flow (vph)	0	0	0	64	633	0	0	0	0	0	480	45
Turn Type				Perm							Perm	
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)				27.0	27.0						29.0	29.0
Effective Green, g (s)				27.0	27.0						29.0	29.0
Actuated g/C Ratio				0.30	0.30						0.32	0.32
Clearance Time (s)				4.0	4.0						4.0	4.0
Lane Grp Cap (vph)				457	1431						1525	439
v/s Ratio Prot											c0.10	
v/s Ratio Perm				0.04	0.13							0.03
v/c Ratio				0.14	0.44						0.31	0.10
Uniform Delay, d1				23.0	25.4						23.0	21.4
Progression Factor				1.00	1.00						1.00	1.00
Incremental Delay, d2				0.6	1.0						0.5	0.5
Delay (s)				23.7	26.4						23.5	21.9
Level of Service				C	C						C	C
Approach Delay (s)	0.0				25.7			0.0			23.2	
Approach LOS	A				C			A			C	
Intersection Summary												
HCM Average Control Delay				24.7	HCM Level of Service					C		
HCM Volume to Capacity ratio				0.38								
Actuated Cycle Length (s)				90.0	Sum of lost time (s)					34.0		
Intersection Capacity Utilization				42.3%	ICU Level of Service					A		
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: 7th & Webster

Existing No Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	250	274	0	0	0	0	0	0	124	574	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0								4.0	
Lane Util. Factor		0.86	0.86								0.91	
Fr _t		0.95	0.85								1.00	
Flt Protected		1.00	1.00								0.99	
Satd. Flow (prot)		4550	1362								5040	
Flt Permitted		1.00	1.00								0.99	
Satd. Flow (perm)		4550	1362								5040	
Peak-hour factor, PHF	0.92	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.92
Adj. Flow (vph)	0	284	311	0	0	0	0	0	0	141	652	0
RTOR Reduction (vph)	0	68	68	0	0	0	0	0	0	0	57	0
Lane Group Flow (vph)	0	372	87	0	0	0	0	0	0	0	736	0
Turn Type			Perm								Perm	
Protected Phases		6									8	
Permitted Phases			6								8	
Actuated Green, G (s)	28.0	28.0									24.0	
Effective Green, g (s)	28.0	28.0									24.0	
Actuated g/C Ratio	0.47	0.47									0.40	
Clearance Time (s)		4.0	4.0								4.0	
Lane Grp Cap (vph)	2123	636									2016	
v/s Ratio Prot		c0.08										
v/s Ratio Perm			0.06								0.15	
v/c Ratio		0.18	0.14								0.37	
Uniform Delay, d1	9.3	9.1									12.6	
Progression Factor	1.00	1.00									1.00	
Incremental Delay, d2	0.2	0.4									0.5	
Delay (s)	9.5	9.6									13.2	
Level of Service	A	A									B	
Approach Delay (s)	9.5			0.0			0.0				13.2	
Approach LOS	A			A			A				B	
Intersection Summary												
HCM Average Control Delay		11.6		HCM Level of Service						B		
HCM Volume to Capacity ratio		0.26										
Actuated Cycle Length (s)	60.0			Sum of lost time (s)						8.0		
Intersection Capacity Utilization		50.0%		ICU Level of Service						A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 7th & Harrison

Existing No Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	62	302	0	0	0	0	0	902	1686	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	2500	1900	1900	1900
Total Lost time (s)		5.0						5.0	5.0			
Lane Util. Factor		0.91						0.91	*1.00			
Fr _t		1.00						1.00	1.00			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5042						5085	4902			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5042						5085	4902			
Peak-hour factor, PHF	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.97	0.97	0.92	0.92	0.92
Adj. Flow (vph)	64	311	0	0	0	0	0	930	1738	0	0	0
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	553	0	0	0
Lane Group Flow (vph)	0	352	0	0	0	0	0	930	1185	0	0	0
Turn Type	Perm								Perm			
Protected Phases		6							4			
Permitted Phases	6									4		
Actuated Green, G (s)		27.0						23.0	23.0			
Effective Green, g (s)		27.0						23.0	23.0			
Actuated g/C Ratio		0.45						0.38	0.38			
Clearance Time (s)		5.0						5.0	5.0			
Lane Grp Cap (vph)		2269						1949	1879			
v/s Ratio Prot								0.18				
v/s Ratio Perm		0.07							c0.24			
v/c Ratio		0.16						0.48	0.63			
Uniform Delay, d1		9.8						14.0	15.0			
Progression Factor		1.05						1.00	1.00			
Incremental Delay, d2		0.1						0.8	1.6			
Delay (s)		10.4						14.8	16.7			
Level of Service		B						B	B			
Approach Delay (s)		10.4			0.0			16.0		0.0		
Approach LOS		B			A			B		A		
Intersection Summary												
HCM Average Control Delay		15.3						HCM Level of Service		B		
HCM Volume to Capacity ratio		0.37										
Actuated Cycle Length (s)		60.0						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		75.7%						ICU Level of Service		D		
Analysis Period (min)		15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: 6th & Broadway

Existing No Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	316	186	613	30	158	0	0	344	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.98	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3539	1583	1770	3539			4998	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3539	1583	1770	3539			4998	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	333	196	645	32	166	0	0	362	47
RTOR Reduction (vph)	0	0	0	0	0	378	0	0	0	0	19	0
Lane Group Flow (vph)	0	0	0	333	196	267	32	166	0	0	390	0
Turn Type				Perm		Perm		Prot				
Protected Phases					2		7	4			8	
Permitted Phases				2		2						
Actuated Green, G (s)				31.0	31.0	31.0	2.9	36.5			30.1	
Effective Green, g (s)				31.0	31.0	31.0	2.9	36.5			30.1	
Actuated g/C Ratio				0.41	0.41	0.41	0.04	0.49			0.40	
Clearance Time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				732	1463	654	68	1722			2006	
v/s Ratio Prot					0.06		c0.02	0.05			c0.08	
v/s Ratio Perm				c0.19		0.17						
v/c Ratio				0.45	0.13	0.41	0.47	0.10			0.19	
Uniform Delay, d1				15.9	13.7	15.5	35.3	10.4			14.6	
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2				2.0	0.2	1.9	1.9	0.1			0.2	
Delay (s)				17.9	13.9	17.4	37.2	10.5			14.8	
Level of Service				B	B	B	D	B			B	
Approach Delay (s)	0.0				17.0			14.8			14.8	
Approach LOS	A				B			B			B	
Intersection Summary												
HCM Average Control Delay	16.2			HCM Level of Service				B				
HCM Volume to Capacity ratio	0.33											
Actuated Cycle Length (s)	75.0			Sum of lost time (s)				11.0				
Intersection Capacity Utilization	49.0%			ICU Level of Service				A				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Broadway & 5th

Existing No Project

AM Peak Hour

Movement	SEL2	SEL	SET	SER	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	36	607	122	70	160	155	55	295	142	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	5.0	5.0	4.0	4.0	5.0	4.0	5.0
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85		1.00	1.00	1.00	1.00
Flt Protected	0.95	0.97	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1610	3272	1583	3539	1583		1770	1770	1863	
Flt Permitted	0.95	0.97	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	1610	3272	1583	3539	1583		1770	1770	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	660	133	76	174	168	60	321	154	251
RTOR Reduction (vph)	0	0	0	34	0	14	0	0	0	0
Lane Group Flow (vph)	0	349	483	42	174	214	0	321	154	251
Turn Type	Perm	Perm		Perm		Perm		Prot	Prot	
Protected Phases			6		4			3	3	8
Permitted Phases	6	6		6		4				
Actuated Green, G (s)	26.0	26.0	26.0	32.4	32.4		18.6	18.6	55.0	
Effective Green, g (s)	26.0	26.0	26.0	32.4	32.4		18.6	18.6	55.0	
Actuated g/C Ratio	0.29	0.29	0.29	0.36	0.36		0.21	0.21	0.61	
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0		4.0	4.0	5.0	
Vehicle Extension (s)	2.5	2.5	2.5	4.0	4.0		2.0	2.0	4.0	
Lane Grp Cap (vph)	465	945	457	1274	570		366	366	1139	
v/s Ratio Prot				0.05			c0.18	0.09	0.13	
v/s Ratio Perm	c0.22	0.15	0.03		c0.14					
v/c Ratio	0.75	0.51	0.09	0.14	0.38		0.88	0.42	0.22	
Uniform Delay, d1	29.1	26.7	23.4	19.4	21.3		34.6	31.0	7.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	10.6	2.0	0.4	0.2	1.9		19.8	0.3	0.4	
Delay (s)	39.7	28.7	23.8	19.6	23.2		54.4	31.3	8.3	
Level of Service	D	C	C	B	C		D	C	A	
Approach Delay (s)		32.5		21.6					33.6	
Approach LOS		C		C					C	
Intersection Summary										
HCM Average Control Delay	30.7	HCM Level of Service					C			
HCM Volume to Capacity ratio	0.62									
Actuated Cycle Length (s)	90.0	Sum of lost time (s)					13.0			
Intersection Capacity Utilization	57.0%	ICU Level of Service					B			
Analysis Period (min)	15									
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

6: 6th & Jackson

Existing No Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	11	279	56	188	262	0	0	139	1458
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2300
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	4.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	1.00
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1770	1863	1583		1825			1863	2255
Flt Permitted				0.95	1.00	1.00		0.80			1.00	1.00
Satd. Flow (perm)				1770	1863	1583		1483			1863	2255
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
Adj. Flow (vph)	0	0	0	12	303	61	204	285	0	0	151	1585
RTOR Reduction (vph)	0	0	0	0	0	46	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	12	303	15	0	489	0	0	151	1585
Turn Type				Perm		Perm	Perm					Free
Protected Phases					2			4			8	
Permitted Phases				2		2	4					Free
Actuated Green, G (s)				14.5	14.5	14.5		34.5			34.5	60.0
Effective Green, g (s)				14.5	14.5	14.5		34.5			34.5	60.0
Actuated g/C Ratio				0.24	0.24	0.24		0.58			0.58	1.00
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	
Lane Grp Cap (vph)				428	450	383		853			1071	2255
v/s Ratio Prot					0.16						0.08	
v/s Ratio Perm				0.01		0.01		0.33			c0.70	
v/c Ratio				0.03	0.67	0.04		0.57			0.14	0.70
Uniform Delay, d1				17.4	20.6	17.4		8.1			5.9	0.0
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.1	7.8	0.2		2.8			0.3	1.9
Delay (s)				17.5	28.4	17.6		10.9			6.2	1.9
Level of Service				B	C	B		B			A	A
Approach Delay (s)	0.0				26.3			10.9			2.2	
Approach LOS	A				C			B			A	
Intersection Summary												
HCM Average Control Delay				7.3			HCM Level of Service			A		
HCM Volume to Capacity ratio				0.70								
Actuated Cycle Length (s)				60.0			Sum of lost time (s)			0.0		
Intersection Capacity Utilization				85.9%			ICU Level of Service			E		
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: 5th & Jackson

Existing No Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	271	434	497	0	0	0	0	223	33	72	71	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5					4.5			4.5	
Lane Util. Factor		0.95	1.00					1.00			1.00	
Frt		1.00	0.85					0.98			1.00	
Flt Protected		0.98	1.00					1.00			0.98	
Satd. Flow (prot)		3472	1583					1830			1817	
Flt Permitted		0.98	1.00					1.00			0.76	
Satd. Flow (perm)		3472	1583					1830			1411	
Peak-hour factor, PHF	0.84	0.84	0.84	0.92	0.92	0.92	0.92	0.84	0.84	0.84	0.84	0.92
Adj. Flow (vph)	323	517	592	0	0	0	0	265	39	86	85	0
RTOR Reduction (vph)	0	0	428	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	840	164	0	0	0	0	292	0	0	171	0
Turn Type	Perm		Perm							Perm		
Protected Phases		6						4			8	
Permitted Phases	6		6							8		
Actuated Green, G (s)	12.5	12.5						23.5			23.5	
Effective Green, g (s)	12.5	12.5						23.5			23.5	
Actuated g/C Ratio	0.28	0.28						0.52			0.52	
Clearance Time (s)	4.5	4.5						4.5			4.5	
Lane Grp Cap (vph)	964	440						956			737	
v/s Ratio Prot								c0.16				
v/s Ratio Perm	0.24	0.10								0.12		
v/c Ratio	0.87	0.37						0.31			0.23	
Uniform Delay, d1	15.5	13.1						6.1			5.8	
Progression Factor	1.00	1.00						1.00			1.00	
Incremental Delay, d2	10.7	2.4						0.8			0.7	
Delay (s)	26.2	15.5						6.9			6.6	
Level of Service	C	B						A			A	
Approach Delay (s)	21.8			0.0				6.9			6.6	
Approach LOS	C			A				A			A	
Intersection Summary												
HCM Average Control Delay	18.0			HCM Level of Service				B				
HCM Volume to Capacity ratio	0.50											
Actuated Cycle Length (s)	45.0			Sum of lost time (s)				9.0				
Intersection Capacity Utilization	70.3%			ICU Level of Service				C				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Willie Stargell & Webster

Existing No Project

AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑↑	↑↑
Volume (vph)	328	23	30	1119	689	412
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.91	0.88
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	5085	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	5085	2787
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	400	28	37	1365	840	502
RTOR Reduction (vph)	0	20	0	0	0	341
Lane Group Flow (vph)	400	8	37	1365	840	161
Turn Type		Perm	Prot		Perm	
Protected Phases	4		5	2	6	
Permitted Phases		4			6	
Actuated Green, G (s)	13.2	13.2	6.2	25.7	15.5	15.5
Effective Green, g (s)	13.2	13.2	6.2	25.7	15.5	15.5
Actuated g/C Ratio	0.27	0.27	0.13	0.53	0.32	0.32
Clearance Time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	936	432	227	1879	1628	893
v/s Ratio Prot	c0.12		0.02	c0.39	0.17	
v/s Ratio Perm		0.00			0.06	
v/c Ratio	0.43	0.02	0.16	0.73	0.52	0.18
Uniform Delay, d1	14.5	12.9	18.8	8.7	13.4	11.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.0	1.5	2.5	0.3	0.1
Delay (s)	14.8	12.9	20.3	11.2	13.7	12.0
Level of Service	B	B	C	B	B	B
Approach Delay (s)	14.7			11.4	13.0	
Approach LOS	B			B	B	
Intersection Summary						
HCM Average Control Delay	12.5	HCM Level of Service			B	
HCM Volume to Capacity ratio	0.62					
Actuated Cycle Length (s)	48.4	Sum of lost time (s)			9.5	
Intersection Capacity Utilization	48.2%	ICU Level of Service			A	
Analysis Period (min)	15					
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

9: W Midway & Main

Existing No Project

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	56	29	30	76	49	54	131	32	31	42	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5				3.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		0.95				0.95	
Fr _t	1.00	0.85		1.00	0.85		0.98				1.00	
Flt Protected	1.00	1.00		0.99	1.00		0.99				0.98	
Satd. Flow (prot)	1858	1583		1837	1583		3419				3453	
Flt Permitted	0.98	1.00		0.87	1.00		0.87				0.79	
Satd. Flow (perm)	1817	1583		1630	1583		3005				2790	
Peak-hour factor, PHF	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Adj. Flow (vph)	4	82	43	44	112	72	79	193	47	46	62	3
RTOR Reduction (vph)	0	0	33	0	0	54	0	30	0	0	2	0
Lane Group Flow (vph)	0	86	10	0	156	18	0	289	0	0	109	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	4.4	4.4		4.4	4.4		6.7				6.7	
Effective Green, g (s)	4.4	4.4		4.4	4.4		6.7				6.7	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.37				0.37	
Clearance Time (s)	3.5	3.5		3.5	3.5		3.5				3.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0				3.0	
Lane Grp Cap (vph)	442	385		396	385		1112				1033	
v/s Ratio Prot												
v/s Ratio Perm	0.05	0.01		c0.10	0.01		c0.10				0.04	
v/c Ratio	0.19	0.03		0.39	0.05		0.26				0.11	
Uniform Delay, d1	5.4	5.2		5.7	5.2		4.0				3.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00				1.00	
Incremental Delay, d2	0.2	0.0		0.6	0.0		0.1				0.0	
Delay (s)	5.7	5.2		6.4	5.3		4.1				3.8	
Level of Service	A	A		A	A		A				A	
Approach Delay (s)	5.5			6.0			4.1				3.8	
Approach LOS	A			A			A				A	
Intersection Summary												
HCM Average Control Delay		4.8		HCM Level of Service				A				
HCM Volume to Capacity ratio		0.31										
Actuated Cycle Length (s)		18.1		Sum of lost time (s)				7.0				
Intersection Capacity Utilization		31.9%		ICU Level of Service				A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Atlantic & Main

Existing No Project

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	37	17	47	63	76	47	143	42	32	53	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		5.0
Lane Util. Factor	0.95	1.00		0.95	1.00	1.00	0.95		0.95	0.91		0.91
Fr _t	1.00	0.85		1.00	0.85	1.00	0.97		1.00	0.97		
Flt Protected	1.00	1.00		0.98	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	3523	1583		3465	1583	1770	3419		1610	3292		
Flt Permitted	0.93	1.00		0.83	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (perm)	3279	1583		2925	1583	1770	3419		1610	3292		
Peak-hour factor, PHF	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Adj. Flow (vph)	5	49	22	62	83	100	62	188	55	42	70	16
RTOR Reduction (vph)	0	0	17	0	0	78	0	37	0	0	14	0
Lane Group Flow (vph)	0	54	5	0	145	22	62	206	0	38	76	0
Turn Type	Perm		Perm	Perm		Perm	Split		Split			
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	7.5	7.5		7.5	7.5	7.4	7.4		4.7	4.7		
Effective Green, g (s)	7.5	7.5		7.5	7.5	7.4	7.4		4.7	4.7		
Actuated g/C Ratio	0.22	0.22		0.22	0.22	0.22	0.22		0.14	0.14		
Clearance Time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	732	353		653	353	390	753		225	460		
v/s Ratio Prot						0.04	c0.06		c0.02	0.02		
v/s Ratio Perm	0.02	0.00		c0.05	0.01							
v/c Ratio	0.07	0.01		0.22	0.06	0.16	0.27		0.17	0.17		
Uniform Delay, d1	10.3	10.2		10.7	10.3	10.6	10.9		12.7	12.7		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.0	0.0		0.2	0.1	0.2	0.2		0.4	0.2		
Delay (s)	10.3	10.2		10.8	10.4	10.8	11.1		13.1	12.9		
Level of Service	B	B		B	B	B	B		B	B		
Approach Delay (s)	10.3			10.6			11.0			13.0		
Approach LOS	B			B			B			B		
Intersection Summary												
HCM Average Control Delay	11.1	HCM Level of Service				B						
HCM Volume to Capacity ratio	0.23											
Actuated Cycle Length (s)	33.6	Sum of lost time (s)				14.0						
Intersection Capacity Utilization	29.6%	ICU Level of Service				A						
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

Existing No Project

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑	↑	↑↑	↑↑	↑	↑	↑↑	↑
Volume (vph)	281	189	85	22	226	49	84	810	58	57	367	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Fr _t	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3444		1770	3504		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3444		1770	3504		1770	3539	1583
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	360	242	109	28	290	63	108	1038	74	73	471	371
RTOR Reduction (vph)	0	0	77	0	20	0	0	4	0	0	0	202
Lane Group Flow (vph)	360	242	32	28	333	0	108	1108	0	73	471	169
Turn Type	Prot		Perm	Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	8.4	22.6	22.6	2.6	16.8		8.3	28.2		7.1	27.0	35.4
Effective Green, g (s)	8.4	22.6	22.6	2.6	16.8		8.3	28.2		7.1	27.0	35.4
Actuated g/C Ratio	0.11	0.29	0.29	0.03	0.22		0.11	0.36		0.09	0.35	0.46
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0
Lane Grp Cap (vph)	372	1032	462	59	747		190	1275		162	1233	805
v/s Ratio Prot	c0.10	0.07		0.02	c0.10		c0.06	c0.32		0.04	0.13	0.02
v/s Ratio Perm			0.02									0.08
v/c Ratio	0.97	0.23	0.07	0.47	0.45		0.57	0.87		0.45	0.38	0.21
Uniform Delay, d1	34.4	20.9	19.8	36.8	26.3		32.9	22.9		33.4	19.0	12.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	37.7	0.0	0.0	5.9	0.2		3.9	6.3		2.0	0.1	0.1
Delay (s)	72.2	20.9	19.9	42.7	26.5		36.8	29.2		35.3	19.1	12.8
Level of Service	E	C	B	D	C		D	C		D	B	B
Approach Delay (s)		46.7			27.7			29.9			17.8	
Approach LOS		D			C			C			B	
Intersection Summary												
HCM Average Control Delay		29.9										C
HCM Volume to Capacity ratio		0.70										
Actuated Cycle Length (s)		77.5										13.0
Intersection Capacity Utilization		57.6%										B
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1: 8th & Webster

Existing No Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	386	462	0	0	0	0	0	874	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	4.0
Lane Util. Factor				0.86	0.86						0.86	0.86
Frt				1.00	1.00						1.00	0.85
Flt Protected				0.95	0.99						1.00	1.00
Satd. Flow (prot)				1522	4740						4785	1362
Flt Permitted				0.95	0.99						1.00	1.00
Satd. Flow (perm)				1522	4740						4785	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.92	0.92	0.93	0.93	
Adj. Flow (vph)	0	0	0	415	497	0	0	0	0	0	940	284
RTOR Reduction (vph)	0	0	0	157	77	0	0	0	0	0	3	174
Lane Group Flow (vph)	0	0	0	67	611	0	0	0	0	0	965	82
Turn Type				Perm							Perm	
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)				27.0	27.0						29.0	29.0
Effective Green, g (s)				27.0	27.0						29.0	29.0
Actuated g/C Ratio				0.30	0.30						0.32	0.32
Clearance Time (s)				4.0	4.0						4.0	4.0
Lane Grp Cap (vph)				457	1422						1542	439
v/s Ratio Prot											c0.20	
v/s Ratio Perm				0.04	0.13							0.06
v/c Ratio				0.15	0.43						0.63	0.19
Uniform Delay, d1				23.1	25.3						25.9	22.0
Progression Factor				1.00	1.00						1.00	1.00
Incremental Delay, d2				0.7	1.0						1.9	0.9
Delay (s)				23.7	26.3						27.8	23.0
Level of Service				C	C						C	C
Approach Delay (s)	0.0				25.6			0.0			26.8	
Approach LOS	A				C			A			C	
Intersection Summary												
HCM Average Control Delay				26.3	HCM Level of Service					C		
HCM Volume to Capacity ratio				0.53								
Actuated Cycle Length (s)				90.0	Sum of lost time (s)					34.0		
Intersection Capacity Utilization				42.3%	ICU Level of Service					A		
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: 7th & Webster

Existing No Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	530	709	0	0	0	0	0	0	208	1050	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0									4.0
Lane Util. Factor		0.86	0.86									0.91
Fr _t		0.94	0.85									1.00
Flt Protected		1.00	1.00									0.99
Satd. Flow (prot)		4517	1362									5044
Flt Permitted		1.00	1.00									0.99
Satd. Flow (perm)		4517	1362									5044
Peak-hour factor, PHF	0.92	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.92
Adj. Flow (vph)	0	596	797	0	0	0	0	0	0	234	1180	0
RTOR Reduction (vph)	0	4	4	0	0	0	0	0	0	0	49	0
Lane Group Flow (vph)	0	991	394	0	0	0	0	0	0	0	1365	0
Turn Type			Perm								Perm	
Protected Phases		6									8	
Permitted Phases			6								8	
Actuated Green, G (s)	32.0	32.0									20.0	
Effective Green, g (s)	32.0	32.0									20.0	
Actuated g/C Ratio	0.53	0.53									0.33	
Clearance Time (s)		4.0	4.0								4.0	
Lane Grp Cap (vph)		2409	726								1681	
v/s Ratio Prot		0.22										
v/s Ratio Perm			c0.29								0.27	
v/c Ratio		0.41	0.54								0.81	
Uniform Delay, d1		8.4	9.2								18.3	
Progression Factor		1.00	1.00								1.00	
Incremental Delay, d2		0.5	2.9								4.4	
Delay (s)		8.9	12.1								22.7	
Level of Service		A	B								C	
Approach Delay (s)		9.8		0.0			0.0				22.7	
Approach LOS		A		A			A				C	
Intersection Summary												
HCM Average Control Delay		16.3		HCM Level of Service						B		
HCM Volume to Capacity ratio		0.65										
Actuated Cycle Length (s)		60.0		Sum of lost time (s)						8.0		
Intersection Capacity Utilization		60.4%		ICU Level of Service						B		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 7th & Harrison

Existing No Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	137	562	0	0	0	0	0	633	1492	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	2500	1900	1900	1900
Total Lost time (s)		5.0						5.0	5.0			
Lane Util. Factor		0.91						0.91	*1.00			
Fr _t		1.00						1.00	1.00			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5036						5085	4902			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5036						5085	4902			
Peak-hour factor, PHF	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	151	618	0	0	0	0	0	696	1640	0	0	0
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	387	0	0	0
Lane Group Flow (vph)	0	755	0	0	0	0	0	696	1253	0	0	0
Turn Type	Perm								Perm			
Protected Phases		6							4			
Permitted Phases	6									4		
Actuated Green, G (s)		34.0						16.0	16.0			
Effective Green, g (s)		34.0						16.0	16.0			
Actuated g/C Ratio		0.57						0.27	0.27			
Clearance Time (s)		5.0						5.0	5.0			
Lane Grp Cap (vph)		2854						1356	1307			
v/s Ratio Prot								0.14				
v/s Ratio Perm		0.15							c0.26			
v/c Ratio		0.26						0.51	0.96			
Uniform Delay, d1		6.6						18.7	21.7			
Progression Factor		0.67						1.00	1.00			
Incremental Delay, d2		0.2						1.4	16.8			
Delay (s)		4.6						20.1	38.4			
Level of Service		A						C	D			
Approach Delay (s)		4.6			0.0			33.0		0.0		
Approach LOS		A			A			C		A		
Intersection Summary												
HCM Average Control Delay		25.9						HCM Level of Service		C		
HCM Volume to Capacity ratio		0.49										
Actuated Cycle Length (s)		60.0						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		76.3%						ICU Level of Service		D		
Analysis Period (min)		15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: 6th & Broadway

Existing No Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	207	116	645	67	269	0	0	709	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3539	1583	1770	3539			5054	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3539	1583	1770	3539			5054	
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	0	0	220	123	686	71	286	0	0	754	32
RTOR Reduction (vph)	0	0	0	0	0	301	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	220	123	385	71	286	0	0	780	0
Turn Type				Perm		Perm		Prot				
Protected Phases					2		7	4			8	
Permitted Phases				2		2						
Actuated Green, G (s)				31.0	31.0	31.0	6.5	36.5			26.5	
Effective Green, g (s)				31.0	31.0	31.0	6.5	36.5			26.5	
Actuated g/C Ratio				0.41	0.41	0.41	0.09	0.49			0.35	
Clearance Time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				732	1463	654	153	1722			1786	
v/s Ratio Prot					0.03		c0.04	0.08			c0.15	
v/s Ratio Perm				0.12		c0.24						
v/c Ratio				0.30	0.08	0.59	0.46	0.17			0.44	
Uniform Delay, d1				14.7	13.4	17.1	32.6	10.8			18.5	
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2				1.1	0.1	3.9	0.8	0.2			0.8	
Delay (s)				15.8	13.5	20.9	33.4	11.0			19.3	
Level of Service				B	B	C	C	B			B	
Approach Delay (s)	0.0				18.9			15.4			19.3	
Approach LOS	A				B			B			B	
Intersection Summary												
HCM Average Control Delay	18.5			HCM Level of Service				B				
HCM Volume to Capacity ratio	0.51											
Actuated Cycle Length (s)	75.0			Sum of lost time (s)				11.0				
Intersection Capacity Utilization	54.0%			ICU Level of Service				A				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Broadway & 5th

Existing No Project

PM Peak Hour

Movement	SEL2	SEL	SET	SER	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	24	1027	263	90	316	274	60	332	225	354
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	5.0	5.0	5.0	4.0	4.0	5.0	5.0
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85		1.00	1.00	1.00	1.00
Flt Protected	0.95	0.97	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1610	3281	1583	3539	1583		1770	1770	1863	
Flt Permitted	0.95	0.97	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	1610	3281	1583	3539	1583		1770	1770	1863	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	25	1081	277	95	333	288	63	349	237	373
RTOR Reduction (vph)	0	0	0	25	0	8	0	0	0	0
Lane Group Flow (vph)	0	555	828	70	333	343	0	349	237	373
Turn Type	Perm	Perm		Perm		Perm		Prot	Prot	
Protected Phases			6		4			3	3	8
Permitted Phases	6	6		6		4				
Actuated Green, G (s)	26.0	26.0	26.0	31.7	31.7		19.3	19.3	55.0	
Effective Green, g (s)	26.0	26.0	26.0	31.7	31.7		19.3	19.3	55.0	
Actuated g/C Ratio	0.29	0.29	0.29	0.35	0.35		0.21	0.21	0.61	
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0		4.0	4.0	5.0	
Vehicle Extension (s)	2.5	2.5	2.5	4.0	4.0		2.0	2.0	4.0	
Lane Grp Cap (vph)	465	948	457	1247	558		380	380	1139	
v/s Ratio Prot				0.09			c0.20	0.13	0.20	
v/s Ratio Perm	c0.34	0.25	0.04		c0.22					
v/c Ratio	1.19	1.13dl	0.15	0.27	0.61		0.92	0.62	0.33	
Uniform Delay, d1	32.0	30.4	23.8	20.8	24.1		34.6	32.1	8.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	106.6	11.0	0.7	0.5	5.0		26.1	2.3	0.8	
Delay (s)	138.6	41.4	24.5	21.4	29.1		60.7	34.3	9.3	
Level of Service	F	D	C	C	C		E	C	A	
Approach Delay (s)		76.8		25.3					34.2	
Approach LOS		E		C					C	
Intersection Summary										
HCM Average Control Delay	52.4				HCM Level of Service			D		
HCM Volume to Capacity ratio	0.89									
Actuated Cycle Length (s)	90.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization	78.4%				ICU Level of Service			D		
Analysis Period (min)	15									
dl Defacto Left Lane. Recode with 1 though lane as a left lane.										
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

6: 6th & Jackson

Existing No Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	7	296	39	326	221	0	0	193	1262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2300
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	4.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.97			1.00	1.00
Satd. Flow (prot)				1770	1863	1583		1809			1863	1917
Flt Permitted				0.95	1.00	1.00		0.71			1.00	1.00
Satd. Flow (perm)				1770	1863	1583		1316			1863	1917
Peak-hour factor, PHF	0.92	0.92	0.92	0.97	0.97	0.97	0.97	0.97	0.92	0.92	0.97	0.97
Adj. Flow (vph)	0	0	0	7	305	40	336	228	0	0	199	1301
RTOR Reduction (vph)	0	0	0	0	0	30	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	7	305	10	0	564	0	0	199	1301
Turn Type				Perm		Perm	Perm					Free
Protected Phases					2			4			8	
Permitted Phases				2		2	4					Free
Actuated Green, G (s)				14.5	14.5	14.5		34.5			34.5	60.0
Effective Green, g (s)				14.5	14.5	14.5		34.5			34.5	60.0
Actuated g/C Ratio				0.24	0.24	0.24		0.58			0.58	1.00
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	
Lane Grp Cap (vph)				428	450	383		757			1071	1917
v/s Ratio Prot					0.16						0.11	
v/s Ratio Perm				0.00		0.01		0.43			c0.68	
v/c Ratio				0.02	0.68	0.03		0.75			0.19	0.68
Uniform Delay, d1				17.3	20.6	17.4		9.5			6.1	0.0
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.1	8.0	0.1		6.6			0.4	2.0
Delay (s)				17.4	28.6	17.5		16.1			6.5	2.0
Level of Service				B	C	B		B			A	A
Approach Delay (s)	0.0				27.1			16.1			2.6	
Approach LOS	A				C			B			A	
Intersection Summary												
HCM Average Control Delay				9.3			HCM Level of Service			A		
HCM Volume to Capacity ratio				0.68								
Actuated Cycle Length (s)				60.0			Sum of lost time (s)			0.0		
Intersection Capacity Utilization				87.8%			ICU Level of Service			E		
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: 5th & Jackson

Existing No Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	276	450	329	0	0	0	0	292	29	89	82	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5					4.5			4.5	
Lane Util. Factor		0.95	1.00					1.00			1.00	
Fr _t		1.00	0.85					0.99			1.00	
Flt Protected		0.98	1.00					1.00			0.97	
Satd. Flow (prot)		3473	1583					1840			1815	
Flt Permitted		0.98	1.00					1.00			0.69	
Satd. Flow (perm)		3473	1583					1840			1278	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.88	0.88	0.88	0.88	0.92
Adj. Flow (vph)	314	511	374	0	0	0	0	332	33	101	93	0
RTOR Reduction (vph)	0	0	220	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	825	154	0	0	0	0	359	0	0	194	0
Turn Type	Perm		Perm							Perm		
Protected Phases		6						4			8	
Permitted Phases	6		6							8		
Actuated Green, G (s)	24.5	24.5						26.0			26.0	
Effective Green, g (s)	24.5	24.5						26.0			26.0	
Actuated g/C Ratio	0.41	0.41						0.44			0.44	
Clearance Time (s)	4.5	4.5						4.5			4.5	
Lane Grp Cap (vph)	1430	652						804			558	
v/s Ratio Prot								c0.20				
v/s Ratio Perm	0.24	0.10								0.15		
v/c Ratio	0.58	0.24						0.45			0.35	
Uniform Delay, d1	13.5	11.4						11.7			11.1	
Progression Factor	1.00	1.00						1.00			1.00	
Incremental Delay, d2	1.7	0.9						1.8			1.7	
Delay (s)	15.2	12.3						13.5			12.8	
Level of Service	B	B						B			B	
Approach Delay (s)	14.3			0.0				13.5			12.8	
Approach LOS	B			A				B			B	
Intersection Summary												
HCM Average Control Delay	14.0			HCM Level of Service				B				
HCM Volume to Capacity ratio	0.51											
Actuated Cycle Length (s)	59.5			Sum of lost time (s)				9.0				
Intersection Capacity Utilization	75.0%			ICU Level of Service				D				
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: Willie Stargell & Webster

Existing No Project

PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑↑	↑↑
Volume (vph)	249	76	53	598	1179	524
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.91	0.88
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	5085	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	5085	2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	259	79	55	623	1228	546
RTOR Reduction (vph)	0	59	0	0	0	365
Lane Group Flow (vph)	259	20	55	623	1228	181
Turn Type		Perm	Prot		Perm	
Protected Phases	4		5	2	6	
Permitted Phases		4			6	
Actuated Green, G (s)	11.7	11.7	6.2	25.8	15.6	15.6
Effective Green, g (s)	11.7	11.7	6.2	25.8	15.6	15.6
Actuated g/C Ratio	0.25	0.25	0.13	0.55	0.33	0.33
Clearance Time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	855	394	233	1943	1688	925
v/s Ratio Prot	c0.08		0.03	c0.18	c0.24	
v/s Ratio Perm		0.01			0.07	
v/c Ratio	0.30	0.05	0.24	0.32	0.73	0.20
Uniform Delay, d1	14.3	13.4	18.3	5.8	13.8	11.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	2.4	0.4	1.6	0.1
Delay (s)	14.5	13.5	20.6	6.2	15.4	11.3
Level of Service	B	B	C	A	B	B
Approach Delay (s)	14.3			7.4	14.2	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay	12.5	HCM Level of Service			B	
HCM Volume to Capacity ratio	0.53					
Actuated Cycle Length (s)	47.0	Sum of lost time (s)			14.5	
Intersection Capacity Utilization	44.5%	ICU Level of Service			A	
Analysis Period (min)	15					
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

9: W Midway & Main

Existing No Project

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	116	43	16	94	81	33	91	6	86	158	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5				3.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		0.95				0.95	
Fr _t	1.00	0.85		1.00	0.85		0.99				1.00	
Flt Protected	1.00	1.00		0.99	1.00		0.99				0.98	
Satd. Flow (prot)	1859	1583		1849	1583		3471				3469	
Flt Permitted	0.98	1.00		0.93	1.00		0.82				0.80	
Satd. Flow (perm)	1828	1583		1730	1583		2867				2817	
Peak-hour factor, PHF	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Adj. Flow (vph)	8	181	67	25	147	127	52	142	9	134	247	8
RTOR Reduction (vph)	0	0	46	0	0	88	0	6	0	0	3	0
Lane Group Flow (vph)	0	189	21	0	172	39	0	197	0	0	386	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	6.1	6.1		6.1	6.1		6.8				6.8	
Effective Green, g (s)	6.1	6.1		6.1	6.1		6.8				6.8	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.34				0.34	
Clearance Time (s)	3.5	3.5		3.5	3.5		3.5				3.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0				3.0	
Lane Grp Cap (vph)	560	485		530	485		980				963	
v/s Ratio Prot												
v/s Ratio Perm	c0.10	0.01		0.10	0.02		0.07				c0.14	
v/c Ratio	0.34	0.04		0.32	0.08		0.20				0.40	
Uniform Delay, d1	5.3	4.8		5.3	4.9		4.6				5.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00				1.00	
Incremental Delay, d2	0.4	0.0		0.4	0.1		0.1				0.3	
Delay (s)	5.7	4.9		5.7	5.0		4.7				5.3	
Level of Service	A	A		A	A		A				A	
Approach Delay (s)	5.5			5.4			4.7				5.3	
Approach LOS	A			A			A				A	
Intersection Summary												
HCM Average Control Delay	5.3				HCM Level of Service						A	
HCM Volume to Capacity ratio	0.37											
Actuated Cycle Length (s)	19.9				Sum of lost time (s)						7.0	
Intersection Capacity Utilization	33.2%				ICU Level of Service						A	
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Atlantic & Main

Existing No Project

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	98	48	36	138	60	41	71	18	76	132	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95	1.00		0.95	1.00	1.00	0.95		0.91	0.91	
Fr _t		1.00	0.85		1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected		1.00	1.00		0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3538	1583		3503	1583	1770	3433		1610	3358	
Flt Permitted		0.95	1.00		0.87	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		3370	1583		3077	1583	1770	3433		1610	3358	
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	1	132	65	49	186	81	55	96	24	103	178	9
RTOR Reduction (vph)	0	0	51	0	0	63	0	20	0	0	5	0
Lane Group Flow (vph)	0	133	14	0	235	18	55	100	0	93	192	0
Turn Type	Perm		Perm		Perm		Perm	Split		Split		
Protected Phases		4			8			2	2		6	6
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		7.7	7.7		7.7	7.7	6.3	6.3		7.0	7.0	
Effective Green, g (s)		7.7	7.7		7.7	7.7	6.3	6.3		7.0	7.0	
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.18	0.18		0.20	0.20	
Clearance Time (s)		4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		741	348		677	348	319	618		322	672	
v/s Ratio Prot							c0.03	0.03		c0.06	0.06	
v/s Ratio Perm		0.04	0.01		c0.08	0.01						
v/c Ratio		0.18	0.04		0.35	0.05	0.17	0.16		0.29	0.29	
Uniform Delay, d1		11.1	10.7		11.5	10.8	12.1	12.1		11.9	11.9	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1	0.0		0.3	0.1	0.3	0.1		0.5	0.2	
Delay (s)		11.2	10.8		11.8	10.8	12.4	12.2		12.4	12.1	
Level of Service		B	B		B	B	B	B		B	B	
Approach Delay (s)		11.1			11.6			12.3			12.2	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM Average Control Delay		11.8			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.28										
Actuated Cycle Length (s)		35.0			Sum of lost time (s)			14.0				
Intersection Capacity Utilization		27.7%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

Existing No Project

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑		↑	↑↑		↑	↑↑	↑
Volume (vph)	164	146	79	81	255	42	127	457	69	115	779	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Fr _t	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3464		1770	3470		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3464		1770	3470		1770	3539	1583
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
Adj. Flow (vph)	178	159	86	88	277	46	138	497	75	125	847	389
RTOR Reduction (vph)	0	0	66	0	15	0	0	10	0	0	0	212
Lane Group Flow (vph)	178	159	20	88	308	0	138	562	0	125	847	177
Turn Type	Prot		Perm	Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	8.2	17.2	17.2	6.2	15.2		11.4	23.9		11.0	23.5	31.7
Effective Green, g (s)	8.2	17.2	17.2	6.2	15.2		11.4	23.9		11.0	23.5	31.7
Actuated g/C Ratio	0.11	0.23	0.23	0.08	0.20		0.15	0.32		0.15	0.31	0.42
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0
Lane Grp Cap (vph)	374	808	362	146	699		268	1101		259	1104	751
v/s Ratio Prot	0.05	0.04		c0.05	c0.09		c0.08	0.16		0.07	c0.24	0.03
v/s Ratio Perm			0.01									0.09
v/c Ratio	0.48	0.20	0.05	0.60	0.44		0.51	0.51		0.48	0.77	0.24
Uniform Delay, d1	31.5	23.5	22.7	33.4	26.3		29.4	20.9		29.5	23.4	14.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	0.0	0.0	6.8	0.2		1.7	0.2		1.4	2.9	0.2
Delay (s)	32.5	23.5	22.7	40.2	26.5		31.1	21.1		31.0	26.4	14.2
Level of Service	C	C	C	D	C		C	C		C	C	B
Approach Delay (s)		27.1			29.4			23.0			23.3	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	24.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	75.3	Sum of lost time (s)	17.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: 8th & Webster

Existing No Project

Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	307	370	0	0	0	0	0	536	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	4.0
Lane Util. Factor				0.86	0.86						0.86	0.86
Frt				1.00	1.00						0.97	0.85
Flt Protected				0.95	0.99						1.00	1.00
Satd. Flow (prot)				1522	4740						4681	1362
Flt Permitted				0.95	0.99						1.00	1.00
Satd. Flow (perm)				1522	4740						4681	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92	0.95	0.95	
Adj. Flow (vph)	0	0	0	323	389	0	0	0	0	0	564	318
RTOR Reduction (vph)	0	0	0	122	78	0	0	0	0	0	33	136
Lane Group Flow (vph)	0	0	0	52	460	0	0	0	0	0	649	64
Turn Type				Perm							Perm	
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)				27.0	27.0						29.0	29.0
Effective Green, g (s)				27.0	27.0						29.0	29.0
Actuated g/C Ratio				0.30	0.30						0.32	0.32
Clearance Time (s)				4.0	4.0						4.0	4.0
Lane Grp Cap (vph)				457	1422						1508	439
v/s Ratio Prot											c0.14	
v/s Ratio Perm				0.03	0.10							0.05
v/c Ratio				0.11	0.32						0.43	0.15
Uniform Delay, d1				22.8	24.4						24.0	21.7
Progression Factor				1.00	1.00						1.00	1.00
Incremental Delay, d2				0.5	0.6						0.9	0.7
Delay (s)				23.3	25.0						24.9	22.4
Level of Service				C	C						C	C
Approach Delay (s)	0.0				24.6			0.0			24.3	
Approach LOS	A				C			A			C	
Intersection Summary												
HCM Average Control Delay				24.5	HCM Level of Service				C			
HCM Volume to Capacity ratio				0.38								
Actuated Cycle Length (s)				90.0	Sum of lost time (s)				34.0			
Intersection Capacity Utilization				42.3%	ICU Level of Service				A			
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: 7th & Webster

Existing No Project

Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	618	348	0	0	0	0	0	0	187	607	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0								4.0	
Lane Util. Factor		0.86	0.86								0.91	
Fr _t		0.97	0.85								1.00	
Flt Protected		1.00	1.00								0.99	
Satd. Flow (prot)		4682	1362								5026	
Flt Permitted		1.00	1.00								0.99	
Satd. Flow (perm)		4682	1362								5026	
Peak-hour factor, PHF	0.92	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.92
Adj. Flow (vph)	0	679	382	0	0	0	0	0	0	205	667	0
RTOR Reduction (vph)	0	64	108	0	0	0	0	0	0	0	46	0
Lane Group Flow (vph)	0	756	133	0	0	0	0	0	0	0	826	0
Turn Type			Perm							Perm		
Protected Phases		6									8	
Permitted Phases			6								8	
Actuated Green, G (s)	16.0	16.0									21.0	
Effective Green, g (s)	16.0	16.0									21.0	
Actuated g/C Ratio	0.36	0.36									0.47	
Clearance Time (s)		4.0	4.0								4.0	
Lane Grp Cap (vph)		1665	484								2345	
v/s Ratio Prot		c0.16										
v/s Ratio Perm			0.10								0.16	
v/c Ratio		0.45	0.28								0.35	
Uniform Delay, d1	11.1	10.4									7.7	
Progression Factor	1.00	1.00									0.47	
Incremental Delay, d2	0.9	1.4									0.4	
Delay (s)	12.0	11.8									4.0	
Level of Service	B	B									A	
Approach Delay (s)	12.0			0.0			0.0				4.0	
Approach LOS	B			A			A				A	
Intersection Summary												
HCM Average Control Delay		8.4		HCM Level of Service					A			
HCM Volume to Capacity ratio		0.40										
Actuated Cycle Length (s)	45.0		Sum of lost time (s)					8.0				
Intersection Capacity Utilization		38.7%		ICU Level of Service				A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 7th & Harrison

Existing No Project

Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	276	492	0	0	0	0	0	542	1353	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	2500	1900	1900	1900
Total Lost time (s)	5.0							5.0	5.0			
Lane Util. Factor	0.91							0.91	*1.00			
Fr _t	1.00							1.00	1.00			
Flt Protected	0.98							1.00	1.00			
Satd. Flow (prot)	4996							5085	4902			
Flt Permitted	0.98							1.00	1.00			
Satd. Flow (perm)	4996							5085	4902			
Peak-hour factor, PHF	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	310	553	0	0	0	0	0	609	1520	0	0	0
RTOR Reduction (vph)	0	78	0	0	0	0	0	0	222	0	0	0
Lane Group Flow (vph)	0	785	0	0	0	0	0	609	1298	0	0	0
Turn Type	Perm								Perm			
Protected Phases		6							4			
Permitted Phases	6									4		
Actuated Green, G (s)	18.0							17.0	17.0			
Effective Green, g (s)	18.0							17.0	17.0			
Actuated g/C Ratio	0.40							0.38	0.38			
Clearance Time (s)	5.0							5.0	5.0			
Lane Grp Cap (vph)	1998							1921	1852			
v/s Ratio Prot								0.12				
v/s Ratio Perm	0.16								c0.26			
v/c Ratio	0.39							0.32	0.70			
Uniform Delay, d1	9.6							9.9	11.8			
Progression Factor	0.77							1.00	1.00			
Incremental Delay, d2	0.5							0.4	2.2			
Delay (s)	7.9							10.3	14.1			
Level of Service	A							B	B			
Approach Delay (s)	7.9				0.0			13.0		0.0		
Approach LOS	A				A			B		A		
Intersection Summary												
HCM Average Control Delay	11.6							HCM Level of Service	B			
HCM Volume to Capacity ratio	0.54											
Actuated Cycle Length (s)	45.0							Sum of lost time (s)	10.0			
Intersection Capacity Utilization	59.4%							ICU Level of Service	B			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4: 6th & Broadway

Existing No Project

Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				↑	↑↑	↑	↑	↑↑			↑↑↑↓	
Volume (vph)	0	0	0	249	138	521	45	184	0	0	369	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3539	1583	1770	3539			4893	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3539	1583	1770	3539			4893	
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
Adj. Flow (vph)	0	0	0	271	150	566	49	200	0	0	401	135
RTOR Reduction (vph)	0	0	0	0	0	332	0	0	0	0	72	0
Lane Group Flow (vph)	0	0	0	271	150	234	49	200	0	0	464	0
Turn Type				Perm		Perm		Prot				
Protected Phases					2		7	4			8	
Permitted Phases				2		2						
Actuated Green, G (s)				31.0	31.0	31.0	4.6	36.5			28.4	
Effective Green, g (s)				31.0	31.0	31.0	4.6	36.5			28.4	
Actuated g/C Ratio				0.41	0.41	0.41	0.06	0.49			0.38	
Clearance Time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				732	1463	654	109	1722			1853	
v/s Ratio Prot					0.04		c0.03	0.06			c0.09	
v/s Ratio Perm				c0.15		0.15						
v/c Ratio				0.37	0.10	0.36	0.45	0.12			0.25	
Uniform Delay, d1				15.2	13.5	15.1	34.0	10.5			16.0	
Progression Factor				1.00	1.00	1.00	1.41	0.68			1.00	
Incremental Delay, d2				1.4	0.1	1.5	1.1	0.1			0.3	
Delay (s)				16.7	13.6	16.7	49.0	7.3			16.3	
Level of Service				B	B	B	D	A			B	
Approach Delay (s)	0.0				16.2			15.5			16.3	
Approach LOS	A				B			B			B	
Intersection Summary												
HCM Average Control Delay	16.1			HCM Level of Service				B				
HCM Volume to Capacity ratio	0.32											
Actuated Cycle Length (s)	75.0			Sum of lost time (s)				11.0				
Intersection Capacity Utilization	44.0%			ICU Level of Service				A				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Broadway & 5th

Existing No Project

Weekend Peak Hour of Generator

Movement	SEL2	SEL	SET	SER	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	49	518	111	47	168	155	72	292	126	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	3.5	3.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00
Satd. Flow (prot)	1610	3272	1583	3539	1583	1770	1770	1863		
Flt Permitted	0.95	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00
Satd. Flow (perm)	1610	3272	1583	3539	1583	1770	1770	1863		
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	52	551	118	50	179	165	77	311	134	215
RTOR Reduction (vph)	0	0	0	32	0	22	0	0	0	0
Lane Group Flow (vph)	0	300	421	19	179	220	0	311	134	215
Turn Type	Perm	Perm		Perm		Perm		Prot	Prot	
Protected Phases			6		4			3	3	8
Permitted Phases	6	6		6		4				
Actuated Green, G (s)	22.5	22.5	22.5	23.6	23.6		15.4	15.4	42.5	
Effective Green, g (s)	22.5	22.5	22.5	23.6	23.6		15.4	15.4	42.5	
Actuated g/C Ratio	0.30	0.30	0.30	0.31	0.31		0.21	0.21	0.57	
Clearance Time (s)	5.5	5.5	5.5	3.5	3.5		4.5	4.5	4.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)	483	982	475	1114	498		363	363	1056	
v/s Ratio Prot				0.05			c0.18	0.08	0.12	
v/s Ratio Perm	c0.19	0.13	0.01		c0.14					
v/c Ratio	0.62	0.43	0.04	0.16	0.44		0.86	0.37	0.20	
Uniform Delay, d1	22.6	21.1	18.6	18.6	20.5		28.7	25.6	8.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.19	1.22	1.07	
Incremental Delay, d2	5.9	1.4	0.2	0.3	2.8		16.6	0.2	0.4	
Delay (s)	28.5	22.5	18.7	18.9	23.3		51.0	31.6	8.9	
Level of Service	C	C	B	B	C		D	C	A	
Approach Delay (s)		24.6		21.4					33.3	
Approach LOS		C		C					C	
Intersection Summary										
HCM Average Control Delay	27.0	HCM Level of Service					C			
HCM Volume to Capacity ratio	0.61									
Actuated Cycle Length (s)	75.0	Sum of lost time (s)					13.5			
Intersection Capacity Utilization	56.2%	ICU Level of Service					B			
Analysis Period (min)	15									
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

6: 6th & Jackson

Existing No Project

Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	7	289	41	211	220	0	0	221	1193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2300
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	4.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1770	1863	1583		1818			1863	1917
Flt Permitted				0.95	1.00	1.00		0.73			1.00	1.00
Satd. Flow (perm)				1770	1863	1583		1359			1863	1917
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	7	304	43	222	232	0	0	233	1256
RTOR Reduction (vph)	0	0	0	0	0	27	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	7	304	16	0	454	0	0	233	1256
Turn Type				Perm		Perm	Perm					Free
Protected Phases					2			4				8
Permitted Phases				2		2	4					Free
Actuated Green, G (s)				16.5	16.5	16.5		17.5			17.5	45.0
Effective Green, g (s)				16.5	16.5	16.5		17.5			17.5	45.0
Actuated g/C Ratio				0.37	0.37	0.37		0.39			0.39	1.00
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	
Lane Grp Cap (vph)				649	683	580		529			725	1917
v/s Ratio Prot					0.16						0.13	
v/s Ratio Perm				0.00		0.01		0.33			c0.66	
v/c Ratio				0.01	0.45	0.03		0.86			0.32	0.66
Uniform Delay, d1				9.1	10.8	9.1		12.6			9.6	0.0
Progression Factor				1.00	1.00	1.00		1.42			1.00	1.00
Incremental Delay, d2				0.0	2.1	0.1		15.7			1.2	1.8
Delay (s)				9.1	12.9	9.2		33.6			10.8	1.8
Level of Service				A	B	A		C			B	A
Approach Delay (s)	0.0				12.4			33.6			3.2	
Approach LOS	A				B			C			A	
Intersection Summary												
HCM Average Control Delay	10.6				HCM Level of Service			B				
HCM Volume to Capacity ratio	0.66											
Actuated Cycle Length (s)	45.0				Sum of lost time (s)			0.0				
Intersection Capacity Utilization	66.8%				ICU Level of Service			C				
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

7: 5th & Jackson

Existing No Project

Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	221	170	227	0	0	0	0	220	38	124	87	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5			4.5	
Lane Util. Factor	0.95	1.00						1.00			1.00	
Frt	1.00	0.85						0.98			1.00	
Flt Protected	0.97	1.00						1.00			0.97	
Satd. Flow (prot)	3442	1583						1826			1810	
Flt Permitted	0.97	1.00						1.00			0.71	
Satd. Flow (perm)	3442	1583						1826			1319	
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.92
Adj. Flow (vph)	238	183	244	0	0	0	0	237	41	133	94	0
RTOR Reduction (vph)	0	0	176	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	421	68	0	0	0	0	264	0	0	227	0
Turn Type	Perm		Perm							Perm		
Protected Phases		6						4			8	
Permitted Phases	6		6								8	
Actuated Green, G (s)	12.5	12.5						23.5			23.5	
Effective Green, g (s)	12.5	12.5						23.5			23.5	
Actuated g/C Ratio	0.28	0.28						0.52			0.52	
Clearance Time (s)	4.5	4.5						4.5			4.5	
Lane Grp Cap (vph)	956	440						954			689	
v/s Ratio Prot								0.14				
v/s Ratio Perm	0.12	0.04									0.17	
v/c Ratio	0.44	0.15						0.28			0.33	
Uniform Delay, d1	13.4	12.3						6.0			6.2	
Progression Factor	1.00	1.00						1.00			1.58	
Incremental Delay, d2	1.5	0.7						0.7			1.2	
Delay (s)	14.8	13.0						6.7			11.1	
Level of Service	B	B						A			B	
Approach Delay (s)	14.2			0.0				6.7			11.1	
Approach LOS	B			A				A			B	
Intersection Summary												
HCM Average Control Delay	11.8			HCM Level of Service				B				
HCM Volume to Capacity ratio	0.37											
Actuated Cycle Length (s)	45.0			Sum of lost time (s)				9.0				
Intersection Capacity Utilization	62.7%			ICU Level of Service				B				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Willie Stargell & Webster

Existing No Project

Weekend Peak Hour of Generator



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑↑	↑↑
Volume (vph)	178	72	34	932	759	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.91	0.88
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	5085	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	5085	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	187	76	36	981	799	252
RTOR Reduction (vph)	0	61	0	0	0	161
Lane Group Flow (vph)	187	15	36	981	799	91
Turn Type		Perm	Prot		Perm	
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	9.1	9.1	6.4	26.7	16.3	16.3
Effective Green, g (s)	9.1	9.1	6.4	26.7	16.3	16.3
Actuated g/C Ratio	0.20	0.20	0.14	0.59	0.36	0.36
Clearance Time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	690	318	250	2086	1830	1003
v/s Ratio Prot	c0.05		0.02	c0.28	0.16	
v/s Ratio Perm		0.01			0.03	
v/c Ratio	0.27	0.05	0.14	0.47	0.44	0.09
Uniform Delay, d1	15.3	14.6	17.0	5.3	11.0	9.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	1.2	0.8	0.2	0.0
Delay (s)	15.5	14.7	18.3	6.0	11.2	9.6
Level of Service	B	B	B	A	B	A
Approach Delay (s)	15.3			6.5	10.8	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay	9.4		HCM Level of Service		A	
HCM Volume to Capacity ratio	0.42					
Actuated Cycle Length (s)	45.3		Sum of lost time (s)		9.5	
Intersection Capacity Utilization	38.8%		ICU Level of Service		A	
Analysis Period (min)	15					
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

9: W Midway & Main

Existing No Project

Weekend Peak Hour of Generator

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	49	43	8	63	65	37	144	7	49	149	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5				3.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		0.95				0.95	
Fr _t	1.00	0.85		1.00	0.85		0.99				1.00	
Flt Protected	1.00	1.00		0.99	1.00		0.99				0.99	
Satd. Flow (prot)	1856	1583		1852	1583		3485				3491	
Flt Permitted	0.96	1.00		0.95	1.00		0.84				0.83	
Satd. Flow (perm)	1788	1583		1762	1583		2965				2921	
Peak-hour factor, PHF	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Adj. Flow (vph)	6	71	62	12	91	94	54	209	10	71	216	3
RTOR Reduction (vph)	0	0	47	0	0	71	0	7	0	0	2	0
Lane Group Flow (vph)	0	77	15	0	103	23	0	266	0	0	288	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	3.7	3.7		3.7	3.7		4.2				4.2	
Effective Green, g (s)	3.7	3.7		3.7	3.7		4.2				4.2	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.28				0.28	
Clearance Time (s)	3.5	3.5		3.5	3.5		3.5				3.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0				3.0	
Lane Grp Cap (vph)	444	393		438	393		836				823	
v/s Ratio Prot												
v/s Ratio Perm	0.04	0.01		c0.06	0.01		0.09				c0.10	
v/c Ratio	0.17	0.04		0.24	0.06		0.32				0.35	
Uniform Delay, d1	4.4	4.3		4.5	4.3		4.2				4.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00				1.00	
Incremental Delay, d2	0.2	0.0		0.3	0.1		0.2				0.3	
Delay (s)	4.6	4.3		4.7	4.3		4.4				4.5	
Level of Service	A	A		A	A		A				A	
Approach Delay (s)	4.5			4.6			4.4				4.5	
Approach LOS	A			A			A				A	
Intersection Summary												
HCM Average Control Delay		4.5			HCM Level of Service			A				
HCM Volume to Capacity ratio		0.30										
Actuated Cycle Length (s)		14.9			Sum of lost time (s)			7.0				
Intersection Capacity Utilization		30.9%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Atlantic & Main

Existing No Project

Weekend Peak Hour of Generator

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	250	67	40	173	104	61	85	41	123	76	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95	1.00		0.95	1.00	1.00	0.95		0.91	0.91	
Fr _t		1.00	0.85		1.00	0.85	1.00	0.95		1.00	0.99	
Flt Protected		1.00	1.00		0.99	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (prot)		3539	1583		3506	1583	1770	3367		1610	3300	
Flt Permitted		0.95	1.00		0.85	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (perm)		3377	1583		3024	1583	1770	3367		1610	3300	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	1	316	85	51	219	132	77	108	52	156	96	8
RTOR Reduction (vph)	0	0	57	0	0	89	0	44	0	0	4	0
Lane Group Flow (vph)	0	317	28	0	270	43	77	116	0	86	170	0
Turn Type	Perm		Perm		Perm		Perm	Split		Split		
Protected Phases		4			8			2	2		6	6
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	13.3	13.3		13.3	13.3		6.7	6.7		7.0	7.0	
Effective Green, g (s)	13.3	13.3		13.3	13.3		6.7	6.7		7.0	7.0	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.16	0.16		0.17	0.17	
Clearance Time (s)	4.0	4.0		4.0	4.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	1095	514		981	514		289	550		275	563	
v/s Ratio Prot							c0.04	0.03		c0.05	0.05	
v/s Ratio Perm	c0.09	0.02		0.09	0.03							
v/c Ratio	0.29	0.05		0.28	0.08		0.27	0.21		0.31	0.30	
Uniform Delay, d1	10.3	9.5		10.3	9.6		15.0	14.9		14.9	14.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.0		0.2	0.1		0.5	0.2		0.7	0.3	
Delay (s)	10.5	9.6		10.4	9.7		15.5	15.1		15.5	15.2	
Level of Service	B	A		B	A		B	B		B	B	
Approach Delay (s)	10.3			10.2				15.2			15.3	
Approach LOS	B			B				B			B	
Intersection Summary												
HCM Average Control Delay	12.1											B
HCM Volume to Capacity ratio	0.29											
Actuated Cycle Length (s)	41.0											14.0
Intersection Capacity Utilization	35.5%											A
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

Existing No Project

Weekend Peak Hour of Generator

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑	54	74	↑↑	80	63	566	193
Volume (vph)	276	176	115	42	144	54	74	630	80	63	566	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Fr _t	1.00	1.00	0.85	1.00	0.96		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3395		1770	3480		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3395		1770	3480		1770	3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	288	183	120	44	150	56	77	656	83	66	590	201
RTOR Reduction (vph)	0	0	86	0	43	0	0	8	0	0	0	116
Lane Group Flow (vph)	288	183	34	44	163	0	77	731	0	66	590	85
Turn Type	Prot		Perm		Prot		Prot		Prot		pm+ov	
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	9.0	18.2	18.2	4.0	13.2		7.0	20.6		4.9	18.5	27.5
Effective Green, g (s)	9.0	18.2	18.2	4.0	13.2		7.0	20.6		4.9	18.5	27.5
Actuated g/C Ratio	0.14	0.28	0.28	0.06	0.20		0.11	0.32		0.08	0.29	0.43
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0
Lane Grp Cap (vph)	478	996	445	109	693		191	1108		134	1012	771
v/s Ratio Prot	c0.08	0.05		0.02	c0.05		c0.04	c0.21		0.04	0.17	0.02
v/s Ratio Perm			0.02									0.04
v/c Ratio	0.60	0.18	0.08	0.40	0.24		0.40	0.66		0.49	0.58	0.11
Uniform Delay, d1	26.2	17.6	17.1	29.2	21.5		26.9	19.0		28.7	19.8	11.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.1	0.0	0.0	2.4	0.1		1.4	1.1		2.8	0.6	0.1
Delay (s)	28.3	17.7	17.1	31.6	21.6		28.3	20.1		31.5	20.4	11.3
Level of Service	C	B	B	C	C		C	C		C	C	B
Approach Delay (s)		22.7			23.4			20.9			19.1	
Approach LOS		C			C			C			B	
Intersection Summary												
HCM Average Control Delay		21.0				HCM Level of Service			C			
HCM Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		64.7				Sum of lost time (s)			13.0			
Intersection Capacity Utilization		51.2%				ICU Level of Service			A			
Analysis Period (min)		15										
c Critical Lane Group												

Phase 1 (2017) Conditions

HCM Signalized Intersection Capacity Analysis

1: 8th & Webster

2017 No Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	325	700	0	0	0	0	0	437	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	4.0
Lane Util. Factor				0.86	0.86						0.86	0.86
Frt				1.00	1.00						0.98	0.85
Flt Protected				0.95	1.00						1.00	1.00
Satd. Flow (prot)				1522	4782						4698	1362
Flt Permitted				0.95	1.00						1.00	1.00
Satd. Flow (perm)				1522	4782						4698	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.93	0.93
Adj. Flow (vph)	0	0	0	349	753	0	0	0	0	0	470	244
RTOR Reduction (vph)	0	0	0	186	14	0	0	0	0	0	25	109
Lane Group Flow (vph)	0	0	0	80	823	0	0	0	0	0	528	52
Turn Type				Perm							Perm	
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)				27.0	27.0						29.0	29.0
Effective Green, g (s)				27.0	27.0						29.0	29.0
Actuated g/C Ratio				0.30	0.30						0.32	0.32
Clearance Time (s)				4.0	4.0						4.0	4.0
Lane Grp Cap (vph)				457	1435						1514	439
v/s Ratio Prot											c0.11	
v/s Ratio Perm				0.05	0.17							0.04
v/c Ratio				0.17	0.57						0.35	0.12
Uniform Delay, d1				23.3	26.6						23.3	21.5
Progression Factor				1.00	1.00						1.00	1.00
Incremental Delay, d2				0.8	1.7						0.6	0.5
Delay (s)				24.1	28.3						23.9	22.0
Level of Service				C	C						C	C
Approach Delay (s)	0.0				27.3			0.0			23.5	
Approach LOS	A				C			A			C	
Intersection Summary												
HCM Average Control Delay				25.8		HCM Level of Service					C	
HCM Volume to Capacity ratio				0.46								
Actuated Cycle Length (s)				90.0		Sum of lost time (s)					34.0	
Intersection Capacity Utilization				42.3%		ICU Level of Service					A	
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: 7th & Webster

2017 No Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	303	381	0	0	0	0	0	0	144	608	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0								4.0	
Lane Util. Factor		0.86	0.86								0.91	
Fr _t		0.94	0.85								1.00	
Flt Protected		1.00	1.00								0.99	
Satd. Flow (prot)		4527	1362								5037	
Flt Permitted		1.00	1.00								0.99	
Satd. Flow (perm)		4527	1362								5037	
Peak-hour factor, PHF	0.92	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.92
Adj. Flow (vph)	0	344	433	0	0	0	0	0	0	164	691	0
RTOR Reduction (vph)	0	59	59	0	0	0	0	0	0	0	66	0
Lane Group Flow (vph)	0	502	157	0	0	0	0	0	0	0	789	0
Turn Type			Perm								Perm	
Protected Phases		6									8	
Permitted Phases			6								8	
Actuated Green, G (s)	28.0	28.0									24.0	
Effective Green, g (s)	28.0	28.0									24.0	
Actuated g/C Ratio	0.47	0.47									0.40	
Clearance Time (s)		4.0	4.0								4.0	
Lane Grp Cap (vph)	2113	636									2015	
v/s Ratio Prot		0.11										
v/s Ratio Perm			c0.12								0.16	
v/c Ratio		0.24	0.25								0.39	
Uniform Delay, d1	9.6	9.6									12.8	
Progression Factor	1.00	1.00									1.00	
Incremental Delay, d2	0.3	0.9									0.6	
Delay (s)	9.9	10.6									13.4	
Level of Service	A	B									B	
Approach Delay (s)	10.1			0.0			0.0				13.4	
Approach LOS	B			A			A				B	
Intersection Summary												
HCM Average Control Delay	11.8			HCM Level of Service						B		
HCM Volume to Capacity ratio	0.31											
Actuated Cycle Length (s)	60.0			Sum of lost time (s)						8.0		
Intersection Capacity Utilization	50.0%			ICU Level of Service						A		
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 7th & Harrison

2017 No Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	92	340	0	0	0	0	0	1038	1770	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	2500	1900	1900	1900
Total Lost time (s)		5.0						5.0	5.0			
Lane Util. Factor		0.91						0.91	*1.00			
Fr _t		1.00						1.00	1.00			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5032						5085	4902			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5032						5085	4902			
Peak-hour factor, PHF	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.97	0.97	0.92	0.92	0.92
Adj. Flow (vph)	95	351	0	0	0	0	0	1070	1825	0	0	0
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	491	0	0	0
Lane Group Flow (vph)	0	432	0	0	0	0	0	1070	1334	0	0	0
Turn Type	Perm								Perm			
Protected Phases		6							4			
Permitted Phases	6									4		
Actuated Green, G (s)		27.0						23.0	23.0			
Effective Green, g (s)		27.0						23.0	23.0			
Actuated g/C Ratio		0.45						0.38	0.38			
Clearance Time (s)		5.0						5.0	5.0			
Lane Grp Cap (vph)		2264						1949	1879			
v/s Ratio Prot								0.21				
v/s Ratio Perm		0.09							c0.27			
v/c Ratio		0.19						0.55	0.71			
Uniform Delay, d1		9.9						14.4	15.7			
Progression Factor		0.95						1.00	1.00			
Incremental Delay, d2		0.2						1.1	2.3			
Delay (s)		9.6						15.6	18.0			
Level of Service		A						B	B			
Approach Delay (s)		9.6			0.0			17.1		0.0		
Approach LOS		A			A			B		A		
Intersection Summary												
HCM Average Control Delay		16.1						HCM Level of Service		B		
HCM Volume to Capacity ratio		0.43										
Actuated Cycle Length (s)		60.0						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		77.9%						ICU Level of Service		D		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4: 6th & Broadway

2017 No Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	328	213	655	66	225	0	0	365	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.98	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3539	1583	1770	3539			4988	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3539	1583	1770	3539			4988	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	345	224	689	69	237	0	0	384	56
RTOR Reduction (vph)	0	0	0	0	0	343	0	0	0	0	24	0
Lane Group Flow (vph)	0	0	0	345	224	346	69	237	0	0	416	0
Turn Type				Perm		Perm		Prot				
Protected Phases					2		7	4			8	
Permitted Phases				2		2						
Actuated Green, G (s)				31.0	31.0	31.0	6.5	36.5			26.5	
Effective Green, g (s)				31.0	31.0	31.0	6.5	36.5			26.5	
Actuated g/C Ratio				0.41	0.41	0.41	0.09	0.49			0.35	
Clearance Time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				732	1463	654	153	1722			1762	
v/s Ratio Prot					0.06		c0.04	0.07			c0.08	
v/s Ratio Perm				0.19		c0.22						
v/c Ratio				0.47	0.15	0.53	0.45	0.14			0.24	
Uniform Delay, d1				16.0	13.8	16.5	32.6	10.6			17.1	
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2				2.2	0.2	3.0	0.8	0.2			0.3	
Delay (s)				18.2	14.0	19.6	33.3	10.8			17.4	
Level of Service				B	B	B	C	B			B	
Approach Delay (s)	0.0				18.2			15.8			17.4	
Approach LOS	A				B			B			B	
Intersection Summary												
HCM Average Control Delay	17.7			HCM Level of Service				B				
HCM Volume to Capacity ratio	0.40											
Actuated Cycle Length (s)	75.0			Sum of lost time (s)				11.0				
Intersection Capacity Utilization	53.4%			ICU Level of Service				A				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2017 No Project

5: Broadway & 5th

AM Peak Hour

Movement	SEL2	SEL	SET	SER	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	42	665	134	81	182	171	60	327	154	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	5.0	5.0	4.0	4.0	5.0	4.0	5.0
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85		1.00	1.00	1.00	1.00
Flt Protected	0.95	0.97	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1610	3272	1583	3539	1583		1770	1770	1863	
Flt Permitted	0.95	0.97	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	1610	3272	1583	3539	1583		1770	1770	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	46	723	146	88	198	186	65	355	167	288
RTOR Reduction (vph)	0	0	0	36	0	14	0	0	0	0
Lane Group Flow (vph)	0	386	529	52	198	237	0	355	167	288
Turn Type	Perm	Perm		Perm		Perm		Prot	Prot	
Protected Phases			6		4			3	3	8
Permitted Phases	6	6		6		4				
Actuated Green, G (s)	26.0	26.0	26.0	31.6	31.6		19.4	19.4	55.0	
Effective Green, g (s)	26.0	26.0	26.0	31.6	31.6		19.4	19.4	55.0	
Actuated g/C Ratio	0.29	0.29	0.29	0.35	0.35		0.22	0.22	0.61	
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0		4.0	4.0	5.0	
Vehicle Extension (s)	2.5	2.5	2.5	4.0	4.0		2.0	2.0	4.0	
Lane Grp Cap (vph)	465	945	457	1243	556		382	382	1139	
v/s Ratio Prot				0.06			c0.20	0.09	0.15	
v/s Ratio Perm	c0.24	0.16	0.03		c0.15					
v/c Ratio	0.83	0.56	0.11	0.16	0.43		0.93	0.44	0.25	
Uniform Delay, d1	29.9	27.1	23.5	20.1	22.3		34.6	30.6	8.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	15.7	2.4	0.5	0.3	2.4		28.1	0.3	0.5	
Delay (s)	45.6	29.5	24.0	20.3	24.7		62.8	30.9	8.6	
Level of Service	D	C	C	C	C		E	C	A	
Approach Delay (s)		35.2		22.8					36.9	
Approach LOS		D		C					D	
Intersection Summary										
HCM Average Control Delay		33.4			HCM Level of Service			C		
HCM Volume to Capacity ratio		0.69								
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			13.0		
Intersection Capacity Utilization		61.7%			ICU Level of Service			B		
Analysis Period (min)		15								
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

6: 6th & Jackson

2017 No Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	12	299	59	203	294	0	0	145	1475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2300
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	4.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	1.00
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1770	1863	1583		1825			1863	2255
Flt Permitted				0.95	1.00	1.00		0.80			1.00	1.00
Satd. Flow (perm)				1770	1863	1583		1484			1863	2255
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
Adj. Flow (vph)	0	0	0	13	325	64	221	320	0	0	158	1603
RTOR Reduction (vph)	0	0	0	0	0	49	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	13	325	15	0	541	0	0	158	1603
Turn Type				Perm		Perm	Perm					Free
Protected Phases					2			4				8
Permitted Phases				2		2	4					Free
Actuated Green, G (s)				14.5	14.5	14.5		34.5			34.5	60.0
Effective Green, g (s)				14.5	14.5	14.5		34.5			34.5	60.0
Actuated g/C Ratio				0.24	0.24	0.24		0.58			0.58	1.00
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	
Lane Grp Cap (vph)				428	450	383		853			1071	2255
v/s Ratio Prot					0.17						0.08	
v/s Ratio Perm				0.01		0.01		0.36			c0.71	
v/c Ratio				0.03	0.72	0.04		0.63			0.15	0.71
Uniform Delay, d1				17.4	20.9	17.4		8.5			5.9	0.0
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.1	9.7	0.2		3.6			0.3	1.9
Delay (s)				17.5	30.6	17.6		12.1			6.2	1.9
Level of Service				B	C	B		B			A	A
Approach Delay (s)	0.0				28.1			12.1			2.3	
Approach LOS	A				C			B			A	
Intersection Summary												
HCM Average Control Delay				8.1			HCM Level of Service			A		
HCM Volume to Capacity ratio				0.71								
Actuated Cycle Length (s)				60.0			Sum of lost time (s)			0.0		
Intersection Capacity Utilization				87.0%			ICU Level of Service			E		
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: 5th & Jackson

2017 No Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	294	545	529	0	0	0	0	224	38	80	75	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5					4.5			4.5	
Lane Util. Factor		0.95	1.00					1.00			1.00	
Frt		1.00	0.85					0.98			1.00	
Flt Protected		0.98	1.00					1.00			0.97	
Satd. Flow (prot)		3478	1583					1826			1816	
Flt Permitted		0.98	1.00					1.00			0.74	
Satd. Flow (perm)		3478	1583					1826			1384	
Peak-hour factor, PHF	0.84	0.84	0.84	0.92	0.92	0.92	0.92	0.84	0.84	0.84	0.84	0.92
Adj. Flow (vph)	350	649	630	0	0	0	0	267	45	95	89	0
RTOR Reduction (vph)	0	0	455	0	0	0	0	13	0	0	0	0
Lane Group Flow (vph)	0	999	175	0	0	0	0	299	0	0	184	0
Turn Type	Perm		Perm							Perm		
Protected Phases		6						4			8	
Permitted Phases	6		6							8		
Actuated Green, G (s)	12.5	12.5						23.5			23.5	
Effective Green, g (s)	12.5	12.5						23.5			23.5	
Actuated g/C Ratio	0.28	0.28						0.52			0.52	
Clearance Time (s)	4.5	4.5						4.5			4.5	
Lane Grp Cap (vph)	966	440						954			723	
v/s Ratio Prot								c0.16				
v/s Ratio Perm	0.29	0.11								0.13		
v/c Ratio	1.03	0.40						0.31			0.25	
Uniform Delay, d1	16.2	13.2						6.1			5.9	
Progression Factor	1.00	1.00						1.00			1.00	
Incremental Delay, d2	38.1	2.7						0.9			0.8	
Delay (s)	54.4	15.9						7.0			6.8	
Level of Service	D	B						A			A	
Approach Delay (s)	39.5			0.0				7.0			6.8	
Approach LOS	D			A				A			A	
Intersection Summary												
HCM Average Control Delay	31.9			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.56											
Actuated Cycle Length (s)	45.0			Sum of lost time (s)				9.0				
Intersection Capacity Utilization	74.0%			ICU Level of Service				D				
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: Willie Stargell & Webster

2017 No Project

AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑↑	↑↑
Volume (vph)	508	76	84	1231	813	486
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.91	0.88
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	5085	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	5085	2787
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	620	93	102	1501	991	593
RTOR Reduction (vph)	0	63	0	0	0	415
Lane Group Flow (vph)	620	30	102	1501	991	178
Turn Type		Perm	Prot		Perm	
Protected Phases	4		5	2	6	
Permitted Phases		4			6	
Actuated Green, G (s)	16.3	16.3	6.1	25.5	15.4	15.4
Effective Green, g (s)	16.3	16.3	6.1	25.5	15.4	15.4
Actuated g/C Ratio	0.32	0.32	0.12	0.50	0.30	0.30
Clearance Time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1091	503	210	1759	1526	837
v/s Ratio Prot	c0.18		0.06	c0.42	0.19	
v/s Ratio Perm		0.02			0.06	
v/c Ratio	0.57	0.06	0.49	0.85	0.65	0.21
Uniform Delay, d1	14.6	12.2	21.1	11.3	15.6	13.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.0	7.8	5.5	1.0	0.1
Delay (s)	15.3	12.2	29.0	16.8	16.6	13.5
Level of Service	B	B	C	B	B	B
Approach Delay (s)	14.9			17.5	15.4	
Approach LOS	B			B	B	
Intersection Summary						
HCM Average Control Delay	16.2		HCM Level of Service		B	
HCM Volume to Capacity ratio	0.74					
Actuated Cycle Length (s)	51.3		Sum of lost time (s)		9.5	
Intersection Capacity Utilization	56.4%		ICU Level of Service		B	
Analysis Period (min)	15					
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

9: W Midway & Main

2017 No Project

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	73	35	33	112	71	75	180	35	46	58	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5	3.5		3.5			3.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		0.95			0.95	
Fr _t	1.00	0.85		1.00	0.85	0.98					0.99	
Flt Protected	0.99	1.00		0.99	1.00	0.99					0.98	
Satd. Flow (prot)	1848	1583		1842	1583		3431			3420		
Flt Permitted	0.92	1.00		0.90	1.00	0.84				0.75		
Satd. Flow (perm)	1719	1583		1680	1583		2920			2621		
Peak-hour factor, PHF	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Adj. Flow (vph)	21	107	51	49	165	104	110	265	51	68	85	16
RTOR Reduction (vph)	0	0	34	0	0	70	0	24	0	0	11	0
Lane Group Flow (vph)	0	128	17	0	214	34	0	402	0	0	158	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	6.7	6.7		6.7	6.7		7.0			7.0		
Effective Green, g (s)	6.7	6.7		6.7	6.7		7.0			7.0		
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.34			0.34		
Clearance Time (s)	3.5	3.5		3.5	3.5		3.5			3.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0			3.0		
Lane Grp Cap (vph)	556	512		544	512		987			886		
v/s Ratio Prot												
v/s Ratio Perm	0.07	0.01		c0.13	0.02		c0.14			0.06		
v/c Ratio	0.23	0.03		0.39	0.07		0.41			0.18		
Uniform Delay, d1	5.1	4.8		5.4	4.8		5.3			4.8		
Progression Factor	1.00	1.00		1.00	1.00		1.00			1.00		
Incremental Delay, d2	0.2	0.0		0.5	0.1		0.3			0.1		
Delay (s)	5.3	4.8		5.9	4.9		5.5			4.9		
Level of Service	A	A		A	A		A			A		
Approach Delay (s)	5.2			5.6			5.5			4.9		
Approach LOS	A			A			A			A		
Intersection Summary												
HCM Average Control Delay	5.4				HCM Level of Service			A				
HCM Volume to Capacity ratio	0.40											
Actuated Cycle Length (s)	20.7				Sum of lost time (s)			7.0				
Intersection Capacity Utilization	36.0%				ICU Level of Service			A				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Atlantic & Main

2017 No Project

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	54	39	58	70	94	69	187	58	48	75	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		5.0
Lane Util. Factor	0.95	1.00		0.95	1.00	1.00	0.95		0.95	0.91		0.91
Fr _t	1.00	0.85		1.00	0.85	1.00	0.96		1.00	0.98		
Flt Protected	0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	3504	1583		3461	1583	1770	3414		1610	3311		
Flt Permitted	0.88	1.00		0.81	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (perm)	3116	1583		2850	1583	1770	3414		1610	3311		
Peak-hour factor, PHF	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Adj. Flow (vph)	18	71	51	76	92	124	91	246	76	63	99	17
RTOR Reduction (vph)	0	0	41	0	0	100	0	37	0	0	14	0
Lane Group Flow (vph)	0	89	10	0	168	24	91	285	0	57	108	0
Turn Type	Perm		Perm	Perm		Perm	Split		Split			
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	7.5	7.5		7.5	7.5	11.3	11.3		6.6	6.6		
Effective Green, g (s)	7.5	7.5		7.5	7.5	11.3	11.3		6.6	6.6		
Actuated g/C Ratio	0.19	0.19		0.19	0.19	0.29	0.29		0.17	0.17		
Clearance Time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	593	301		543	301	508	979		270	555		
v/s Ratio Prot						0.05	c0.08		c0.04	0.03		
v/s Ratio Perm	0.03	0.01		c0.06	0.01							
v/c Ratio	0.15	0.03		0.31	0.08	0.18	0.29		0.21	0.19		
Uniform Delay, d1	13.3	13.0		13.7	13.1	10.6	10.9		14.2	14.1		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.1	0.0		0.3	0.1	0.2	0.2		0.4	0.2		
Delay (s)	13.4	13.0		14.0	13.2	10.7	11.1		14.5	14.3		
Level of Service	B	B		B	B	B	B		B	B		
Approach Delay (s)	13.3			13.7			11.0			14.4		
Approach LOS	B			B			B			B		
Intersection Summary												
HCM Average Control Delay	12.7				HCM Level of Service				B			
HCM Volume to Capacity ratio	0.28											
Actuated Cycle Length (s)	39.4				Sum of lost time (s)				14.0			
Intersection Capacity Utilization	31.9%				ICU Level of Service				A			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

2017 No Project

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↑↑	↑↑	↑	↑	↑↑	60	92	↑↑	930	65	69	480	335
Volume (vph)	315	202	89	25	246	60	92	930	65	69	480	335	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00	
Fr _t	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3433	3539	1583	1770	3435		1770	3505		1770	3539	1583	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3433	3539	1583	1770	3435		1770	3505		1770	3539	1583	
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	
Adj. Flow (vph)	404	259	114	32	315	77	118	1192	83	88	615	429	
RTOR Reduction (vph)	0	0	80	0	23	0	0	4	0	0	0	192	
Lane Group Flow (vph)	404	259	34	32	369	0	118	1271	0	88	615	237	
Turn Type	Prot		Perm	Prot			Prot			Prot		pm+ov	
Protected Phases	7	4		3	8		5	2		1	6	7	
Permitted Phases			4									6	
Actuated Green, G (s)	8.4	23.3	23.3	2.7	17.6		8.7	28.0		7.7	27.0	35.4	
Effective Green, g (s)	8.4	23.3	23.3	2.7	17.6		8.7	28.0		7.7	27.0	35.4	
Actuated g/C Ratio	0.11	0.30	0.30	0.03	0.22		0.11	0.36		0.10	0.34	0.45	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0	
Lane Grp Cap (vph)	366	1048	469	61	768		196	1247		173	1214	793	
v/s Ratio Prot	c0.12	0.07		0.02	c0.11		c0.07	c0.36		0.05	0.17	0.03	
v/s Ratio Perm			0.02									0.12	
v/c Ratio	1.10	0.25	0.07	0.52	0.48		0.60	1.02		0.51	0.51	0.30	
Uniform Delay, d1	35.1	21.0	19.9	37.4	26.6		33.4	25.4		33.7	20.6	13.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	78.0	0.0	0.0	7.9	0.2		5.1	30.5		2.3	0.1	0.2	
Delay (s)	113.2	21.1	19.9	45.3	26.7		38.5	55.8		36.0	20.7	14.0	
Level of Service	F	C	B	D	C		D	E		D	C	B	
Approach Delay (s)		68.8			28.1			54.3			19.3		
Approach LOS		E			C			D			B		
Intersection Summary													
HCM Average Control Delay		43.7				HCM Level of Service				D			
HCM Volume to Capacity ratio		0.78											
Actuated Cycle Length (s)		78.7				Sum of lost time (s)				13.0			
Intersection Capacity Utilization		63.5%				ICU Level of Service				B			
Analysis Period (min)		15											
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

1: 8th & Webster

2017 No Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	421	626	0	0	0	0	0	899	338
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	4.0
Lane Util. Factor				0.86	0.86						0.86	0.86
Frt				1.00	1.00						0.99	0.85
Flt Protected				0.95	0.99						1.00	1.00
Satd. Flow (prot)				1522	4755						4758	1362
Flt Permitted				0.95	0.99						1.00	1.00
Satd. Flow (perm)				1522	4755						4758	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.93	0.93
Adj. Flow (vph)	0	0	0	453	673	0	0	0	0	0	967	363
RTOR Reduction (vph)	0	0	0	190	48	0	0	0	0	0	8	199
Lane Group Flow (vph)	0	0	0	82	806	0	0	0	0	0	1028	95
Turn Type				Perm							Perm	
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)				27.0	27.0						29.0	29.0
Effective Green, g (s)				27.0	27.0						29.0	29.0
Actuated g/C Ratio				0.30	0.30						0.32	0.32
Clearance Time (s)				4.0	4.0						4.0	4.0
Lane Grp Cap (vph)				457	1427						1533	439
v/s Ratio Prot											c0.22	
v/s Ratio Perm				0.05	0.17							0.07
v/c Ratio				0.18	0.56						0.67	0.22
Uniform Delay, d1				23.3	26.5						26.4	22.2
Progression Factor				1.00	1.00						1.00	1.00
Incremental Delay, d2				0.9	1.6						2.4	1.1
Delay (s)				24.2	28.2						28.7	23.3
Level of Service				C	C						C	C
Approach Delay (s)	0.0				27.2			0.0			27.5	
Approach LOS	A				C			A			C	
Intersection Summary												
HCM Average Control Delay				27.4		HCM Level of Service					C	
HCM Volume to Capacity ratio				0.62								
Actuated Cycle Length (s)				90.0		Sum of lost time (s)					34.0	
Intersection Capacity Utilization				42.3%		ICU Level of Service					A	
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: 7th & Webster

2017 No Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	592	960	0	0	0	0	0	0	224	1091	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0									4.0
Lane Util. Factor		0.86	0.86									0.91
Fr _t		0.93	0.85									1.00
Flt Protected		1.00	1.00									0.99
Satd. Flow (prot)		4483	1362									5042
Flt Permitted		1.00	1.00									0.99
Satd. Flow (perm)		4483	1362									5042
Peak-hour factor, PHF	0.92	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.92
Adj. Flow (vph)	0	665	1079	0	0	0	0	0	0	252	1226	0
RTOR Reduction (vph)	0	3	3	0	0	0	0	0	0	0	52	0
Lane Group Flow (vph)	0	1202	536	0	0	0	0	0	0	0	1426	0
Turn Type			Perm								Perm	
Protected Phases		6									8	
Permitted Phases			6								8	
Actuated Green, G (s)	32.0	32.0									20.0	
Effective Green, g (s)	32.0	32.0									20.0	
Actuated g/C Ratio	0.53	0.53									0.33	
Clearance Time (s)		4.0	4.0								4.0	
Lane Grp Cap (vph)		2391	726								1681	
v/s Ratio Prot		0.27										
v/s Ratio Perm			c0.39								0.28	
v/c Ratio		0.50	0.74								0.85	
Uniform Delay, d1		8.9	10.8								18.6	
Progression Factor		1.00	1.00								1.00	
Incremental Delay, d2		0.8	6.6								5.5	
Delay (s)		9.7	17.4								24.1	
Level of Service		A	B								C	
Approach Delay (s)		12.1			0.0			0.0			24.1	
Approach LOS		B			A			A			C	
Intersection Summary												
HCM Average Control Delay		17.6		HCM Level of Service						B		
HCM Volume to Capacity ratio		0.78										
Actuated Cycle Length (s)		60.0		Sum of lost time (s)						8.0		
Intersection Capacity Utilization		71.9%		ICU Level of Service						C		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 7th & Harrison

2017 No Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	187	619	0	0	0	0	0	723	1582	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	2500	1900	1900	1900
Total Lost time (s)		5.0						5.0	5.0			
Lane Util. Factor		0.91						0.91	*1.00			
Fr _t		1.00						1.00	1.00			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5027						5085	4902			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5027						5085	4902			
Peak-hour factor, PHF	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	205	680	0	0	0	0	0	795	1738	0	0	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	334	0	0	0
Lane Group Flow (vph)	0	877	0	0	0	0	0	795	1404	0	0	0
Turn Type	Perm								Perm			
Protected Phases		6							4			
Permitted Phases	6									4		
Actuated Green, G (s)		34.0						16.0	16.0			
Effective Green, g (s)		34.0						16.0	16.0			
Actuated g/C Ratio		0.57						0.27	0.27			
Clearance Time (s)		5.0						5.0	5.0			
Lane Grp Cap (vph)		2849						1356	1307			
v/s Ratio Prot								0.16				
v/s Ratio Perm		0.17							c0.29			
v/c Ratio		0.31						0.59	1.07			
Uniform Delay, d1		6.8						19.1	22.0			
Progression Factor		0.63						1.00	1.00			
Incremental Delay, d2		0.2						1.9	47.5			
Delay (s)		4.5						21.0	69.5			
Level of Service		A						C	E			
Approach Delay (s)		4.5			0.0			54.3		0.0		
Approach LOS		A			A			D		A		
Intersection Summary												
HCM Average Control Delay		41.4						HCM Level of Service		D		
HCM Volume to Capacity ratio		0.55										
Actuated Cycle Length (s)		60.0						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		78.7%						ICU Level of Service		D		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4: 6th & Broadway

2017 No Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	210	132	688	129	298	0	0	762	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3539	1583	1770	3539			5051	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3539	1583	1770	3539			5051	
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	0	0	223	140	732	137	317	0	0	811	38
RTOR Reduction (vph)	0	0	0	0	0	277	0	0	0	0	7	0
Lane Group Flow (vph)	0	0	0	223	140	455	137	317	0	0	842	0
Turn Type				Perm		Perm		Prot				
Protected Phases					2		7	4			8	
Permitted Phases				2		2						
Actuated Green, G (s)				31.0	31.0	31.0	7.9	36.5			25.1	
Effective Green, g (s)				31.0	31.0	31.0	7.9	36.5			25.1	
Actuated g/C Ratio				0.41	0.41	0.41	0.11	0.49			0.33	
Clearance Time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				732	1463	654	186	1722			1690	
v/s Ratio Prot					0.04		c0.08	0.09			c0.17	
v/s Ratio Perm				0.13		c0.29						
v/c Ratio				0.30	0.10	0.70	0.74	0.18			0.50	
Uniform Delay, d1				14.8	13.4	18.1	32.5	10.9			19.9	
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2				1.1	0.1	6.0	12.3	0.2			1.1	
Delay (s)				15.8	13.6	24.1	44.8	11.1			21.0	
Level of Service				B	B	C	D	B			C	
Approach Delay (s)	0.0				21.1			21.3			21.0	
Approach LOS	A				C			C			C	
Intersection Summary												
HCM Average Control Delay	21.1			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.62											
Actuated Cycle Length (s)	75.0			Sum of lost time (s)				11.0				
Intersection Capacity Utilization	57.5%			ICU Level of Service				B				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2017 No Project

5: Broadway & 5th

PM Peak Hour

Movement	SEL2	SEL	SET	SER	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	25	1134	289	105	357	301	66	439	293	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	5.0	5.0	4.0	4.0	4.0	5.0	5.0
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85		1.00	1.00	1.00	1.00
Flt Protected	0.95	0.97	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1610	3281	1583	3539	1583		1770	1770	1863	
Flt Permitted	0.95	0.97	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	1610	3281	1583	3539	1583		1770	1770	1863	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	26	1194	304	111	376	317	69	462	308	403
RTOR Reduction (vph)	0	0	0	26	0	9	0	0	0	0
Lane Group Flow (vph)	0	611	913	85	376	377	0	462	308	403
Turn Type	Perm	Perm		Perm		Perm		Prot	Prot	
Protected Phases			6		4			3	3	8
Permitted Phases	6	6		6		4				
Actuated Green, G (s)	26.0	26.0	26.0	31.0	31.0		20.0	20.0	55.0	
Effective Green, g (s)	26.0	26.0	26.0	31.0	31.0		20.0	20.0	55.0	
Actuated g/C Ratio	0.29	0.29	0.29	0.34	0.34		0.22	0.22	0.61	
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0		4.0	4.0	5.0	
Vehicle Extension (s)	2.5	2.5	2.5	4.0	4.0		2.0	2.0	4.0	
Lane Grp Cap (vph)	465	948	457	1219	545		393	393	1139	
v/s Ratio Prot				0.11			c0.26	0.17	0.22	
v/s Ratio Perm	c0.38	0.28	0.05		c0.24					
v/c Ratio	1.31	1.25dl	0.19	0.31	0.69		1.18	0.78	0.35	
Uniform Delay, d1	32.0	31.5	24.0	21.6	25.4		35.0	33.0	8.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	156.0	21.6	0.9	0.7	7.1		102.6	9.1	0.9	
Delay (s)	188.0	53.1	24.9	22.3	32.5		137.6	42.1	9.5	
Level of Service	F	D	C	C	C		F	D	A	
Approach Delay (s)		101.6		27.5					68.5	
Approach LOS		F		C					E	
Intersection Summary										
HCM Average Control Delay	74.9				HCM Level of Service			E		
HCM Volume to Capacity ratio	1.03									
Actuated Cycle Length (s)	90.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization	89.3%				ICU Level of Service			E		
Analysis Period (min)	15									
dl Defacto Left Lane. Recode with 1 though lane as a left lane.										
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

6: 6th & Jackson

2017 No Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	8	317	41	333	233	0	0	202	1275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2300
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	4.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.97			1.00	1.00
Satd. Flow (prot)				1770	1863	1583		1810			1863	1917
Flt Permitted				0.95	1.00	1.00		0.70			1.00	1.00
Satd. Flow (perm)				1770	1863	1583		1313			1863	1917
Peak-hour factor, PHF	0.92	0.92	0.92	0.97	0.97	0.97	0.97	0.97	0.92	0.92	0.97	0.97
Adj. Flow (vph)	0	0	0	8	327	42	343	240	0	0	208	1314
RTOR Reduction (vph)	0	0	0	0	0	32	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	8	327	10	0	583	0	0	208	1314
Turn Type				Perm		Perm	Perm					Free
Protected Phases					2			4				8
Permitted Phases				2		2	4					Free
Actuated Green, G (s)				14.5	14.5	14.5		34.5			34.5	60.0
Effective Green, g (s)				14.5	14.5	14.5		34.5			34.5	60.0
Actuated g/C Ratio				0.24	0.24	0.24		0.58			0.58	1.00
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	
Lane Grp Cap (vph)				428	450	383		755			1071	1917
v/s Ratio Prot					0.18						0.11	
v/s Ratio Perm				0.00		0.01		0.44			c0.69	
v/c Ratio				0.02	0.73	0.03		0.77			0.19	0.69
Uniform Delay, d1				17.3	20.9	17.4		9.7			6.1	0.0
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.1	9.8	0.1		7.5			0.4	2.0
Delay (s)				17.4	30.8	17.5		17.3			6.5	2.0
Level of Service				B	C	B		B			A	A
Approach Delay (s)	0.0				29.0			17.3			2.6	
Approach LOS	A				C			B			A	
Intersection Summary												
HCM Average Control Delay	10.1				HCM Level of Service			B				
HCM Volume to Capacity ratio	0.69											
Actuated Cycle Length (s)	60.0				Sum of lost time (s)			0.0				
Intersection Capacity Utilization	89.9%				ICU Level of Service			E				
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

7: 5th & Jackson

2017 No Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	287	565	353	0	0	0	0	299	35	109	96	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5					4.5			4.5	
Lane Util. Factor		0.95	1.00					1.00			1.00	
Frt		1.00	0.85					0.99			1.00	
Flt Protected		0.98	1.00					1.00			0.97	
Satd. Flow (prot)		3481	1583					1836			1814	
Flt Permitted		0.98	1.00					1.00			0.62	
Satd. Flow (perm)		3481	1583					1836			1153	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.88	0.88	0.88	0.88	0.92
Adj. Flow (vph)	326	642	401	0	0	0	0	340	40	124	109	0
RTOR Reduction (vph)	0	0	236	0	0	0	0	7	0	0	0	0
Lane Group Flow (vph)	0	968	165	0	0	0	0	373	0	0	233	0
Turn Type	Perm		Perm							Perm		
Protected Phases		6						4			8	
Permitted Phases	6		6							8		
Actuated Green, G (s)	24.5	24.5						26.0			26.0	
Effective Green, g (s)	24.5	24.5						26.0			26.0	
Actuated g/C Ratio	0.41	0.41						0.44			0.44	
Clearance Time (s)	4.5	4.5						4.5			4.5	
Lane Grp Cap (vph)	1433	652						802			504	
v/s Ratio Prot								c0.20				
v/s Ratio Perm	0.28	0.10								0.20		
v/c Ratio	0.68	0.25						0.46			0.46	
Uniform Delay, d1	14.3	11.5						11.8			11.8	
Progression Factor	1.00	1.00						1.00			1.00	
Incremental Delay, d2	2.6	0.9						1.9			3.0	
Delay (s)	16.8	12.4						13.8			14.9	
Level of Service	B	B						B			B	
Approach Delay (s)	15.5			0.0				13.8			14.9	
Approach LOS	B			A				B			B	
Intersection Summary												
HCM Average Control Delay	15.1			HCM Level of Service				B				
HCM Volume to Capacity ratio	0.57											
Actuated Cycle Length (s)	59.5			Sum of lost time (s)				9.0				
Intersection Capacity Utilization	78.5%			ICU Level of Service				D				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Willie Stargell & Webster

2017 No Project

PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑↑	↑↑
Volume (vph)	397	172	98	658	1262	664
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.91	0.88
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	5085	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	5085	2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	414	179	102	685	1315	692
RTOR Reduction (vph)	0	129	0	0	0	472
Lane Group Flow (vph)	414	50	102	685	1315	220
Turn Type		Perm	Prot		Perm	
Protected Phases	4		5	2	6	
Permitted Phases		4			6	
Actuated Green, G (s)	13.6	13.6	6.2	25.7	15.5	15.5
Effective Green, g (s)	13.6	13.6	6.2	25.7	15.5	15.5
Actuated g/C Ratio	0.28	0.28	0.13	0.53	0.32	0.32
Clearance Time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	957	441	225	1864	1615	885
v/s Ratio Prot	c0.12		0.06	c0.19	c0.26	
v/s Ratio Perm		0.03			0.08	
v/c Ratio	0.43	0.11	0.45	0.37	0.81	0.25
Uniform Delay, d1	14.4	13.1	19.7	6.8	15.3	12.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	6.5	0.6	3.3	0.1
Delay (s)	14.8	13.2	26.2	7.3	18.6	12.5
Level of Service	B	B	C	A	B	B
Approach Delay (s)	14.3			9.8	16.5	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay	14.5		HCM Level of Service		B	
HCM Volume to Capacity ratio	0.62					
Actuated Cycle Length (s)	48.8		Sum of lost time (s)		14.5	
Intersection Capacity Utilization	52.4%		ICU Level of Service		A	
Analysis Period (min)	15					
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

9: W Midway & Main

2017 No Project

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	148	65	28	111	83	40	102	13	95	181	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5			3.5		
Lane Util. Factor	1.00	1.00		1.00	1.00		0.95			0.95		
Fr _t	1.00	0.85		1.00	0.85		0.99			0.99		
Flt Protected	1.00	1.00		0.99	1.00		0.99			0.98		
Satd. Flow (prot)	1854	1583		1844	1583		3451			3459		
Flt Permitted	0.95	1.00		0.89	1.00		0.80			0.79		
Satd. Flow (perm)	1776	1583		1660	1583		2797			2776		
Peak-hour factor, PHF	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Adj. Flow (vph)	25	231	102	44	173	130	62	159	20	148	283	20
RTOR Reduction (vph)	0	0	67	0	0	86	0	13	0	0	9	0
Lane Group Flow (vph)	0	256	35	0	217	44	0	228	0	0	442	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	7.5	7.5		7.5	7.5		7.6			7.6		
Effective Green, g (s)	7.5	7.5		7.5	7.5		7.6			7.6		
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.34			0.34		
Clearance Time (s)	3.5	3.5		3.5	3.5		3.5			3.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0			3.0		
Lane Grp Cap (vph)	603	537		563	537		962			955		
v/s Ratio Prot												
v/s Ratio Perm	c0.14	0.02		0.13	0.03		0.08			c0.16		
v/c Ratio	0.42	0.06		0.39	0.08		0.24			0.46		
Uniform Delay, d1	5.6	4.9		5.5	5.0		5.2			5.7		
Progression Factor	1.00	1.00		1.00	1.00		1.00			1.00		
Incremental Delay, d2	0.5	0.1		0.4	0.1		0.1			0.4		
Delay (s)	6.1	5.0		6.0	5.0		5.3			6.0		
Level of Service	A	A		A	A		A			A		
Approach Delay (s)	5.8			5.6			5.3			6.0		
Approach LOS	A			A			A			A		
Intersection Summary												
HCM Average Control Delay	5.7				HCM Level of Service					A		
HCM Volume to Capacity ratio	0.44											
Actuated Cycle Length (s)	22.1				Sum of lost time (s)					7.0		
Intersection Capacity Utilization	42.0%				ICU Level of Service					A		
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Atlantic & Main

2017 No Project

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	127	81	38	199	64	94	94	19	81	184	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	0.95	1.00		0.95	1.00		1.00	0.95		0.91	0.91	
Fr _t	1.00	0.85		1.00	0.85		1.00	0.97		1.00	0.99	
Flt Protected	1.00	1.00		0.99	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3536	1583		3511	1583		1770	3449		1610	3344	
Flt Permitted	0.95	1.00		0.88	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3358	1583		3127	1583		1770	3449		1610	3344	
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	3	172	109	51	269	86	127	127	26	109	249	22
RTOR Reduction (vph)	0	0	81	0	0	64	0	20	0	0	8	0
Lane Group Flow (vph)	0	175	28	0	320	22	127	133	0	98	274	0
Turn Type	Perm		Perm	Perm		Perm	Split		Split		Split	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	11.7	11.7		11.7	11.7	10.0	10.0		10.6	10.6		
Effective Green, g (s)	11.7	11.7		11.7	11.7	10.0	10.0		10.6	10.6		
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.22	0.22		0.23	0.23		
Clearance Time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	849	400		790	400	382	745		369	766		
v/s Ratio Prot						c0.07	0.04		0.06	c0.08		
v/s Ratio Perm	0.05	0.02		c0.10	0.01							
v/c Ratio	0.21	0.07		0.41	0.05	0.33	0.18		0.27	0.36		
Uniform Delay, d1	13.6	13.2		14.4	13.1	15.3	14.8		14.7	15.0		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.1	0.1		0.3	0.1	0.5	0.1		0.4	0.3		
Delay (s)	13.8	13.2		14.7	13.2	15.8	14.9		15.0	15.3		
Level of Service	B	B		B	B	B	B		B	B		
Approach Delay (s)	13.6			14.4			15.3			15.2		
Approach LOS	B			B			B			B		
Intersection Summary												
HCM Average Control Delay	14.7				HCM Level of Service				B			
HCM Volume to Capacity ratio	0.37											
Actuated Cycle Length (s)	46.3				Sum of lost time (s)				14.0			
Intersection Capacity Utilization	35.7%				ICU Level of Service				A			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

2017 No Project

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑		↑	↑↑		↑	↑↑	↑
Volume (vph)	185	172	84	98	305	66	136	509	88	177	843	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Fr _t	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3445		1770	3461		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3445		1770	3461		1770	3539	1583
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
Adj. Flow (vph)	201	187	91	107	332	72	148	553	96	192	916	446
RTOR Reduction (vph)	0	0	73	0	21	0	0	12	0	0	0	173
Lane Group Flow (vph)	201	187	18	107	383	0	148	637	0	192	916	273
Turn Type	Prot		Perm	Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	8.3	16.0	16.0	8.3	16.0		11.9	24.8		13.7	26.6	34.9
Effective Green, g (s)	8.3	16.0	16.0	8.3	16.0		11.9	24.8		13.7	26.6	34.9
Actuated g/C Ratio	0.10	0.20	0.20	0.10	0.20		0.15	0.31		0.17	0.33	0.44
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0
Lane Grp Cap (vph)	357	710	317	184	691		264	1076		304	1180	772
v/s Ratio Prot	0.06	0.05		c0.06	c0.11		0.08	0.18		c0.11	c0.26	0.04
v/s Ratio Perm			0.01									0.14
v/c Ratio	0.56	0.26	0.06	0.58	0.55		0.56	0.59		0.63	0.78	0.35
Uniform Delay, d1	34.0	26.9	25.8	34.1	28.7		31.5	23.2		30.7	23.9	14.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.0	0.1	0.0	4.6	0.5		2.7	0.6		4.2	3.0	0.3
Delay (s)	36.1	27.0	25.8	38.7	29.2		34.2	23.8		34.9	26.9	15.2
Level of Service	D	C	C	D	C		C	C		C	C	B
Approach Delay (s)		30.6			31.2			25.7			24.5	
Approach LOS		C			C			C			C	

Intersection Summary												
HCM Average Control Delay	26.7	HCM Level of Service									C	
HCM Volume to Capacity ratio	0.64											
Actuated Cycle Length (s)	79.8	Sum of lost time (s)									13.0	
Intersection Capacity Utilization	60.8%	ICU Level of Service									B	
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1: 8th & Webster

2017 No Project

Saturday Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	334	593	0	0	0	0	0	597	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	4.0
Lane Util. Factor				0.86	0.86						0.86	0.86
Frt				1.00	1.00						0.99	0.85
Flt Protected				0.95	0.99						1.00	1.00
Satd. Flow (prot)				1522	4769						4736	1362
Flt Permitted				0.95	0.99						1.00	1.00
Satd. Flow (perm)				1522	4769						4736	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92	0.95	0.95	
Adj. Flow (vph)	0	0	0	352	624	0	0	0	0	0	628	266
RTOR Reduction (vph)	0	0	0	165	27	0	0	0	0	0	14	135
Lane Group Flow (vph)	0	0	0	71	713	0	0	0	0	0	681	64
Turn Type				Perm							Perm	
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)				27.0	27.0						29.0	29.0
Effective Green, g (s)				27.0	27.0						29.0	29.0
Actuated g/C Ratio				0.30	0.30						0.32	0.32
Clearance Time (s)				4.0	4.0						4.0	4.0
Lane Grp Cap (vph)				457	1431						1526	439
v/s Ratio Prot											c0.14	
v/s Ratio Perm				0.05	0.15							0.05
v/c Ratio				0.15	0.50						0.45	0.15
Uniform Delay, d1				23.1	25.9						24.1	21.7
Progression Factor				1.00	1.00						1.00	1.00
Incremental Delay, d2				0.7	1.2						0.9	0.7
Delay (s)				23.8	27.2						25.1	22.4
Level of Service				C	C						C	C
Approach Delay (s)	0.0				26.4			0.0			24.5	
Approach LOS	A				C			A			C	
Intersection Summary												
HCM Average Control Delay				25.5	HCM Level of Service					C		
HCM Volume to Capacity ratio				0.47								
Actuated Cycle Length (s)				90.0	Sum of lost time (s)					34.0		
Intersection Capacity Utilization				42.3%	ICU Level of Service					A		
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: 7th & Webster

2017 No Project

Saturday Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	424	635	0	0	0	0	0	0	174	804	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0								4.0	
Lane Util. Factor	0.86	0.86									0.91	
Fr _t	0.94	0.85									1.00	
Flt Protected	1.00	1.00									0.99	
Satd. Flow (prot)	4497	1362									5041	
Flt Permitted	1.00	1.00									0.99	
Satd. Flow (perm)	4497	1362									5041	
Peak-hour factor, PHF	0.92	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.92
Adj. Flow (vph)	0	466	698	0	0	0	0	0	0	191	884	0
RTOR Reduction (vph)	0	57	57	0	0	0	0	0	0	0	75	0
Lane Group Flow (vph)	0	758	292	0	0	0	0	0	0	0	1000	0
Turn Type			Perm								Perm	
Protected Phases		6									8	
Permitted Phases			6								8	
Actuated Green, G (s)	16.0	16.0									21.0	
Effective Green, g (s)	16.0	16.0									21.0	
Actuated g/C Ratio	0.36	0.36									0.47	
Clearance Time (s)	4.0	4.0									4.0	
Lane Grp Cap (vph)	1599	484									2352	
v/s Ratio Prot	0.17											
v/s Ratio Perm		c0.21									0.20	
v/c Ratio	0.47	0.60									0.43	
Uniform Delay, d1	11.2	11.9									8.0	
Progression Factor	1.00	1.00									0.57	
Incremental Delay, d2	1.0	5.5									0.5	
Delay (s)	12.3	17.4									5.1	
Level of Service	B	B									A	
Approach Delay (s)	13.8		0.0				0.0				5.1	
Approach LOS	B		A				A				A	
Intersection Summary												
HCM Average Control Delay	9.6			HCM Level of Service							A	
HCM Volume to Capacity ratio	0.50											
Actuated Cycle Length (s)	45.0			Sum of lost time (s)							8.0	
Intersection Capacity Utilization	51.9%			ICU Level of Service							A	
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 7th & Harrison

2017 No Project

Saturday Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	129	442	0	0	0	0	0	812	1545	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	2500	1900	1900	1900
Total Lost time (s)		5.0						5.0	5.0			
Lane Util. Factor		0.91						0.91	*1.00			
Fr _t		1.00						1.00	1.00			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5029						5085	4902			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5029						5085	4902			
Peak-hour factor, PHF	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	145	497	0	0	0	0	0	912	1736	0	0	0
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	268	0	0	0
Lane Group Flow (vph)	0	617	0	0	0	0	0	912	1468	0	0	0
Turn Type	Perm								Perm			
Protected Phases		6							4			
Permitted Phases	6									4		
Actuated Green, G (s)		18.0						17.0	17.0			
Effective Green, g (s)		18.0						17.0	17.0			
Actuated g/C Ratio		0.40						0.38	0.38			
Clearance Time (s)		5.0						5.0	5.0			
Lane Grp Cap (vph)		2012						1921	1852			
v/s Ratio Prot								0.18				
v/s Ratio Perm		0.12							c0.30			
v/c Ratio		0.31						0.47	0.79			
Uniform Delay, d1		9.2						10.6	12.4			
Progression Factor		0.81						1.00	1.00			
Incremental Delay, d2		0.4						0.8	3.6			
Delay (s)		7.8						11.5	16.0			
Level of Service		A						B	B			
Approach Delay (s)		7.8			0.0			14.4		0.0		
Approach LOS		A			A			B		A		
Intersection Summary												
HCM Average Control Delay		13.2						HCM Level of Service		B		
HCM Volume to Capacity ratio		0.54										
Actuated Cycle Length (s)		45.0						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		64.4%						ICU Level of Service		C		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4: 6th & Broadway

2017 No Project

Saturday Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	235	151	586	85	228	0	0	492	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3539	1583	1770	3539			5030	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3539	1583	1770	3539			5030	
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
Adj. Flow (vph)	0	0	0	255	164	637	92	248	0	0	535	42
RTOR Reduction (vph)	0	0	0	0	0	333	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	255	164	304	92	248	0	0	566	0
Turn Type				Perm		Perm		Prot				
Protected Phases					2		7	4			8	
Permitted Phases				2		2						
Actuated Green, G (s)				31.0	31.0	31.0	7.1	36.5			25.9	
Effective Green, g (s)				31.0	31.0	31.0	7.1	36.5			25.9	
Actuated g/C Ratio				0.41	0.41	0.41	0.09	0.49			0.35	
Clearance Time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				732	1463	654	168	1722			1737	
v/s Ratio Prot					0.05		c0.05	0.07			c0.11	
v/s Ratio Perm				0.14		c0.19						
v/c Ratio				0.35	0.11	0.47	0.55	0.14			0.33	
Uniform Delay, d1				15.1	13.5	16.0	32.4	10.6			18.1	
Progression Factor				1.00	1.00	1.00	1.41	0.61			1.00	
Incremental Delay, d2				1.3	0.2	2.4	1.9	0.2			0.5	
Delay (s)				16.4	13.7	18.4	47.8	6.7			18.6	
Level of Service				B	B	B	D	A			B	
Approach Delay (s)	0.0				17.2			17.8			18.6	
Approach LOS	A				B			B			B	
Intersection Summary												
HCM Average Control Delay	17.7			HCM Level of Service				B				
HCM Volume to Capacity ratio	0.42											
Actuated Cycle Length (s)	75.0			Sum of lost time (s)				11.0				
Intersection Capacity Utilization	49.3%			ICU Level of Service				A				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Broadway & 5th

2017 No Project

Saturday Peak Hour of Generator

Movement	SEL2	SEL	SET	SER	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	24	647	152	67	194	170	45	275	161	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	3.5	3.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00
Satd. Flow (prot)	1610	3277	1583	3539	1583	1770	1770	1770	1863	1863
Flt Permitted	0.95	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00
Satd. Flow (perm)	1610	3277	1583	3539	1583	1770	1770	1770	1863	1863
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	26	688	162	71	206	181	48	293	171	248
RTOR Reduction (vph)	0	0	0	36	0	12	0	0	0	0
Lane Group Flow (vph)	0	356	520	35	206	217	0	293	171	248
Turn Type	Perm	Perm		Perm		Perm		Prot	Prot	
Protected Phases			6		4			3	3	8
Permitted Phases	6	6		6		4				
Actuated Green, G (s)	22.5	22.5	22.5	24.0	24.0		15.0	15.0	42.5	
Effective Green, g (s)	22.5	22.5	22.5	24.0	24.0		15.0	15.0	42.5	
Actuated g/C Ratio	0.30	0.30	0.30	0.32	0.32		0.20	0.20	0.57	
Clearance Time (s)	5.5	5.5	5.5	3.5	3.5		4.5	4.5	4.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)	483	983	475	1132	507		354	354	1056	
v/s Ratio Prot				0.06			c0.17	0.10	0.13	
v/s Ratio Perm	c0.22	0.16	0.02		c0.14					
v/c Ratio	0.74	0.53	0.07	0.18	0.43		0.83	0.48	0.23	
Uniform Delay, d1	23.6	21.8	18.8	18.4	20.1		28.8	26.6	8.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.42	1.44	0.85	
Incremental Delay, d2	9.7	2.0	0.3	0.4	2.6		13.5	0.4	0.5	
Delay (s)	33.2	23.9	19.1	18.8	22.7		54.4	38.6	7.4	
Level of Service	C	C	B	B	C		D	D	A	
Approach Delay (s)		27.0		20.8					34.2	
Approach LOS		C		C					C	
Intersection Summary										
HCM Average Control Delay	28.2			HCM Level of Service			C			
HCM Volume to Capacity ratio	0.64									
Actuated Cycle Length (s)	75.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization	58.1%			ICU Level of Service			B			
Analysis Period (min)	15									
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

6: 6th & Jackson

2017 No Project

Saturday Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	9	284	46	249	243	0	0	160	1267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2300
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	4.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1770	1863	1583		1817			1863	1917
Flt Permitted				0.95	1.00	1.00		0.75			1.00	1.00
Satd. Flow (perm)				1770	1863	1583		1406			1863	1917
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	9	299	48	262	256	0	0	168	1334
RTOR Reduction (vph)	0	0	0	0	0	30	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	9	299	18	0	518	0	0	168	1334
Turn Type				Perm		Perm	Perm					Free
Protected Phases					2			4				8
Permitted Phases				2		2	4					Free
Actuated Green, G (s)				16.5	16.5	16.5		17.5			17.5	45.0
Effective Green, g (s)				16.5	16.5	16.5		17.5			17.5	45.0
Actuated g/C Ratio				0.37	0.37	0.37		0.39			0.39	1.00
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	
Lane Grp Cap (vph)				649	683	580		547			725	1917
v/s Ratio Prot					0.16						0.09	
v/s Ratio Perm				0.01		0.01		c0.37			c0.70	
v/c Ratio				0.01	0.44	0.03		0.95			0.23	0.70
Uniform Delay, d1				9.1	10.8	9.1		13.3			9.2	0.0
Progression Factor				1.00	1.00	1.00		1.34			1.00	1.00
Incremental Delay, d2				0.0	2.0	0.1		26.5			0.7	2.1
Delay (s)				9.1	12.8	9.2		44.3			10.0	2.1
Level of Service				A	B	A		D			A	A
Approach Delay (s)	0.0				12.2			44.3			3.0	
Approach LOS	A				B			D			A	
Intersection Summary												
HCM Average Control Delay	13.4				HCM Level of Service			B				
HCM Volume to Capacity ratio	0.81											
Actuated Cycle Length (s)	45.0				Sum of lost time (s)			5.5				
Intersection Capacity Utilization	69.8%				ICU Level of Service			C				
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

7: 5th & Jackson

2017 No Project

Saturday Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	201	383	305	0	0	0	0	181	25	65	59	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5					4.5			4.5	
Lane Util. Factor		0.95	1.00					1.00			1.00	
Frt		1.00	0.85					0.98			1.00	
Flt Protected		0.98	1.00					1.00			0.97	
Satd. Flow (prot)		3479	1583					1832			1815	
Flt Permitted		0.98	1.00					1.00			0.79	
Satd. Flow (perm)		3479	1583					1832			1478	
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.92
Adj. Flow (vph)	216	412	328	0	0	0	0	195	27	70	63	0
RTOR Reduction (vph)	0	0	237	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	628	91	0	0	0	0	211	0	0	133	0
Turn Type	Perm		Perm							Perm		
Protected Phases		6						4			8	
Permitted Phases	6		6							8		
Actuated Green, G (s)	12.5	12.5						23.5			23.5	
Effective Green, g (s)	12.5	12.5						23.5			23.5	
Actuated g/C Ratio	0.28	0.28						0.52			0.52	
Clearance Time (s)	4.5	4.5						4.5			4.5	
Lane Grp Cap (vph)	966	440						957			772	
v/s Ratio Prot								c0.12				
v/s Ratio Perm	0.18	0.06									0.09	
v/c Ratio	0.65	0.21						0.22			0.17	
Uniform Delay, d1	14.3	12.5						5.8			5.6	
Progression Factor	1.00	1.00						1.00			0.93	
Incremental Delay, d2	3.4	1.1						0.5			0.5	
Delay (s)	17.7	13.5						6.3			5.7	
Level of Service	B	B						A			A	
Approach Delay (s)	16.3			0.0				6.3			5.7	
Approach LOS	B			A				A			A	
Intersection Summary												
HCM Average Control Delay		13.5		HCM Level of Service				B				
HCM Volume to Capacity ratio		0.37										
Actuated Cycle Length (s)		45.0		Sum of lost time (s)				9.0				
Intersection Capacity Utilization		66.8%		ICU Level of Service				C				
Analysis Period (min)		15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: Willie Stargell & Webster

2017 No Project

Saturday Peak Hour of Generator



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑↑	↑↑
Volume (vph)	379	104	76	792	870	482
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.91	0.88
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	5085	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	5085	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	399	109	80	834	916	507
RTOR Reduction (vph)	0	79	0	0	0	345
Lane Group Flow (vph)	399	30	80	834	916	162
Turn Type		Perm	Prot		Perm	
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	13.2	13.2	6.2	25.7	15.5	15.5
Effective Green, g (s)	13.2	13.2	6.2	25.7	15.5	15.5
Actuated g/C Ratio	0.27	0.27	0.13	0.53	0.32	0.32
Clearance Time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	936	432	227	1879	1628	893
v/s Ratio Prot	c0.12		0.05	c0.24	c0.18	
v/s Ratio Perm		0.02			0.06	
v/c Ratio	0.43	0.07	0.35	0.44	0.56	0.18
Uniform Delay, d1	14.5	13.0	19.3	7.0	13.6	11.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	4.3	0.8	0.4	0.1
Delay (s)	14.8	13.1	23.5	7.7	14.1	12.0
Level of Service	B	B	C	A	B	B
Approach Delay (s)	14.4			9.1	13.3	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay	12.2		HCM Level of Service		B	
HCM Volume to Capacity ratio	0.52					
Actuated Cycle Length (s)	48.4		Sum of lost time (s)		14.5	
Intersection Capacity Utilization	43.1%		ICU Level of Service		A	
Analysis Period (min)	15					
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

9: W Midway & Main

2017 No Project

Saturday Peak Hour of Generator

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	108	49	30	109	75	56	138	23	69	117	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5				3.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		0.95				0.95	
Fr _t	1.00	0.85		1.00	0.85		0.98				0.99	
Flt Protected	0.99	1.00		0.99	1.00		0.99				0.98	
Satd. Flow (prot)	1851	1583		1843	1583		3439				3448	
Flt Permitted	0.94	1.00		0.90	1.00		0.81				0.77	
Satd. Flow (perm)	1752	1583		1669	1583		2835				2695	
Peak-hour factor, PHF	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Adj. Flow (vph)	22	157	71	43	158	109	81	200	33	100	170	17
RTOR Reduction (vph)	0	0	48	0	0	73	0	23	0	0	12	0
Lane Group Flow (vph)	0	179	23	0	201	36	0	291	0	0	275	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	6.4	6.4		6.4	6.4		6.0				6.0	
Effective Green, g (s)	6.4	6.4		6.4	6.4		6.0				6.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.31				0.31	
Clearance Time (s)	3.5	3.5		3.5	3.5		3.5				3.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0				3.0	
Lane Grp Cap (vph)	578	522		551	522		877				834	
v/s Ratio Prot												
v/s Ratio Perm	0.10	0.01		c0.12	0.02		c0.10				0.10	
v/c Ratio	0.31	0.04		0.36	0.07		0.33				0.33	
Uniform Delay, d1	4.9	4.4		5.0	4.5		5.2				5.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00				1.00	
Incremental Delay, d2	0.3	0.0		0.4	0.1		0.2				0.2	
Delay (s)	5.2	4.5		5.4	4.5		5.4				5.4	
Level of Service	A	A		A	A		A				A	
Approach Delay (s)	5.0			5.1			5.4				5.4	
Approach LOS	A			A			A				A	
Intersection Summary												
HCM Average Control Delay	5.2				HCM Level of Service						A	
HCM Volume to Capacity ratio	0.35											
Actuated Cycle Length (s)	19.4				Sum of lost time (s)						7.0	
Intersection Capacity Utilization	35.9%				ICU Level of Service						A	
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Atlantic & Main

2017 No Project

Saturday Peak Hour of Generator

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	143	95	76	213	125	129	214	61	102	205	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	0.95	1.00			0.95	1.00	1.00	0.95		0.91	0.91	
Fr _t	1.00	0.85			1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	1.00	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3525	1583			3493	1583	1770	3422		1610	3334	
Flt Permitted	0.91	1.00			0.82	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3237	1583			2903	1583	1770	3422		1610	3334	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	16	181	120	96	270	158	163	271	77	129	259	29
RTOR Reduction (vph)	0	0	88	0	0	116	0	35	0	0	10	0
Lane Group Flow (vph)	0	197	32	0	366	42	163	313	0	116	291	0
Turn Type	Perm		Perm		Perm		Perm	Split		Split		
Protected Phases		4				8		2	2		6	6
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	13.3	13.3		13.3	13.3	11.5	11.5			11.1	11.1	
Effective Green, g (s)	13.3	13.3		13.3	13.3	11.5	11.5			11.1	11.1	
Actuated g/C Ratio	0.27	0.27		0.27	0.27	0.23	0.23			0.22	0.22	
Clearance Time (s)	4.0	4.0		4.0	4.0	5.0	5.0			5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	863	422		774	422	408	789			358	742	
v/s Ratio Prot						c0.09	0.09			0.07	c0.09	
v/s Ratio Perm	0.06	0.02		c0.13	0.03							
v/c Ratio	0.23	0.08		0.47	0.10	0.40	0.40			0.32	0.39	
Uniform Delay, d1	14.3	13.7		15.4	13.8	16.3	16.3			16.3	16.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2	0.1	0.1		0.5	0.1	0.6	0.3			0.5	0.3	
Delay (s)	14.4	13.8		15.8	13.9	16.9	16.6			16.8	16.9	
Level of Service	B	B		B	B	B	B			B	B	
Approach Delay (s)	14.2			15.2			16.7			16.8		
Approach LOS	B			B			B			B		
Intersection Summary												
HCM Average Control Delay	15.8				HCM Level of Service					B		
HCM Volume to Capacity ratio	0.42											
Actuated Cycle Length (s)	49.9				Sum of lost time (s)					14.0		
Intersection Capacity Utilization	41.5%				ICU Level of Service					A		
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

2017 No Project

Saturday Peak Hour of Generator

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑		↑↑	↑↑		↑	↑↑	↑
Volume (vph)	233	174	80	57	256	59	106	669	71	114	615	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Fr _t	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3440		1770	3488		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3440		1770	3488		1770	3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	243	181	83	59	267	61	110	697	74	119	641	360
RTOR Reduction (vph)	0	0	59	0	21	0	0	7	0	0	0	208
Lane Group Flow (vph)	243	181	24	59	307	0	110	764	0	119	641	152
Turn Type	Prot		Perm	Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	8.8	20.6	20.6	4.2	16.0		8.2	21.0		8.4	21.2	30.0
Effective Green, g (s)	8.8	20.6	20.6	4.2	16.0		8.2	21.0		8.4	21.2	30.0
Actuated g/C Ratio	0.12	0.29	0.29	0.06	0.22		0.12	0.29		0.12	0.30	0.42
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0
Lane Grp Cap (vph)	424	1024	458	104	773		204	1029		209	1054	756
v/s Ratio Prot	c0.07	0.05		0.03	c0.09		0.06	c0.22		c0.07	0.18	0.02
v/s Ratio Perm			0.02									0.07
v/c Ratio	0.57	0.18	0.05	0.57	0.40		0.54	0.74		0.57	0.61	0.20
Uniform Delay, d1	29.4	18.9	18.3	32.6	23.5		29.7	22.7		29.7	21.4	13.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.9	0.0	0.0	6.9	0.1		2.7	2.6		3.5	0.7	0.1
Delay (s)	31.3	19.0	18.3	39.5	23.6		32.4	25.2		33.2	22.1	13.2
Level of Service	C	B	B	D	C		C	C		C	C	B
Approach Delay (s)		24.8			26.0			26.1			20.4	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay		23.7				HCM Level of Service				C		
HCM Volume to Capacity ratio		0.59										
Actuated Cycle Length (s)		71.2				Sum of lost time (s)				17.0		
Intersection Capacity Utilization		56.8%				ICU Level of Service				B		
Analysis Period (min)		15										
c Critical Lane Group												

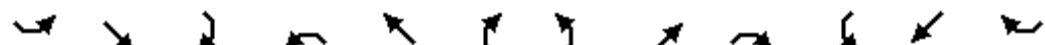
2017 plus Alternative 1 & 2 Project Conditions

HCM Signalized Intersection Capacity Analysis

2017 Plus Project

1: 8th & Webster

AM Peak Hour



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	341	700	0	0	0	0	0	489	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	4.0
Lane Util. Factor				0.86	0.86						0.86	0.86
Frt				1.00	1.00						0.98	0.85
Flt Protected				0.95	0.99						1.00	1.00
Satd. Flow (prot)				1522	4779						4720	1362
Flt Permitted				0.95	0.99						1.00	1.00
Satd. Flow (perm)				1522	4779						4720	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.93	0.93
Adj. Flow (vph)	0	0	0	367	753	0	0	0	0	0	526	244
RTOR Reduction (vph)	0	0	0	190	16	0	0	0	0	0	18	117
Lane Group Flow (vph)	0	0	0	82	832	0	0	0	0	0	579	56
Turn Type				Perm							Perm	
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)				27.0	27.0						29.0	29.0
Effective Green, g (s)				27.0	27.0						29.0	29.0
Actuated g/C Ratio				0.30	0.30						0.32	0.32
Clearance Time (s)				4.0	4.0						4.0	4.0
Lane Grp Cap (vph)				457	1434						1521	439
v/s Ratio Prot											c0.12	
v/s Ratio Perm				0.05	0.17							0.04
v/c Ratio				0.18	0.58						0.38	0.13
Uniform Delay, d1				23.3	26.7						23.6	21.6
Progression Factor				1.00	1.00						1.00	1.00
Incremental Delay, d2				0.9	1.7						0.7	0.6
Delay (s)				24.2	28.4						24.3	22.1
Level of Service				C	C						C	C
Approach Delay (s)	0.0				27.4			0.0			23.8	
Approach LOS	A				C			A			C	

Intersection Summary

HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	34.0
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: 7th & Webster

2017 Plus Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	303	381	0	0	0	0	0	0	144	676	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0									4.0
Lane Util. Factor		0.86	0.86									0.91
Fr _t		0.94	0.85									1.00
Flt Protected		1.00	1.00									0.99
Satd. Flow (prot)		4527	1362									5041
Flt Permitted		1.00	1.00									0.99
Satd. Flow (perm)		4527	1362									5041
Peak-hour factor, PHF	0.92	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.92
Adj. Flow (vph)	0	344	433	0	0	0	0	0	0	164	768	0
RTOR Reduction (vph)	0	45	45	0	0	0	0	0	0	0	56	0
Lane Group Flow (vph)	0	516	171	0	0	0	0	0	0	0	876	0
Turn Type				Perm								Perm
Protected Phases			6									8
Permitted Phases				6								8
Actuated Green, G (s)	28.0	28.0										24.0
Effective Green, g (s)	28.0	28.0										24.0
Actuated g/C Ratio	0.47	0.47										0.40
Clearance Time (s)		4.0	4.0									4.0
Lane Grp Cap (vph)	2113	636										2016
v/s Ratio Prot		0.11										
v/s Ratio Perm			c0.13									0.17
v/c Ratio		0.24	0.27									0.43
Uniform Delay, d1	9.6	9.8										13.1
Progression Factor	1.00	1.00										1.00
Incremental Delay, d2	0.3	1.0										0.7
Delay (s)	9.9	10.8										13.8
Level of Service	A	B										B
Approach Delay (s)	10.2			0.0			0.0					13.8
Approach LOS	B			A			A					B
Intersection Summary												
HCM Average Control Delay	12.1			HCM Level of Service						B		
HCM Volume to Capacity ratio	0.35											
Actuated Cycle Length (s)	60.0			Sum of lost time (s)						8.0		
Intersection Capacity Utilization	50.0%			ICU Level of Service						A		
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 7th & Harrison

2017 Plus Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	92	340	0	0	0	0	0	1058	1795	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	2500	1900	1900	1900
Total Lost time (s)		5.0						5.0	5.0			
Lane Util. Factor		0.91						0.91	*1.00			
Fr _t		1.00						1.00	1.00			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5032						5085	4902			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5032						5085	4902			
Peak-hour factor, PHF	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.97	0.97	0.92	0.92	0.92
Adj. Flow (vph)	95	351	0	0	0	0	0	1091	1851	0	0	0
RTOR Reduction (vph)	0	13	0	0	0	0	0	0	491	0	0	0
Lane Group Flow (vph)	0	433	0	0	0	0	0	1091	1360	0	0	0
Turn Type	Perm								Perm			
Protected Phases		6							4			
Permitted Phases	6									4		
Actuated Green, G (s)		27.0						23.0	23.0			
Effective Green, g (s)		27.0						23.0	23.0			
Actuated g/C Ratio		0.45						0.38	0.38			
Clearance Time (s)		5.0						5.0	5.0			
Lane Grp Cap (vph)		2264						1949	1879			
v/s Ratio Prot								0.21				
v/s Ratio Perm		0.09							c0.28			
v/c Ratio		0.19						0.56	0.72			
Uniform Delay, d1		9.9						14.5	15.8			
Progression Factor		0.93						1.00	1.00			
Incremental Delay, d2		0.2						1.2	2.5			
Delay (s)		9.4						15.7	18.2			
Level of Service		A						B	B			
Approach Delay (s)		9.4			0.0			17.3		0.0		
Approach LOS		A			A			B		A		
Intersection Summary												
HCM Average Control Delay		16.3						HCM Level of Service		B		
HCM Volume to Capacity ratio		0.44										
Actuated Cycle Length (s)		60.0						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		78.6%						ICU Level of Service		D		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4: 6th & Broadway

2017 Plus Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	345	213	655	66	225	0	0	365	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.98	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3539	1583	1770	3539			4988	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3539	1583	1770	3539			4988	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	363	224	689	69	237	0	0	384	56
RTOR Reduction (vph)	0	0	0	0	0	343	0	0	0	0	24	0
Lane Group Flow (vph)	0	0	0	363	224	346	69	237	0	0	416	0
Turn Type				Perm		Perm		Prot				
Protected Phases					2		7	4			8	
Permitted Phases				2		2						
Actuated Green, G (s)				31.0	31.0	31.0	6.5	36.5			26.5	
Effective Green, g (s)				31.0	31.0	31.0	6.5	36.5			26.5	
Actuated g/C Ratio				0.41	0.41	0.41	0.09	0.49			0.35	
Clearance Time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				732	1463	654	153	1722			1762	
v/s Ratio Prot					0.06		c0.04	0.07			c0.08	
v/s Ratio Perm				0.21		c0.22						
v/c Ratio				0.50	0.15	0.53	0.45	0.14			0.24	
Uniform Delay, d1				16.2	13.8	16.5	32.6	10.6			17.1	
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2				2.4	0.2	3.0	0.8	0.2			0.3	
Delay (s)				18.6	14.0	19.6	33.3	10.8			17.4	
Level of Service				B	B	B	C	B			B	
Approach Delay (s)	0.0				18.3			15.8			17.4	
Approach LOS	A				B			B			B	
Intersection Summary												
HCM Average Control Delay	17.8			HCM Level of Service				B				
HCM Volume to Capacity ratio	0.40											
Actuated Cycle Length (s)	75.0			Sum of lost time (s)				11.0				
Intersection Capacity Utilization	53.4%			ICU Level of Service				A				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Broadway & 5th

2017 Plus Project

AM Peak Hour

Movement	SEL2	SEL	SET	SER	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	42	695	134	81	182	174	60	344	154	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	5.0	5.0	4.0	4.0	4.0	5.0	5.0
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85		1.00	1.00	1.00	1.00
Flt Protected	0.95	0.96	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1610	3270	1583	3539	1583		1770	1770	1863	
Flt Permitted	0.95	0.96	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	1610	3270	1583	3539	1583		1770	1770	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	46	755	146	88	198	189	65	374	167	288
RTOR Reduction (vph)	0	0	0	36	0	14	0	0	0	0
Lane Group Flow (vph)	0	401	546	52	198	240	0	374	167	288
Turn Type	Perm	Perm		Perm		Perm		Prot	Prot	
Protected Phases			6		4			3	3	8
Permitted Phases	6	6		6		4				
Actuated Green, G (s)	26.0	26.0	26.0	31.1	31.1		19.9	19.9	55.0	
Effective Green, g (s)	26.0	26.0	26.0	31.1	31.1		19.9	19.9	55.0	
Actuated g/C Ratio	0.29	0.29	0.29	0.35	0.35		0.22	0.22	0.61	
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0		4.0	4.0	5.0	
Vehicle Extension (s)	2.5	2.5	2.5	4.0	4.0		2.0	2.0	4.0	
Lane Grp Cap (vph)	465	945	457	1223	547		391	391	1139	
v/s Ratio Prot				0.06			c0.21	0.09	0.15	
v/s Ratio Perm	c0.25	0.17	0.03		c0.15					
v/c Ratio	0.86	0.58	0.11	0.16	0.44		0.96	0.43	0.25	
Uniform Delay, d1	30.3	27.3	23.5	20.4	22.7		34.6	30.1	8.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	18.6	2.6	0.5	0.3	2.6		33.8	0.3	0.5	
Delay (s)	48.9	29.9	24.0	20.7	25.3		68.4	30.4	8.6	
Level of Service	D	C	C	C	C		E	C	A	
Approach Delay (s)		36.8		23.3					40.0	
Approach LOS		D		C					D	
Intersection Summary										
HCM Average Control Delay	35.3				HCM Level of Service			D		
HCM Volume to Capacity ratio	0.72									
Actuated Cycle Length (s)	90.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization	63.6%				ICU Level of Service			B		
Analysis Period (min)	15									
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

6: 6th & Jackson

2017 Plus Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	12	299	59	203	297	0	0	156	1489
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2300
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	4.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	1.00
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1770	1863	1583		1826			1863	2255
Flt Permitted				0.95	1.00	1.00		0.79			1.00	1.00
Satd. Flow (perm)				1770	1863	1583		1475			1863	2255
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
Adj. Flow (vph)	0	0	0	13	325	64	221	323	0	0	170	1618
RTOR Reduction (vph)	0	0	0	0	0	49	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	13	325	15	0	544	0	0	170	1618
Turn Type				Perm		Perm	Perm					Free
Protected Phases					2			4				8
Permitted Phases				2		2	4					Free
Actuated Green, G (s)				14.5	14.5	14.5		34.5			34.5	60.0
Effective Green, g (s)				14.5	14.5	14.5		34.5			34.5	60.0
Actuated g/C Ratio				0.24	0.24	0.24		0.58			0.58	1.00
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	
Lane Grp Cap (vph)				428	450	383		848			1071	2255
v/s Ratio Prot					0.17						0.09	
v/s Ratio Perm				0.01		0.01		0.37			c0.72	
v/c Ratio				0.03	0.72	0.04		0.64			0.16	0.72
Uniform Delay, d1				17.4	20.9	17.4		8.6			6.0	0.0
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.1	9.7	0.2		3.7			0.3	2.0
Delay (s)				17.5	30.6	17.6		12.3			6.3	2.0
Level of Service				B	C	B		B			A	A
Approach Delay (s)	0.0				28.1			12.3			2.4	
Approach LOS	A				C			B			A	
Intersection Summary												
HCM Average Control Delay				8.1			HCM Level of Service			A		
HCM Volume to Capacity ratio				0.72								
Actuated Cycle Length (s)				60.0			Sum of lost time (s)			0.0		
Intersection Capacity Utilization				87.0%			ICU Level of Service			E		
Analysis Period (min)				15								

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

7: 5th & Jackson

2017 Plus Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	297	545	532	0	0	0	0	224	38	91	75	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5					4.5			4.5	
Lane Util. Factor		0.95	1.00					1.00			1.00	
Fr _t		1.00	0.85					0.98			1.00	
Flt Protected		0.98	1.00					1.00			0.97	
Satd. Flow (prot)		3478	1583					1826			1813	
Flt Permitted		0.98	1.00					1.00			0.72	
Satd. Flow (perm)		3478	1583					1826			1345	
Peak-hour factor, PHF	0.84	0.84	0.84	0.92	0.92	0.92	0.92	0.84	0.84	0.84	0.84	0.92
Adj. Flow (vph)	354	649	633	0	0	0	0	267	45	108	89	0
RTOR Reduction (vph)	0	0	457	0	0	0	0	13	0	0	0	0
Lane Group Flow (vph)	0	1003	176	0	0	0	0	299	0	0	197	0
Turn Type	Perm		Perm							Perm		
Protected Phases		6						4			8	
Permitted Phases	6		6							8		
Actuated Green, G (s)	12.5	12.5						23.5			23.5	
Effective Green, g (s)	12.5	12.5						23.5			23.5	
Actuated g/C Ratio	0.28	0.28						0.52			0.52	
Clearance Time (s)	4.5	4.5						4.5			4.5	
Lane Grp Cap (vph)	966	440						954			702	
v/s Ratio Prot								c0.16				
v/s Ratio Perm	0.29	0.11								0.15		
v/c Ratio	1.04	0.40						0.31			0.28	
Uniform Delay, d1	16.2	13.2						6.1			6.0	
Progression Factor	1.00	1.00						1.00			1.00	
Incremental Delay, d2	39.4	2.7						0.9			1.0	
Delay (s)	55.6	15.9						7.0			7.0	
Level of Service	E	B						A			A	
Approach Delay (s)	40.2			0.0				7.0			7.0	
Approach LOS	D			A				A			A	
Intersection Summary												
HCM Average Control Delay	32.4			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.56											
Actuated Cycle Length (s)	45.0			Sum of lost time (s)				9.0				
Intersection Capacity Utilization	74.1%			ICU Level of Service				D				
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: Willie Stargell & Webster

2017 Plus Project

AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑↑	↑↑
Volume (vph)	540	87	102	1243	833	585
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.91	0.88
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	5085	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	5085	2787
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	659	106	124	1516	1016	713
RTOR Reduction (vph)	0	72	0	0	0	501
Lane Group Flow (vph)	659	34	124	1516	1016	212
Turn Type		Perm	Prot		Perm	
Protected Phases	4		5	2	6	
Permitted Phases		4			6	
Actuated Green, G (s)	16.8	16.8	6.1	25.5	15.4	15.4
Effective Green, g (s)	16.8	16.8	6.1	25.5	15.4	15.4
Actuated g/C Ratio	0.32	0.32	0.12	0.49	0.30	0.30
Clearance Time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1113	513	208	1742	1512	829
v/s Ratio Prot	c0.19		0.07	c0.43	0.20	
v/s Ratio Perm		0.02			0.08	
v/c Ratio	0.59	0.07	0.60	0.87	0.67	0.26
Uniform Delay, d1	14.6	12.1	21.7	11.7	16.0	13.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.1	12.0	6.3	1.2	0.2
Delay (s)	15.5	12.1	33.7	17.9	17.2	14.0
Level of Service	B	B	C	B	B	B
Approach Delay (s)	15.0			19.1	15.9	
Approach LOS	B			B	B	
Intersection Summary						
HCM Average Control Delay	17.0	HCM Level of Service			B	
HCM Volume to Capacity ratio	0.76					
Actuated Cycle Length (s)	51.8	Sum of lost time (s)			9.5	
Intersection Capacity Utilization	57.7%	ICU Level of Service			B	
Analysis Period (min)	15					
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

9: W Midway & Main

2017 Plus Project

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	116	77	33	229	71	184	180	35	46	58	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5				3.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		0.95				0.95	
Fr _t	1.00	0.85		1.00	0.85		0.99				0.99	
Flt Protected	0.99	1.00		0.99	1.00		0.98				0.98	
Satd. Flow (prot)	1853	1583		1851	1583		3414				3420	
Flt Permitted	0.95	1.00		0.95	1.00		0.76				0.74	
Satd. Flow (perm)	1761	1583		1763	1583		2655				2595	
Peak-hour factor, PHF	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Adj. Flow (vph)	21	171	113	49	337	104	271	265	51	68	85	16
RTOR Reduction (vph)	0	0	69	0	0	63	0	15	0	0	10	0
Lane Group Flow (vph)	0	192	44	0	386	41	0	572	0	0	159	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	13.5	13.5		13.5	13.5		13.8				13.8	
Effective Green, g (s)	13.5	13.5		13.5	13.5		13.8				13.8	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.40				0.40	
Clearance Time (s)	3.5	3.5		3.5	3.5		3.5				3.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0				3.0	
Lane Grp Cap (vph)	693	623		694	623		1068				1044	
v/s Ratio Prot												
v/s Ratio Perm	0.11	0.03		c0.22	0.03		c0.22				0.06	
v/c Ratio	0.28	0.07		0.56	0.07		0.54				0.15	
Uniform Delay, d1	7.1	6.5		8.1	6.5		7.8				6.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00				1.00	
Incremental Delay, d2	0.2	0.0		1.0	0.0		0.5				0.1	
Delay (s)	7.3	6.5		9.0	6.5		8.3				6.6	
Level of Service	A	A		A	A		A				A	
Approach Delay (s)	7.0			8.5			8.3				6.6	
Approach LOS	A			A			A				A	

Intersection Summary

HCM Average Control Delay	7.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	34.3	Sum of lost time (s)	7.0
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

10: Atlantic & Main

2017 Plus Project

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	54	39	58	70	128	69	252	58	62	103	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		5.0
Lane Util. Factor	0.95	1.00		0.95	1.00	1.00	0.95		0.95	0.91		0.91
Fr _t	1.00	0.85		1.00	0.85	1.00	0.97		1.00	0.98		
Flt Protected	0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	3504	1583		3461	1583	1770	3440		1610	3328		
Flt Permitted	0.89	1.00		0.81	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (perm)	3152	1583		2854	1583	1770	3440		1610	3328		
Peak-hour factor, PHF	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Adj. Flow (vph)	18	71	51	76	92	168	91	332	76	82	136	17
RTOR Reduction (vph)	0	0	39	0	0	129	0	25	0	0	12	0
Lane Group Flow (vph)	0	89	12	0	168	39	91	383	0	74	149	0
Turn Type	Perm		Perm	Perm		Perm	Split		Split			
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	10.2	10.2		10.2	10.2	12.0	12.0		7.2	7.2		
Effective Green, g (s)	10.2	10.2		10.2	10.2	12.0	12.0		7.2	7.2		
Actuated g/C Ratio	0.24	0.24		0.24	0.24	0.28	0.28		0.17	0.17		
Clearance Time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	741	372		671	372	489	951		267	552		
v/s Ratio Prot						0.05	c0.11		c0.05	0.04		
v/s Ratio Perm	0.03	0.01		c0.06	0.02							
v/c Ratio	0.12	0.03		0.25	0.11	0.19	0.40		0.28	0.27		
Uniform Delay, d1	13.1	12.8		13.5	13.0	12.0	12.8		15.8	15.8		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.1	0.0		0.2	0.1	0.2	0.3		0.6	0.3		
Delay (s)	13.1	12.8		13.7	13.1	12.2	13.1		16.4	16.1		
Level of Service	B	B		B	B	B	B		B	B		
Approach Delay (s)	13.0			13.4			12.9			16.2		
Approach LOS	B			B			B			B		
Intersection Summary												
HCM Average Control Delay	13.7				HCM Level of Service				B			
HCM Volume to Capacity ratio	0.32											
Actuated Cycle Length (s)	43.4				Sum of lost time (s)				14.0			
Intersection Capacity Utilization	33.7%				ICU Level of Service				A			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

2017 Plus Project

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑		↑↑	↑↑		↑	↑↑	↑
Volume (vph)	327	203	89	25	260	78	92	930	65	80	480	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Fr _t	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3417		1770	3505		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3417		1770	3505		1770	3539	1583
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	419	260	114	32	333	100	118	1192	83	103	615	455
RTOR Reduction (vph)	0	0	80	0	30	0	0	4	0	0	0	184
Lane Group Flow (vph)	419	260	34	32	403	0	118	1271	0	103	615	271
Turn Type	Prot		Perm	Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	8.3	24.1	24.1	2.7	18.5		8.7	27.7		8.3	27.3	35.6
Effective Green, g (s)	8.3	24.1	24.1	2.7	18.5		8.7	27.7		8.3	27.3	35.6
Actuated g/C Ratio	0.10	0.30	0.30	0.03	0.23		0.11	0.35		0.10	0.34	0.45
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0
Lane Grp Cap (vph)	357	1069	478	60	792		193	1217		184	1211	786
v/s Ratio Prot	c0.12	0.07		0.02	c0.12		c0.07	c0.36		0.06	0.17	0.04
v/s Ratio Perm			0.02									0.14
v/c Ratio	1.17	0.24	0.07	0.53	0.51		0.61	1.04		0.56	0.51	0.34
Uniform Delay, d1	35.8	21.0	19.9	37.9	26.7		33.9	26.0		34.0	20.9	14.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	103.8	0.0	0.0	8.8	0.2		5.6	38.2		3.7	0.1	0.3
Delay (s)	139.6	21.0	19.9	46.7	26.9		39.6	64.2		37.7	21.0	14.7
Level of Service	F	C	B	D	C		D	E		D	C	B
Approach Delay (s)		83.5			28.2			62.2			20.0	
Approach LOS		F			C			E			C	
Intersection Summary												
HCM Average Control Delay		49.5				HCM Level of Service				D		
HCM Volume to Capacity ratio		0.80										
Actuated Cycle Length (s)		79.8				Sum of lost time (s)				13.0		
Intersection Capacity Utilization		65.4%				ICU Level of Service				C		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1: 8th & Webster

2017 Plus Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	430	626	0	0	0	0	0	927	338
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	4.0
Lane Util. Factor				0.86	0.86						0.86	0.86
Frt				1.00	1.00						0.99	0.85
Flt Protected				0.95	0.99						1.00	1.00
Satd. Flow (prot)				1522	4755						4764	1362
Flt Permitted				0.95	0.99						1.00	1.00
Satd. Flow (perm)				1522	4755						4764	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.93	0.93
Adj. Flow (vph)	0	0	0	462	673	0	0	0	0	0	997	363
RTOR Reduction (vph)	0	0	0	194	50	0	0	0	0	0	7	204
Lane Group Flow (vph)	0	0	0	83	808	0	0	0	0	0	1052	97
Turn Type				Perm							Perm	
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)				27.0	27.0						29.0	29.0
Effective Green, g (s)				27.0	27.0						29.0	29.0
Actuated g/C Ratio				0.30	0.30						0.32	0.32
Clearance Time (s)				4.0	4.0						4.0	4.0
Lane Grp Cap (vph)				457	1427						1535	439
v/s Ratio Prot											c0.22	
v/s Ratio Perm				0.05	0.17							0.07
v/c Ratio				0.18	0.57						0.69	0.22
Uniform Delay, d1				23.3	26.6						26.5	22.3
Progression Factor				1.00	1.00						1.00	1.00
Incremental Delay, d2				0.9	1.6						2.5	1.2
Delay (s)				24.2	28.2						29.0	23.4
Level of Service				C	C						C	C
Approach Delay (s)	0.0				27.2			0.0			27.8	
Approach LOS	A				C			A			C	
Intersection Summary												
HCM Average Control Delay				27.5	HCM Level of Service					C		
HCM Volume to Capacity ratio				0.63								
Actuated Cycle Length (s)				90.0	Sum of lost time (s)					34.0		
Intersection Capacity Utilization				42.3%	ICU Level of Service					A		
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: 7th & Webster

2017 Plus Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	592	960	0	0	0	0	0	0	224	1128	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0								4.0	
Lane Util. Factor		0.86	0.86								0.91	
Fr _t		0.93	0.85								1.00	
Flt Protected		1.00	1.00								0.99	
Satd. Flow (prot)		4483	1362								5043	
Flt Permitted		1.00	1.00								0.99	
Satd. Flow (perm)		4483	1362								5043	
Peak-hour factor, PHF	0.92	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.92
Adj. Flow (vph)	0	665	1079	0	0	0	0	0	0	252	1267	0
RTOR Reduction (vph)	0	3	3	0	0	0	0	0	0	0	50	0
Lane Group Flow (vph)	0	1202	536	0	0	0	0	0	0	0	1469	0
Turn Type			Perm								Perm	
Protected Phases		6									8	
Permitted Phases			6								8	
Actuated Green, G (s)	32.0	32.0									20.0	
Effective Green, g (s)	32.0	32.0									20.0	
Actuated g/C Ratio	0.53	0.53									0.33	
Clearance Time (s)		4.0	4.0								4.0	
Lane Grp Cap (vph)		2391	726								1681	
v/s Ratio Prot		0.27										
v/s Ratio Perm			c0.39								0.29	
v/c Ratio		0.50	0.74								0.87	
Uniform Delay, d1		8.9	10.8								18.8	
Progression Factor		1.00	1.00								1.00	
Incremental Delay, d2		0.8	6.6								6.6	
Delay (s)		9.7	17.4								25.5	
Level of Service		A	B								C	
Approach Delay (s)		12.1			0.0			0.0			25.5	
Approach LOS		B			A			A			C	
Intersection Summary												
HCM Average Control Delay		18.3		HCM Level of Service						B		
HCM Volume to Capacity ratio		0.79										
Actuated Cycle Length (s)		60.0		Sum of lost time (s)						8.0		
Intersection Capacity Utilization		72.6%		ICU Level of Service						C		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 7th & Harrison

2017 Plus Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	187	619	0	0	0	0	0	766	1637	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	2500	1900	1900	1900
Total Lost time (s)		5.0						5.0	5.0			
Lane Util. Factor		0.91						0.91	*1.00			
Fr _t		1.00						1.00	1.00			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5027						5085	4902			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5027						5085	4902			
Peak-hour factor, PHF	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	205	680	0	0	0	0	0	842	1799	0	0	0
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	334	0	0	0
Lane Group Flow (vph)	0	879	0	0	0	0	0	842	1465	0	0	0
Turn Type	Perm								Perm			
Protected Phases		6							4			
Permitted Phases	6									4		
Actuated Green, G (s)		34.0						16.0	16.0			
Effective Green, g (s)		34.0						16.0	16.0			
Actuated g/C Ratio		0.57						0.27	0.27			
Clearance Time (s)		5.0						5.0	5.0			
Lane Grp Cap (vph)		2849						1356	1307			
v/s Ratio Prot								0.17				
v/s Ratio Perm		0.17							c0.30			
v/c Ratio		0.31						0.62	1.12			
Uniform Delay, d1		6.8						19.3	22.0			
Progression Factor		0.63						1.00	1.00			
Incremental Delay, d2		0.2						2.1	65.2			
Delay (s)		4.5						21.5	87.2			
Level of Service		A						C	F			
Approach Delay (s)		4.5			0.0			66.2		0.0		
Approach LOS		A			A			E		A		
Intersection Summary												
HCM Average Control Delay		50.7						HCM Level of Service		D		
HCM Volume to Capacity ratio		0.57										
Actuated Cycle Length (s)		60.0						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		80.2%						ICU Level of Service		D		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4: 6th & Broadway

2017 Plus Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	219	132	688	129	298	0	0	762	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91	
Fr _t				1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3539	1583	1770	3539			5051	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3539	1583	1770	3539			5051	
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	0	0	233	140	732	137	317	0	0	811	38
RTOR Reduction (vph)	0	0	0	0	0	277	0	0	0	0	7	0
Lane Group Flow (vph)	0	0	0	233	140	455	137	317	0	0	842	0
Turn Type				Perm		Perm		Prot				
Protected Phases					2		7	4			8	
Permitted Phases				2		2						
Actuated Green, G (s)				31.0	31.0	31.0	7.9	36.5			25.1	
Effective Green, g (s)				31.0	31.0	31.0	7.9	36.5			25.1	
Actuated g/C Ratio				0.41	0.41	0.41	0.11	0.49			0.33	
Clearance Time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				732	1463	654	186	1722			1690	
v/s Ratio Prot					0.04		c0.08	0.09			c0.17	
v/s Ratio Perm				0.13		c0.29						
v/c Ratio				0.32	0.10	0.70	0.74	0.18			0.50	
Uniform Delay, d1				14.9	13.4	18.1	32.5	10.9			19.9	
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2				1.1	0.1	6.0	12.3	0.2			1.1	
Delay (s)				16.0	13.6	24.1	44.8	11.1			21.0	
Level of Service				B	B	C	D	B			C	
Approach Delay (s)	0.0				21.1			21.3			21.0	
Approach LOS	A				C			C			C	
Intersection Summary												
HCM Average Control Delay	21.1			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.62											
Actuated Cycle Length (s)	75.0			Sum of lost time (s)				11.0				
Intersection Capacity Utilization	57.5%			ICU Level of Service				B				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Broadway & 5th

2017 Plus Project

PM Peak Hour

Movement	SEL2	SEL	SET	SER	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	25	1150	289	105	357	303	66	448	293	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	5.0	5.0	5.0	4.0	4.0	5.0	5.0
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85		1.00	1.00	1.00	1.00
Flt Protected	0.95	0.97	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1610	3280	1583	3539	1583		1770	1770	1863	
Flt Permitted	0.95	0.97	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	1610	3280	1583	3539	1583		1770	1770	1863	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	26	1211	304	111	376	319	69	472	308	403
RTOR Reduction (vph)	0	0	0	26	0	9	0	0	0	0
Lane Group Flow (vph)	0	619	922	85	376	379	0	472	308	403
Turn Type	Perm	Perm		Perm		Perm		Prot	Prot	
Protected Phases			6		4			3	3	8
Permitted Phases	6	6		6		4				
Actuated Green, G (s)	26.0	26.0	26.0	31.0	31.0		20.0	20.0	55.0	
Effective Green, g (s)	26.0	26.0	26.0	31.0	31.0		20.0	20.0	55.0	
Actuated g/C Ratio	0.29	0.29	0.29	0.34	0.34		0.22	0.22	0.61	
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0		4.0	4.0	5.0	
Vehicle Extension (s)	2.5	2.5	2.5	4.0	4.0		2.0	2.0	4.0	
Lane Grp Cap (vph)	465	948	457	1219	545		393	393	1139	
v/s Ratio Prot				0.11			c0.27	0.17	0.22	
v/s Ratio Perm	c0.38	0.28	0.05		c0.24					
v/c Ratio	1.33	1.27	dl	0.19	0.31	0.70		1.20	0.78	0.35
Uniform Delay, d1	32.0	31.6	24.0	21.6	25.4		35.0	33.0	8.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	163.2	23.3	0.9	0.7	7.2		112.5	9.1	0.9	
Delay (s)	195.2	55.0	24.9	22.3	32.6		147.5	42.1	9.5	
Level of Service	F	D	C	C	C		F	D	A	
Approach Delay (s)		105.5		27.5					73.0	
Approach LOS		F		C					E	
Intersection Summary										
HCM Average Control Delay	78.3				HCM Level of Service			E		
HCM Volume to Capacity ratio	1.04									
Actuated Cycle Length (s)	90.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization	90.4%				ICU Level of Service			E		
Analysis Period (min)	15									
dl Defacto Left Lane. Recode with 1 though lane as a left lane.										
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

6: 6th & Jackson

2017 Plus Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	8	317	41	338	235	0	0	227	1305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2300
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	4.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.97			1.00	1.00
Satd. Flow (prot)				1770	1863	1583		1809			1863	1917
Flt Permitted				0.95	1.00	1.00		0.69			1.00	1.00
Satd. Flow (perm)				1770	1863	1583		1287			1863	1917
Peak-hour factor, PHF	0.92	0.92	0.92	0.97	0.97	0.97	0.97	0.97	0.92	0.92	0.97	0.97
Adj. Flow (vph)	0	0	0	8	327	42	348	242	0	0	234	1345
RTOR Reduction (vph)	0	0	0	0	0	32	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	8	327	10	0	590	0	0	234	1345
Turn Type				Perm		Perm	Perm					Free
Protected Phases					2			4				8
Permitted Phases				2		2	4					Free
Actuated Green, G (s)				14.5	14.5	14.5		34.5			34.5	60.0
Effective Green, g (s)				14.5	14.5	14.5		34.5			34.5	60.0
Actuated g/C Ratio				0.24	0.24	0.24		0.58			0.58	1.00
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	
Lane Grp Cap (vph)				428	450	383		740			1071	1917
v/s Ratio Prot					0.18						0.13	
v/s Ratio Perm				0.00		0.01		0.46			c0.70	
v/c Ratio				0.02	0.73	0.03		0.80			0.22	0.70
Uniform Delay, d1				17.3	20.9	17.4		10.0			6.2	0.0
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.1	9.8	0.1		8.7			0.5	2.2
Delay (s)				17.4	30.8	17.5		18.7			6.7	2.2
Level of Service				B	C	B		B			A	A
Approach Delay (s)	0.0				29.0			18.7			2.8	
Approach LOS	A				C			B			A	
Intersection Summary												
HCM Average Control Delay				10.4			HCM Level of Service			B		
HCM Volume to Capacity ratio				0.70								
Actuated Cycle Length (s)				60.0			Sum of lost time (s)			0.0		
Intersection Capacity Utilization				90.3%			ICU Level of Service			E		
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: 5th & Jackson

2017 Plus Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	289	565	355	0	0	0	0	299	35	134	96	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5					4.5			4.5	
Lane Util. Factor		0.95	1.00					1.00			1.00	
Fr _t		1.00	0.85					0.99			1.00	
Flt Protected		0.98	1.00					1.00			0.97	
Satd. Flow (prot)		3480	1583					1836			1810	
Flt Permitted		0.98	1.00					1.00			0.56	
Satd. Flow (perm)		3480	1583					1836			1040	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.88	0.88	0.88	0.88	0.92
Adj. Flow (vph)	328	642	403	0	0	0	0	340	40	152	109	0
RTOR Reduction (vph)	0	0	237	0	0	0	0	7	0	0	0	0
Lane Group Flow (vph)	0	970	166	0	0	0	0	373	0	0	261	0
Turn Type	Perm		Perm							Perm		
Protected Phases		6						4			8	
Permitted Phases	6		6							8		
Actuated Green, G (s)	24.5	24.5						26.0			26.0	
Effective Green, g (s)	24.5	24.5						26.0			26.0	
Actuated g/C Ratio	0.41	0.41						0.44			0.44	
Clearance Time (s)	4.5	4.5						4.5			4.5	
Lane Grp Cap (vph)	1433	652						802			454	
v/s Ratio Prot								0.20				
v/s Ratio Perm	0.28	0.10								0.25		
v/c Ratio	0.68	0.25						0.46			0.57	
Uniform Delay, d1	14.3	11.5						11.8			12.6	
Progression Factor	1.00	1.00						1.00			1.00	
Incremental Delay, d2	2.6	0.9						1.9			5.2	
Delay (s)	16.9	12.4						13.8			17.8	
Level of Service	B	B						B			B	
Approach Delay (s)	15.6			0.0				13.8			17.8	
Approach LOS	B			A				B			B	
Intersection Summary												
HCM Average Control Delay		15.5		HCM Level of Service				B				
HCM Volume to Capacity ratio		0.62										
Actuated Cycle Length (s)		59.5		Sum of lost time (s)				9.0				
Intersection Capacity Utilization		78.6%		ICU Level of Service				D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Willie Stargell & Webster

2017 Plus Project

PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑↑	↑↑
Volume (vph)	468	196	108	685	1273	718
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.91	0.88
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	5085	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	5085	2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	488	204	112	714	1326	748
RTOR Reduction (vph)	0	144	0	0	0	514
Lane Group Flow (vph)	488	60	112	714	1326	234
Turn Type		Perm	Prot		Perm	
Protected Phases	4		5	2	6	
Permitted Phases		4			6	
Actuated Green, G (s)	14.5	14.5	6.1	25.6	15.5	15.5
Effective Green, g (s)	14.5	14.5	6.1	25.6	15.5	15.5
Actuated g/C Ratio	0.29	0.29	0.12	0.52	0.31	0.31
Clearance Time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1004	463	218	1827	1589	871
v/s Ratio Prot	c0.14		c0.06	0.20	c0.26	
v/s Ratio Perm		0.04			0.08	
v/c Ratio	0.49	0.13	0.51	0.39	0.83	0.27
Uniform Delay, d1	14.5	12.9	20.4	7.3	15.9	12.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	8.4	0.6	3.9	0.2
Delay (s)	14.8	13.0	28.8	7.9	19.8	13.0
Level of Service	B	B	C	A	B	B
Approach Delay (s)	14.3			10.7	17.3	
Approach LOS	B			B	B	

Intersection Summary

HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	49.6	Sum of lost time (s)	13.5
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

9: W Midway & Main

2017 Plus Project

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	243	158	28	174	83	100	102	13	95	181	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5			3.5			3.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	
Fr _t	1.00	0.85		1.00	0.85			0.99			0.99	
Flt Protected	1.00	1.00		0.99	1.00			0.98			0.98	
Satd. Flow (prot)	1857	1583		1850	1583			3428			3459	
Flt Permitted	0.97	1.00		0.92	1.00			0.68			0.76	
Satd. Flow (perm)	1808	1583		1705	1583			2385			2667	
Peak-hour factor, PHF	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Adj. Flow (vph)	25	380	247	44	272	130	156	159	20	148	283	20
RTOR Reduction (vph)	0	0	143	0	0	75	0	12	0	0	9	0
Lane Group Flow (vph)	0	405	104	0	316	55	0	323	0	0	442	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	12.8	12.8		12.8	12.8			10.7			10.7	
Effective Green, g (s)	12.8	12.8		12.8	12.8			10.7			10.7	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.35			0.35	
Clearance Time (s)	3.5	3.5		3.5	3.5			3.5			3.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	759	664		716	664			837			936	
v/s Ratio Prot												
v/s Ratio Perm	c0.22	0.07		0.19	0.03		0.14			c0.17		
v/c Ratio	0.53	0.16		0.44	0.08		0.39			0.47		
Uniform Delay, d1	6.6	5.5		6.3	5.3		7.4			7.7		
Progression Factor	1.00	1.00		1.00	1.00		1.00			1.00		
Incremental Delay, d2	0.7	0.1		0.4	0.1		0.3			0.4		
Delay (s)	7.3	5.6		6.7	5.4		7.7			8.1		
Level of Service	A	A		A	A		A			A		
Approach Delay (s)	6.7			6.3			7.7			8.1		
Approach LOS	A			A			A			A		

Intersection Summary

HCM Average Control Delay	7.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	30.5	Sum of lost time (s)	7.0
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

10: Atlantic & Main

2017 Plus Project

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	127	81	38	199	83	94	135	19	111	246	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	0.95	1.00		0.95	1.00	1.00	0.95	0.95		0.91	0.91	
Fr _t	1.00	0.85		1.00	0.85	1.00	0.98	0.98		1.00	0.99	
Flt Protected	1.00	1.00		0.99	1.00	0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)	3536	1583		3511	1583	1770	3473	3473		1610	3353	
Flt Permitted	0.95	1.00		0.88	1.00	0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)	3358	1583		3126	1583	1770	3473	3473		1610	3353	
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	3	172	109	51	269	112	127	182	26	150	332	22
RTOR Reduction (vph)	0	0	82	0	0	84	0	16	0	0	5	0
Lane Group Flow (vph)	0	175	27	0	320	28	127	192	0	135	364	0
Turn Type	Perm		Perm	Perm		Perm	Split			Split		
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	11.9	11.9		11.9	11.9	10.1	10.1			11.9	11.9	
Effective Green, g (s)	11.9	11.9		11.9	11.9	10.1	10.1			11.9	11.9	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.21	0.21			0.25	0.25	
Clearance Time (s)	4.0	4.0		4.0	4.0	5.0	5.0			5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	834	393		777	393	373	732			400	833	
v/s Ratio Prot						c0.07	0.06			0.08	c0.11	
v/s Ratio Perm	0.05	0.02		c0.10	0.02							
v/c Ratio	0.21	0.07		0.41	0.07	0.34	0.26			0.34	0.44	
Uniform Delay, d1	14.3	13.8		15.1	13.8	16.1	15.8			14.8	15.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2	0.1	0.1		0.4	0.1	0.5	0.2			0.5	0.4	
Delay (s)	14.4	13.8		15.4	13.8	16.6	16.0			15.3	15.5	
Level of Service	B	B		B	B	B	B			B	B	
Approach Delay (s)	14.2			15.0			16.2			15.5		
Approach LOS	B			B			B			B		
Intersection Summary												
HCM Average Control Delay	15.3				HCM Level of Service					B		
HCM Volume to Capacity ratio	0.40											
Actuated Cycle Length (s)	47.9				Sum of lost time (s)					14.0		
Intersection Capacity Utilization	37.4%				ICU Level of Service					A		
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

2017 Plus Project

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑		↑	↑↑		↑	↑↑	↑
Volume (vph)	212	175	84	98	313	76	136	509	88	201	843	421
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Fr _t	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3435		1770	3461		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3435		1770	3461		1770	3539	1583
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
Adj. Flow (vph)	230	190	91	107	340	83	148	553	96	218	916	458
RTOR Reduction (vph)	0	0	73	0	24	0	0	13	0	0	0	169
Lane Group Flow (vph)	230	190	18	107	399	0	148	636	0	218	916	289
Turn Type	Prot		Perm	Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	8.3	16.3	16.3	8.3	16.3		11.9	23.7		14.9	26.7	35.0
Effective Green, g (s)	8.3	16.3	16.3	8.3	16.3		11.9	23.7		14.9	26.7	35.0
Actuated g/C Ratio	0.10	0.20	0.20	0.10	0.20		0.15	0.30		0.19	0.33	0.44
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0
Lane Grp Cap (vph)	355	719	322	183	698		263	1023		329	1178	770
v/s Ratio Prot	c0.07	0.05		0.06	c0.12		0.08	0.18		c0.12	c0.26	0.04
v/s Ratio Perm			0.01									0.14
v/c Ratio	0.65	0.26	0.06	0.58	0.57		0.56	0.62		0.66	0.78	0.38
Uniform Delay, d1	34.5	26.9	25.8	34.3	28.8		31.7	24.4		30.3	24.1	15.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.0	0.1	0.0	4.7	0.7		2.7	0.9		5.0	3.0	0.3
Delay (s)	38.6	27.0	25.8	39.0	29.5		34.5	25.2		35.3	27.1	15.5
Level of Service	D	C	C	D	C		C	C		D	C	B
Approach Delay (s)		32.0			31.4			27.0			24.9	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay		27.4			HCM Level of Service					C		
HCM Volume to Capacity ratio		0.70										
Actuated Cycle Length (s)		80.2			Sum of lost time (s)					17.0		
Intersection Capacity Utilization		62.1%			ICU Level of Service					B		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1: 8th & Webster

2017 Plus Project

Saturday Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	335	593	0	0	0	0	0	601	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	4.0
Lane Util. Factor				0.86	0.86						0.86	0.86
Frt				1.00	1.00						0.99	0.85
Flt Protected				0.95	0.99						1.00	1.00
Satd. Flow (prot)				1522	4769						4737	1362
Flt Permitted				0.95	0.99						1.00	1.00
Satd. Flow (perm)				1522	4769						4737	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92	0.95	0.95	
Adj. Flow (vph)	0	0	0	353	624	0	0	0	0	0	633	266
RTOR Reduction (vph)	0	0	0	166	27	0	0	0	0	0	13	135
Lane Group Flow (vph)	0	0	0	71	713	0	0	0	0	0	687	64
Turn Type				Perm							Perm	
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)				27.0	27.0						29.0	29.0
Effective Green, g (s)				27.0	27.0						29.0	29.0
Actuated g/C Ratio				0.30	0.30						0.32	0.32
Clearance Time (s)				4.0	4.0						4.0	4.0
Lane Grp Cap (vph)				457	1431						1526	439
v/s Ratio Prot											c0.15	
v/s Ratio Perm				0.05	0.15							0.05
v/c Ratio				0.16	0.50						0.45	0.15
Uniform Delay, d1				23.1	25.9						24.2	21.7
Progression Factor				1.00	1.00						1.00	1.00
Incremental Delay, d2				0.7	1.2						1.0	0.7
Delay (s)				23.9	27.2						25.1	22.4
Level of Service				C	C						C	C
Approach Delay (s)	0.0				26.4			0.0			24.5	
Approach LOS	A				C			A			C	
Intersection Summary												
HCM Average Control Delay				25.5	HCM Level of Service					C		
HCM Volume to Capacity ratio				0.47								
Actuated Cycle Length (s)				90.0	Sum of lost time (s)					34.0		
Intersection Capacity Utilization				42.3%	ICU Level of Service					A		
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: 7th & Webster

2017 Plus Project

Saturday Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	424	635	0	0	0	0	0	0	174	809	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0								4.0	
Lane Util. Factor		0.86	0.86								0.91	
Fr _t		0.94	0.85								1.00	
Flt Protected		1.00	1.00								0.99	
Satd. Flow (prot)		4497	1362								5041	
Flt Permitted		1.00	1.00								0.99	
Satd. Flow (perm)		4497	1362								5041	
Peak-hour factor, PHF	0.92	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.92
Adj. Flow (vph)	0	466	698	0	0	0	0	0	0	191	889	0
RTOR Reduction (vph)	0	56	56	0	0	0	0	0	0	0	75	0
Lane Group Flow (vph)	0	759	293	0	0	0	0	0	0	0	1005	0
Turn Type			Perm								Perm	
Protected Phases		6									8	
Permitted Phases			6								8	
Actuated Green, G (s)	16.0	16.0									21.0	
Effective Green, g (s)	16.0	16.0									21.0	
Actuated g/C Ratio	0.36	0.36									0.47	
Clearance Time (s)		4.0	4.0								4.0	
Lane Grp Cap (vph)	1599	484									2352	
v/s Ratio Prot		0.17										
v/s Ratio Perm			c0.22								0.20	
v/c Ratio	0.47	0.61									0.43	
Uniform Delay, d1	11.2	11.9									8.0	
Progression Factor	1.00	1.00									0.57	
Incremental Delay, d2	1.0	5.5									0.5	
Delay (s)	12.3	17.4									5.1	
Level of Service	B	B									A	
Approach Delay (s)	13.8			0.0			0.0				5.1	
Approach LOS	B			A			A				A	
Intersection Summary												
HCM Average Control Delay		9.6		HCM Level of Service						A		
HCM Volume to Capacity ratio		0.50										
Actuated Cycle Length (s)	45.0		Sum of lost time (s)							8.0		
Intersection Capacity Utilization		52.0%		ICU Level of Service						A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 7th & Harrison

2017 Plus Project

Saturday Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	129	442	0	0	0	0	0	816	1550	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	2500	1900	1900	1900
Total Lost time (s)		5.0						5.0	5.0			
Lane Util. Factor		0.91						0.91	*1.00			
Fr _t		1.00						1.00	1.00			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5029						5085	4902			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5029						5085	4902			
Peak-hour factor, PHF	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	145	497	0	0	0	0	0	917	1742	0	0	0
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	268	0	0	0
Lane Group Flow (vph)	0	617	0	0	0	0	0	917	1474	0	0	0
Turn Type	Perm								Perm			
Protected Phases		6							4			
Permitted Phases	6									4		
Actuated Green, G (s)		18.0						17.0	17.0			
Effective Green, g (s)		18.0						17.0	17.0			
Actuated g/C Ratio		0.40						0.38	0.38			
Clearance Time (s)		5.0						5.0	5.0			
Lane Grp Cap (vph)		2012						1921	1852			
v/s Ratio Prot								0.18				
v/s Ratio Perm		0.12							c0.30			
v/c Ratio		0.31						0.48	0.80			
Uniform Delay, d1		9.2						10.6	12.5			
Progression Factor		0.81						1.00	1.00			
Incremental Delay, d2		0.4						0.9	3.7			
Delay (s)		7.8						11.5	16.1			
Level of Service		A						B	B			
Approach Delay (s)		7.8			0.0			14.5		0.0		
Approach LOS		A			A			B		A		
Intersection Summary												
HCM Average Control Delay		13.2						HCM Level of Service		B		
HCM Volume to Capacity ratio		0.54										
Actuated Cycle Length (s)		45.0						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		64.5%						ICU Level of Service		C		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4: 6th & Broadway

2017 Plus Project

Saturday Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	236	151	586	85	228	0	0	492	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3539	1583	1770	3539			5030	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3539	1583	1770	3539			5030	
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
Adj. Flow (vph)	0	0	0	257	164	637	92	248	0	0	535	42
RTOR Reduction (vph)	0	0	0	0	0	333	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	257	164	304	92	248	0	0	566	0
Turn Type				Perm		Perm		Prot				
Protected Phases					2		7	4			8	
Permitted Phases				2		2						
Actuated Green, G (s)				31.0	31.0	31.0	7.1	36.5			25.9	
Effective Green, g (s)				31.0	31.0	31.0	7.1	36.5			25.9	
Actuated g/C Ratio				0.41	0.41	0.41	0.09	0.49			0.35	
Clearance Time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				732	1463	654	168	1722			1737	
v/s Ratio Prot					0.05		c0.05	0.07			c0.11	
v/s Ratio Perm				0.15		c0.19						
v/c Ratio				0.35	0.11	0.47	0.55	0.14			0.33	
Uniform Delay, d1				15.1	13.5	16.0	32.4	10.6			18.1	
Progression Factor				1.00	1.00	1.00	1.41	0.61			1.00	
Incremental Delay, d2				1.3	0.2	2.4	1.9	0.2			0.5	
Delay (s)				16.4	13.7	18.4	47.8	6.7			18.6	
Level of Service				B	B	B	D	A			B	
Approach Delay (s)	0.0				17.2			17.8			18.6	
Approach LOS	A				B			B			B	
Intersection Summary												
HCM Average Control Delay	17.7			HCM Level of Service				B				
HCM Volume to Capacity ratio	0.42											
Actuated Cycle Length (s)	75.0			Sum of lost time (s)				11.0				
Intersection Capacity Utilization	49.3%			ICU Level of Service				A				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Broadway & 5th

2017 Plus Project

Saturday Peak Hour of Generator

Movement	SEL2	SEL	SET	SER	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	24	649	152	67	194	170	45	276	161	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	3.5	3.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00
Satd. Flow (prot)	1610	3277	1583	3539	1583	1770	1770	1770	1863	1863
Flt Permitted	0.95	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00
Satd. Flow (perm)	1610	3277	1583	3539	1583	1770	1770	1770	1863	1863
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	26	690	162	71	206	181	48	294	171	248
RTOR Reduction (vph)	0	0	0	36	0	12	0	0	0	0
Lane Group Flow (vph)	0	357	521	35	206	217	0	294	171	248
Turn Type	Perm	Perm		Perm		Perm		Prot	Prot	
Protected Phases			6		4			3	3	8
Permitted Phases	6	6		6		4				
Actuated Green, G (s)	22.5	22.5	22.5	24.0	24.0		15.0	15.0	42.5	
Effective Green, g (s)	22.5	22.5	22.5	24.0	24.0		15.0	15.0	42.5	
Actuated g/C Ratio	0.30	0.30	0.30	0.32	0.32		0.20	0.20	0.57	
Clearance Time (s)	5.5	5.5	5.5	3.5	3.5		4.5	4.5	4.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)	483	983	475	1132	507		354	354	1056	
v/s Ratio Prot				0.06			c0.17	0.10	0.13	
v/s Ratio Perm	c0.22	0.16	0.02		c0.14					
v/c Ratio	0.74	0.53	0.07	0.18	0.43		0.83	0.48	0.23	
Uniform Delay, d1	23.6	21.8	18.8	18.4	20.1		28.8	26.6	8.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.42	1.44	0.85	
Incremental Delay, d2	9.7	2.0	0.3	0.4	2.6		14.0	0.4	0.5	
Delay (s)	33.4	23.9	19.1	18.8	22.7		54.9	38.5	7.4	
Level of Service	C	C	B	B	C		D	D	A	
Approach Delay (s)		27.1		20.8					34.4	
Approach LOS		C		C					C	
Intersection Summary										
HCM Average Control Delay	28.3	HCM Level of Service					C			
HCM Volume to Capacity ratio	0.64									
Actuated Cycle Length (s)	75.0	Sum of lost time (s)					13.5			
Intersection Capacity Utilization	58.2%	ICU Level of Service					B			
Analysis Period (min)	15									
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

6: 6th & Jackson

2017 Plus Project

Saturday Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	9	284	46	249	243	0	0	162	1270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2300
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	4.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1770	1863	1583		1817			1863	1917
Flt Permitted				0.95	1.00	1.00		0.75			1.00	1.00
Satd. Flow (perm)				1770	1863	1583		1403			1863	1917
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	9	299	48	262	256	0	0	171	1337
RTOR Reduction (vph)	0	0	0	0	0	30	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	9	299	18	0	518	0	0	171	1337
Turn Type				Perm		Perm	Perm					Free
Protected Phases					2			4				8
Permitted Phases				2		2	4					Free
Actuated Green, G (s)				16.5	16.5	16.5		17.5			17.5	45.0
Effective Green, g (s)				16.5	16.5	16.5		17.5			17.5	45.0
Actuated g/C Ratio				0.37	0.37	0.37		0.39			0.39	1.00
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	
Lane Grp Cap (vph)				649	683	580		546			725	1917
v/s Ratio Prot					0.16						0.09	
v/s Ratio Perm				0.01		0.01		c0.37			c0.70	
v/c Ratio				0.01	0.44	0.03		0.95			0.24	0.70
Uniform Delay, d1				9.1	10.8	9.1		13.3			9.3	0.0
Progression Factor				1.00	1.00	1.00		1.34			1.00	1.00
Incremental Delay, d2				0.0	2.0	0.1		26.8			0.8	2.1
Delay (s)				9.1	12.8	9.2		44.6			10.0	2.1
Level of Service				A	B	A		D			B	A
Approach Delay (s)	0.0				12.2			44.6			3.0	
Approach LOS	A				B			D			A	
Intersection Summary												
HCM Average Control Delay	13.4				HCM Level of Service			B				
HCM Volume to Capacity ratio	0.81											
Actuated Cycle Length (s)	45.0				Sum of lost time (s)			5.5				
Intersection Capacity Utilization	69.8%				ICU Level of Service			C				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: 5th & Jackson

2017 Plus Project

Saturday Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	201	383	305	0	0	0	0	181	25	67	59	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5					4.5			4.5	
Lane Util. Factor		0.95	1.00					1.00			1.00	
Fr _t		1.00	0.85					0.98			1.00	
Flt Protected		0.98	1.00					1.00			0.97	
Satd. Flow (prot)		3479	1583					1832			1814	
Flt Permitted		0.98	1.00					1.00			0.79	
Satd. Flow (perm)		3479	1583					1832			1471	
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.92
Adj. Flow (vph)	216	412	328	0	0	0	0	195	27	72	63	0
RTOR Reduction (vph)	0	0	237	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	628	91	0	0	0	0	211	0	0	135	0
Turn Type	Perm		Perm							Perm		
Protected Phases		6						4			8	
Permitted Phases	6		6							8		
Actuated Green, G (s)	12.5	12.5						23.5			23.5	
Effective Green, g (s)	12.5	12.5						23.5			23.5	
Actuated g/C Ratio	0.28	0.28						0.52			0.52	
Clearance Time (s)	4.5	4.5						4.5			4.5	
Lane Grp Cap (vph)	966	440						957			768	
v/s Ratio Prot								c0.12				
v/s Ratio Perm	0.18	0.06								0.09		
v/c Ratio	0.65	0.21						0.22			0.18	
Uniform Delay, d1	14.3	12.5						5.8			5.7	
Progression Factor	1.00	1.00						1.00			0.95	
Incremental Delay, d2	3.4	1.1						0.5			0.5	
Delay (s)	17.7	13.5						6.3			5.9	
Level of Service	B	B						A			A	
Approach Delay (s)	16.3			0.0				6.3			5.9	
Approach LOS	B			A				A			A	
Intersection Summary												
HCM Average Control Delay		13.5		HCM Level of Service				B				
HCM Volume to Capacity ratio		0.37										
Actuated Cycle Length (s)		45.0		Sum of lost time (s)				9.0				
Intersection Capacity Utilization		66.8%		ICU Level of Service				C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Willie Stargell & Webster

2017 Plus Project

Saturday Peak Hour of Generator



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑↑	↑↑
Volume (vph)	386	106	77	795	872	489
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.91	0.88
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	5085	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	5085	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	406	112	81	837	918	515
RTOR Reduction (vph)	0	81	0	0	0	350
Lane Group Flow (vph)	406	31	81	837	918	165
Turn Type		Perm	Prot		Perm	
Protected Phases	4		5	2	6	
Permitted Phases		4			6	
Actuated Green, G (s)	13.3	13.3	6.2	25.7	15.5	15.5
Effective Green, g (s)	13.3	13.3	6.2	25.7	15.5	15.5
Actuated g/C Ratio	0.27	0.27	0.13	0.53	0.32	0.32
Clearance Time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	941	434	226	1875	1625	891
v/s Ratio Prot	c0.12		0.05	c0.24	c0.18	
v/s Ratio Perm		0.02			0.06	
v/c Ratio	0.43	0.07	0.36	0.45	0.56	0.18
Uniform Delay, d1	14.5	13.0	19.3	7.0	13.7	11.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	4.4	0.8	0.5	0.1
Delay (s)	14.8	13.1	23.7	7.8	14.2	12.0
Level of Service	B	B	C	A	B	B
Approach Delay (s)	14.4			9.2	13.4	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay	12.2	HCM Level of Service			B	
HCM Volume to Capacity ratio	0.53					
Actuated Cycle Length (s)	48.5	Sum of lost time (s)			14.5	
Intersection Capacity Utilization	43.4%	ICU Level of Service			A	
Analysis Period (min)	15					
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

9: W Midway & Main

2017 Plus Project

Saturday Peak Hour of Generator

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	117	58	30	118	75	64	138	23	69	117	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5				3.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		0.95				0.95	
Fr _t	1.00	0.85		1.00	0.85		0.98				0.99	
Flt Protected	0.99	1.00		0.99	1.00		0.99				0.98	
Satd. Flow (prot)	1852	1583		1844	1583		3436				3448	
Flt Permitted	0.94	1.00		0.90	1.00		0.80				0.76	
Satd. Flow (perm)	1757	1583		1676	1583		2785				2681	
Peak-hour factor, PHF	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Adj. Flow (vph)	22	170	84	43	171	109	93	200	33	100	170	17
RTOR Reduction (vph)	0	0	56	0	0	73	0	23	0	0	12	0
Lane Group Flow (vph)	0	192	28	0	214	36	0	303	0	0	275	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	6.5	6.5		6.5	6.5		6.1				6.1	
Effective Green, g (s)	6.5	6.5		6.5	6.5		6.1				6.1	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.31				0.31	
Clearance Time (s)	3.5	3.5		3.5	3.5		3.5				3.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0				3.0	
Lane Grp Cap (vph)	583	525		556	525		867				834	
v/s Ratio Prot												
v/s Ratio Perm	0.11	0.02		c0.13	0.02		c0.11				0.10	
v/c Ratio	0.33	0.05		0.38	0.07		0.35				0.33	
Uniform Delay, d1	4.9	4.5		5.0	4.5		5.2				5.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00				1.00	
Incremental Delay, d2	0.3	0.0		0.4	0.1		0.2				0.2	
Delay (s)	5.2	4.5		5.5	4.5		5.5				5.4	
Level of Service	A	A		A	A		A				A	
Approach Delay (s)	5.0			5.2			5.5				5.4	
Approach LOS	A			A			A				A	
Intersection Summary												
HCM Average Control Delay	5.3				HCM Level of Service			A				
HCM Volume to Capacity ratio	0.37											
Actuated Cycle Length (s)	19.6				Sum of lost time (s)			7.0				
Intersection Capacity Utilization	36.6%				ICU Level of Service			A				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Atlantic & Main

2017 Plus Project

Saturday Peak Hour of Generator

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	143	95	76	213	128	129	220	61	105	211	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		5.0
Lane Util. Factor	0.95	1.00		0.95	1.00	1.00	0.95		0.95	0.91		0.91
Fr _t	1.00	0.85		1.00	0.85	1.00	0.97		1.00	0.99		
Flt Protected	1.00	1.00		0.99	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	3525	1583		3493	1583	1770	3424		1610	3335		
Flt Permitted	0.91	1.00		0.82	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (perm)	3237	1583		2902	1583	1770	3424		1610	3335		
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	16	181	120	96	270	162	163	278	77	133	267	29
RTOR Reduction (vph)	0	0	88	0	0	119	0	34	0	0	9	0
Lane Group Flow (vph)	0	197	32	0	366	43	163	321	0	120	300	0
Turn Type	Perm		Perm	Perm		Perm	Split		Split			
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	13.3	13.3		13.3	13.3	11.6	11.6		11.2	11.2		
Effective Green, g (s)	13.3	13.3		13.3	13.3	11.6	11.6		11.2	11.2		
Actuated g/C Ratio	0.27	0.27		0.27	0.27	0.23	0.23		0.22	0.22		
Clearance Time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	859	420		770	420	410	793		360	746		
v/s Ratio Prot						0.09	c0.09		0.07	c0.09		
v/s Ratio Perm	0.06	0.02		c0.13	0.03							
v/c Ratio	0.23	0.08		0.48	0.10	0.40	0.41		0.33	0.40		
Uniform Delay, d1	14.4	13.8		15.5	13.9	16.3	16.3		16.3	16.6		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.1	0.1		0.5	0.1	0.6	0.3		0.5	0.4		
Delay (s)	14.5	13.9		15.9	14.0	16.9	16.7		16.9	16.9		
Level of Service	B	B		B	B	B	B		B	B		
Approach Delay (s)	14.3			15.3			16.7			16.9		
Approach LOS	B			B			B			B		
Intersection Summary												
HCM Average Control Delay	15.9				HCM Level of Service				B			
HCM Volume to Capacity ratio	0.43											
Actuated Cycle Length (s)	50.1				Sum of lost time (s)				14.0			
Intersection Capacity Utilization	41.9%				ICU Level of Service				A			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

2017 Plus Project

Saturday Peak Hour of Generator

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑		↑↑	↑↑		↑	↑↑	↑
Volume (vph)	236	174	80	57	257	60	106	669	71	116	615	348
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Fr _t	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3439		1770	3488		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3439		1770	3488		1770	3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	246	181	83	59	268	62	110	697	74	121	641	362
RTOR Reduction (vph)	0	0	59	0	22	0	0	7	0	0	0	209
Lane Group Flow (vph)	246	181	24	59	308	0	110	764	0	121	641	153
Turn Type	Prot		Perm		Prot		Prot		Prot		pm+ov	
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	8.8	20.7	20.7	4.2	16.1		8.2	21.0		8.5	21.3	30.1
Effective Green, g (s)	8.8	20.7	20.7	4.2	16.1		8.2	21.0		8.5	21.3	30.1
Actuated g/C Ratio	0.12	0.29	0.29	0.06	0.23		0.11	0.29		0.12	0.30	0.42
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0
Lane Grp Cap (vph)	423	1026	459	104	775		203	1026		211	1056	756
v/s Ratio Prot	c0.07	0.05		0.03	c0.09		0.06	c0.22		c0.07	0.18	0.02
v/s Ratio Perm			0.02									0.07
v/c Ratio	0.58	0.18	0.05	0.57	0.40		0.54	0.74		0.57	0.61	0.20
Uniform Delay, d1	29.6	19.0	18.3	32.7	23.5		29.8	22.8		29.7	21.5	13.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.0	0.0	0.0	6.9	0.1		2.9	2.6		3.7	0.7	0.1
Delay (s)	31.6	19.0	18.3	39.6	23.6		32.8	25.4		33.5	22.1	13.2
Level of Service	C	B	B	D	C		C	C		C	C	B
Approach Delay (s)		25.0			26.1			26.3			20.5	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay		23.8			HCM Level of Service				C			
HCM Volume to Capacity ratio		0.59										
Actuated Cycle Length (s)		71.4			Sum of lost time (s)			17.0				
Intersection Capacity Utilization		57.1%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

2035 Conditions

HCM Signalized Intersection Capacity Analysis

1: 8th & Webster

Long-Term (2035) No Project - Alt. 3

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	394	1060	0	0	0	0	0	529	394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	4.0
Lane Util. Factor				0.86	0.86						0.86	0.86
Frt				1.00	1.00						0.96	0.85
Flt Protected				0.95	1.00						1.00	1.00
Satd. Flow (prot)				1522	4796						4619	1362
Flt Permitted				0.95	1.00						1.00	1.00
Satd. Flow (perm)				1522	4796						4619	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.92	0.92	0.93	0.93	
Adj. Flow (vph)	0	0	0	424	1140	0	0	0	0	0	569	424
RTOR Reduction (vph)	0	0	0	264	5	0	0	0	0	0	70	153
Lane Group Flow (vph)	0	0	0	113	1182	0	0	0	0	0	698	73
Turn Type				Perm							Perm	
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)				27.0	27.0						29.0	29.0
Effective Green, g (s)				27.0	27.0						29.0	29.0
Actuated g/C Ratio				0.30	0.30						0.32	0.32
Clearance Time (s)				4.0	4.0						4.0	4.0
Lane Grp Cap (vph)				457	1439						1488	439
v/s Ratio Prot											c0.15	
v/s Ratio Perm				0.07	0.25							0.05
v/c Ratio				0.25	0.82						0.47	0.17
Uniform Delay, d1				23.8	29.3						24.4	21.8
Progression Factor				1.00	1.00						1.00	1.00
Incremental Delay, d2				1.3	5.4						1.1	0.8
Delay (s)				25.1	34.7						25.4	22.6
Level of Service				C	C						C	C
Approach Delay (s)	0.0				32.4			0.0			24.8	
Approach LOS	A				C			A			C	
Intersection Summary												
HCM Average Control Delay	29.4			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.64											
Actuated Cycle Length (s)	90.0			Sum of lost time (s)				34.0				
Intersection Capacity Utilization	42.3%			ICU Level of Service				A				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: 7th & Webster

Long-Term (2035) No Project - Alt. 3

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	474	756	0	0	0	0	0	0	174	741	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0								4.0	
Lane Util. Factor		0.86	0.86								0.91	
Fr _t		0.93	0.85								1.00	
Flt Protected		1.00	1.00								0.99	
Satd. Flow (prot)		4486	1362								5037	
Flt Permitted		1.00	1.00								0.99	
Satd. Flow (perm)		4486	1362								5037	
Peak-hour factor, PHF	0.92	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.92
Adj. Flow (vph)	0	539	859	0	0	0	0	0	0	198	842	0
RTOR Reduction (vph)	0	35	35	0	0	0	0	0	0	0	65	0
Lane Group Flow (vph)	0	934	394	0	0	0	0	0	0	0	975	0
Turn Type			Perm								Perm	
Protected Phases		6									8	
Permitted Phases			6								8	
Actuated Green, G (s)	28.0	28.0									24.0	
Effective Green, g (s)	28.0	28.0									24.0	
Actuated g/C Ratio	0.47	0.47									0.40	
Clearance Time (s)		4.0	4.0								4.0	
Lane Grp Cap (vph)		2093	636								2015	
v/s Ratio Prot		0.21										
v/s Ratio Perm			c0.29								0.19	
v/c Ratio		0.45	0.62								0.48	
Uniform Delay, d1	10.8	12.0									13.4	
Progression Factor	1.00	1.00									1.00	
Incremental Delay, d2	0.7	4.5									0.8	
Delay (s)	11.5	16.5									14.2	
Level of Service	B	B									B	
Approach Delay (s)	13.0			0.0			0.0				14.2	
Approach LOS	B			A			A				B	
Intersection Summary												
HCM Average Control Delay		13.5		HCM Level of Service						B		
HCM Volume to Capacity ratio		0.56										
Actuated Cycle Length (s)		60.0		Sum of lost time (s)						8.0		
Intersection Capacity Utilization		57.9%		ICU Level of Service						B		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
3: 7th & Harrison

Long-Term (2035) No Project - Alt. 3
AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	181	457	0	0	0	0	0	1182	2107	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	2500	1900	1900	1900
Total Lost time (s)		5.0						5.0	5.0			
Lane Util. Factor		0.91						0.91	*1.00			
Fr _t		1.00						1.00	1.00			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5014						5085	4902			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5014						5085	4902			
Peak-hour factor, PHF	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.97	0.97	0.92	0.92	0.92
Adj. Flow (vph)	187	471	0	0	0	0	0	1219	2172	0	0	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	345	0	0	0
Lane Group Flow (vph)	0	650	0	0	0	0	0	1219	1827	0	0	0
Turn Type	Perm								Perm			
Protected Phases		6							4			
Permitted Phases	6									4		
Actuated Green, G (s)		27.0						23.0	23.0			
Effective Green, g (s)		27.0						23.0	23.0			
Actuated g/C Ratio		0.45						0.38	0.38			
Clearance Time (s)		5.0						5.0	5.0			
Lane Grp Cap (vph)		2256						1949	1879			
v/s Ratio Prot								0.24				
v/s Ratio Perm		0.13							c0.37			
v/c Ratio		0.29						0.63	0.97			
Uniform Delay, d1		10.4						15.0	18.2			
Progression Factor		0.70						1.00	1.00			
Incremental Delay, d2		0.3						1.5	15.2			
Delay (s)		7.6						16.5	33.4			
Level of Service		A						B	C			
Approach Delay (s)		7.6			0.0			27.3		0.0		
Approach LOS		A			A			C		A		
Intersection Summary												
HCM Average Control Delay		24.1						HCM Level of Service		C		
HCM Volume to Capacity ratio		0.60										
Actuated Cycle Length (s)		60.0						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		86.9%						ICU Level of Service		E		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
4: 6th & Broadway

Long-Term (2035) No Project - Alt. 3
AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				↑	↑↑	↑	↑	↑↑			↑↑↑↓	
Volume (vph)	0	0	0	365	322	818	60	255	0	0	554	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.98	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3539	1583	1770	3539			4992	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3539	1583	1770	3539			4992	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	384	339	861	63	268	0	0	583	81
RTOR Reduction (vph)	0	0	0	0	0	316	0	0	0	0	21	0
Lane Group Flow (vph)	0	0	0	384	339	545	63	268	0	0	643	0
Turn Type				Perm		Perm		Prot				
Protected Phases					2		7	4			8	
Permitted Phases				2		2						
Actuated Green, G (s)				31.0	31.0	31.0	5.1	36.5			27.9	
Effective Green, g (s)				31.0	31.0	31.0	5.1	36.5			27.9	
Actuated g/C Ratio				0.41	0.41	0.41	0.07	0.49			0.37	
Clearance Time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				732	1463	654	120	1722			1857	
v/s Ratio Prot					0.10		c0.04	0.08			c0.13	
v/s Ratio Perm				0.22		c0.34						
v/c Ratio				0.52	0.23	0.83	0.53	0.16			0.35	
Uniform Delay, d1				16.5	14.3	19.7	33.8	10.7			17.0	
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2				2.7	0.4	11.9	1.9	0.2			0.5	
Delay (s)				19.2	14.6	31.6	35.7	10.9			17.5	
Level of Service				B	B	C	D	B			B	
Approach Delay (s)	0.0				25.0			15.6			17.5	
Approach LOS	A				C			B			B	
Intersection Summary												
HCM Average Control Delay				21.8			HCM Level of Service		C			
HCM Volume to Capacity ratio				0.60								
Actuated Cycle Length (s)				75.0			Sum of lost time (s)		11.0			
Intersection Capacity Utilization				64.4%			ICU Level of Service		C			
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Broadway & 5th

Long-Term (2035) No Project - Alt. 3

AM Peak Hour

Movement	SEL2	SEL	SET	SER	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	58	901	170	157	259	235	82	377	178	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	5.0	5.0	5.0	4.0	4.0	5.0	5.0
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85		1.00	1.00	1.00	1.00
Flt Protected	0.95	0.96	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1610	3270	1583	3539	1583		1770	1770	1863	
Flt Permitted	0.95	0.96	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	1610	3270	1583	3539	1583		1770	1770	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	979	185	171	282	255	89	410	193	390
RTOR Reduction (vph)	0	0	0	53	0	14	0	0	0	0
Lane Group Flow (vph)	0	523	704	118	282	330	0	410	193	390
Turn Type	Perm	Perm		Perm		Perm		Prot	Prot	
Protected Phases			6		4			3	3	8
Permitted Phases	6	6		6		4				
Actuated Green, G (s)	26.0	26.0	26.0	31.0	31.0		20.0	20.0	55.0	
Effective Green, g (s)	26.0	26.0	26.0	31.0	31.0		20.0	20.0	55.0	
Actuated g/C Ratio	0.29	0.29	0.29	0.34	0.34		0.22	0.22	0.61	
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0		4.0	4.0	5.0	
Vehicle Extension (s)	2.5	2.5	2.5	4.0	4.0		2.0	2.0	4.0	
Lane Grp Cap (vph)	465	945	457	1219	545		393	393	1139	
v/s Ratio Prot				0.08			c0.23	0.11	0.21	
v/s Ratio Perm	c0.32	0.22	0.07		c0.21					
v/c Ratio	1.12	1.07dl	0.26	0.23	0.61		1.04	0.49	0.34	
Uniform Delay, d1	32.0	29.0	24.6	21.0	24.4		35.0	30.6	8.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	80.5	5.3	1.4	0.4	4.9		57.1	0.4	0.8	
Delay (s)	112.5	34.3	25.9	21.5	29.4		92.1	30.9	9.4	
Level of Service	F	C	C	C	C		F	C	A	
Approach Delay (s)		62.5		25.8					47.7	
Approach LOS		E		C					D	
Intersection Summary										
HCM Average Control Delay	50.0				HCM Level of Service			D		
HCM Volume to Capacity ratio	0.89									
Actuated Cycle Length (s)	90.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization	76.3%				ICU Level of Service			D		
Analysis Period (min)	15									
dl Defacto Left Lane. Recode with 1 though lane as a left lane.										
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis
6: 6th & Jackson

Long-Term (2035) No Project - Alt. 3
AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	16	419	79	289	422	0	0	223	1852
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2300
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	4.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	1.00
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1770	1863	1583		1826			1863	2255
Flt Permitted				0.95	1.00	1.00		0.76			1.00	1.00
Satd. Flow (perm)				1770	1863	1583		1417			1863	2255
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
Adj. Flow (vph)	0	0	0	17	455	86	314	459	0	0	242	2013
RTOR Reduction (vph)	0	0	0	0	0	65	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	17	455	21	0	773	0	0	242	2013
Turn Type				Perm		Perm	Perm					Free
Protected Phases					2			4				8
Permitted Phases				2		2	4					Free
Actuated Green, G (s)				14.5	14.5	14.5		34.5			34.5	60.0
Effective Green, g (s)				14.5	14.5	14.5		34.5			34.5	60.0
Actuated g/C Ratio				0.24	0.24	0.24		0.58			0.58	1.00
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	
Lane Grp Cap (vph)				428	450	383		815			1071	2255
v/s Ratio Prot					0.24						0.13	
v/s Ratio Perm				0.01		0.01		0.55			c0.89	
v/c Ratio				0.04	1.01	0.05		0.95			0.23	0.89
Uniform Delay, d1				17.4	22.8	17.5		11.9			6.2	0.0
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.2	45.2	0.3		21.2			0.5	5.9
Delay (s)				17.6	68.0	17.8		33.1			6.7	5.9
Level of Service				B	E	B		C			A	A
Approach Delay (s)	0.0				58.7			33.1			6.0	
Approach LOS	A				E			C			A	
Intersection Summary												
HCM Average Control Delay				20.1			HCM Level of Service			C		
HCM Volume to Capacity ratio				0.89								
Actuated Cycle Length (s)				60.0			Sum of lost time (s)			0.0		
Intersection Capacity Utilization				102.7%			ICU Level of Service			G		
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: 5th & Jackson

Long-Term (2035) No Project - Alt. 3

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	357	581	550	0	0	0	0	359	53	116	114	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5			4.5	
Lane Util. Factor	0.95	1.00						1.00			1.00	
Frt	1.00	0.85						0.98			1.00	
Flt Protected	0.98	1.00						1.00			0.98	
Satd. Flow (prot)	3473	1583						1830			1817	
Flt Permitted	0.98	1.00						1.00			0.62	
Satd. Flow (perm)	3473	1583						1830			1161	
Peak-hour factor, PHF	0.84	0.84	0.84	0.92	0.92	0.92	0.92	0.84	0.84	0.84	0.84	0.92
Adj. Flow (vph)	425	692	655	0	0	0	0	427	63	138	136	0
RTOR Reduction (vph)	0	0	473	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	1117	182	0	0	0	0	478	0	0	274	0
Turn Type	Perm		Perm								Perm	
Protected Phases		6						4			8	
Permitted Phases	6		6								8	
Actuated Green, G (s)	12.5	12.5						23.5			23.5	
Effective Green, g (s)	12.5	12.5						23.5			23.5	
Actuated g/C Ratio	0.28	0.28						0.52			0.52	
Clearance Time (s)	4.5	4.5						4.5			4.5	
Lane Grp Cap (vph)	965	440						956			606	
v/s Ratio Prot								c0.26				
v/s Ratio Perm	0.32	0.11									0.24	
v/c Ratio	1.16	0.41						0.50			0.45	
Uniform Delay, d1	16.2	13.3						7.0			6.7	
Progression Factor	1.00	1.00						1.00			1.00	
Incremental Delay, d2	82.6	2.9						1.9			2.4	
Delay (s)	98.9	16.1						8.8			9.2	
Level of Service	F	B						A			A	
Approach Delay (s)	68.3		0.0					8.8			9.2	
Approach LOS	E		A					A			A	
Intersection Summary												
HCM Average Control Delay	50.4			HCM Level of Service				D				
HCM Volume to Capacity ratio	0.73											
Actuated Cycle Length (s)	45.0			Sum of lost time (s)				9.0				
Intersection Capacity Utilization	79.4%			ICU Level of Service				D				
Analysis Period (min)	15											

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑↑	↑↑
Volume (vph)	510	110	106	1421	880	490
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.91	0.88
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	5085	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	5085	2787
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	622	134	129	1733	1073	598
RTOR Reduction (vph)	0	91	0	0	0	418
Lane Group Flow (vph)	622	43	129	1733	1073	180
Turn Type		Perm	Prot		Perm	
Protected Phases	4		5	2	6	
Permitted Phases		4			6	
Actuated Green, G (s)	16.3	16.3	6.1	25.5	15.4	15.4
Effective Green, g (s)	16.3	16.3	6.1	25.5	15.4	15.4
Actuated g/C Ratio	0.32	0.32	0.12	0.50	0.30	0.30
Clearance Time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1091	503	210	1759	1526	837
v/s Ratio Prot	c0.18		0.07	c0.49	0.21	
v/s Ratio Perm		0.03			0.06	
v/c Ratio	0.57	0.08	0.61	0.99	0.70	0.21
Uniform Delay, d1	14.6	12.3	21.5	12.7	15.9	13.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	12.7	18.2	1.5	0.1
Delay (s)	15.3	12.3	34.2	30.9	17.4	13.6
Level of Service	B	B	C	C	B	B
Approach Delay (s)	14.8			31.2	16.0	
Approach LOS	B			C	B	
Intersection Summary						
HCM Average Control Delay	22.4	HCM Level of Service			C	
HCM Volume to Capacity ratio	0.82					
Actuated Cycle Length (s)	51.3	Sum of lost time (s)			9.5	
Intersection Capacity Utilization	61.7%	ICU Level of Service			B	
Analysis Period (min)	15					
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

9: W Midway & Main

Long-Term (2035) No Project - Alt. 3

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	114	65	38	198	103	133	261	44	67	84	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5			3.5		
Lane Util. Factor	1.00	1.00		1.00	1.00		0.95			0.95		
Fr _t	1.00	0.85		1.00	0.85		0.98			0.97		
Flt Protected	0.99	1.00		0.99	1.00		0.99			0.98		
Satd. Flow (prot)	1839	1583		1848	1583		3434			3368		
Flt Permitted	0.86	1.00		0.92	1.00		0.77			0.72		
Satd. Flow (perm)	1602	1583		1722	1583		2687			2457		
Peak-hour factor, PHF	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Adj. Flow (vph)	57	168	96	56	291	151	196	384	65	99	124	60
RTOR Reduction (vph)	0	0	59	0	0	93	0	18	0	0	35	0
Lane Group Flow (vph)	0	225	37	0	347	58	0	627	0	0	248	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	13.2	13.2		13.2	13.2		14.1			14.1		
Effective Green, g (s)	13.2	13.2		13.2	13.2		14.1			14.1		
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.41			0.41		
Clearance Time (s)	3.5	3.5		3.5	3.5		3.5			3.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0			3.0		
Lane Grp Cap (vph)	617	609		663	609		1105			1010		
v/s Ratio Prot												
v/s Ratio Perm	0.14	0.02		c0.20	0.04		c0.23			0.10		
v/c Ratio	0.36	0.06		0.52	0.10		0.57			0.25		
Uniform Delay, d1	7.5	6.6		8.1	6.7		7.8			6.6		
Progression Factor	1.00	1.00		1.00	1.00		1.00			1.00		
Incremental Delay, d2	0.4	0.0		0.7	0.1		0.7			0.1		
Delay (s)	7.9	6.7		8.9	6.8		8.4			6.7		
Level of Service	A	A		A	A		A			A		
Approach Delay (s)	7.5			8.2			8.4			6.7		
Approach LOS	A			A			A			A		
Intersection Summary												
HCM Average Control Delay	7.9			HCM Level of Service			A					
HCM Volume to Capacity ratio	0.55											
Actuated Cycle Length (s)	34.3			Sum of lost time (s)			7.0					
Intersection Capacity Utilization	52.1%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Atlantic & Main

Long-Term (2035) No Project - Alt. 3

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	86	144	71	96	116	157	285	71	70	97	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		5.0
Lane Util. Factor	0.95	1.00		0.95	1.00	1.00	0.95		0.91	0.91		
Fr _t	1.00	0.85		1.00	0.85	1.00	0.97		1.00	0.98		
Flt Protected	0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	3494	1583		3466	1583	1770	3434		1610	3314		
Flt Permitted	0.85	1.00		0.78	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (perm)	3008	1583		2772	1583	1770	3434		1610	3314		
Peak-hour factor, PHF	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Adj. Flow (vph)	39	113	189	93	126	153	207	375	93	92	128	20
RTOR Reduction (vph)	0	0	142	0	0	115	0	27	0	0	15	0
Lane Group Flow (vph)	0	152	47	0	219	38	207	441	0	79	146	0
Turn Type	Perm		Perm		Perm		Split			Split		
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	11.5	11.5		11.5	11.5	13.9	13.9		7.3	7.3		
Effective Green, g (s)	11.5	11.5		11.5	11.5	13.9	13.9		7.3	7.3		
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.30	0.30		0.16	0.16		
Clearance Time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	741	390		683	390	527	1022		252	518		
v/s Ratio Prot						0.12	c0.13		c0.05	0.04		
v/s Ratio Perm	0.05	0.03		c0.08	0.02							
v/c Ratio	0.21	0.12		0.32	0.10	0.39	0.43		0.31	0.28		
Uniform Delay, d1	14.0	13.7		14.4	13.6	13.0	13.2		17.5	17.4		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.1	0.1		0.3	0.1	0.5	0.3		0.7	0.3		
Delay (s)	14.1	13.8		14.7	13.7	13.5	13.5		18.2	17.7		
Level of Service	B	B		B	B	B	B		B	B		
Approach Delay (s)	13.9			14.3			13.5			17.9		
Approach LOS	B			B			B			B		
Intersection Summary												
HCM Average Control Delay	14.4			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.37											
Actuated Cycle Length (s)	46.7			Sum of lost time (s)			14.0					
Intersection Capacity Utilization	35.9%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

Long-Term (2035) No Project - Alt. 3

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑		↑↑	↑↑		↑	↑↑	↑
Volume (vph)	324	268	90	37	340	99	133	1095	91	98	525	362
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Fr _t	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3419		1770	3498		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3419		1770	3498		1770	3539	1583
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	415	344	115	47	436	127	171	1404	117	126	673	464
RTOR Reduction (vph)	0	0	81	0	29	0	0	5	0	0	0	130
Lane Group Flow (vph)	415	344	34	47	534	0	171	1516	0	126	673	334
Turn Type	Prot		Perm		Prot			Prot		Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	8.2	24.7	24.7	4.4	20.9		12.8	27.3		11.2	25.7	33.9
Effective Green, g (s)	8.2	24.7	24.7	4.4	20.9		12.8	27.3		11.2	25.7	33.9
Actuated g/C Ratio	0.10	0.29	0.29	0.05	0.25		0.15	0.32		0.13	0.30	0.40
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0
Lane Grp Cap (vph)	333	1033	462	92	845		268	1129		234	1075	709
v/s Ratio Prot	c0.12	c0.10		0.03	c0.16		c0.10	c0.43		0.07	0.19	0.05
v/s Ratio Perm			0.02									0.17
v/c Ratio	1.25	0.33	0.07	0.51	0.63		0.64	1.34		0.54	0.63	0.47
Uniform Delay, d1	38.2	23.5	21.7	39.1	28.4		33.7	28.6		34.3	25.3	18.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	133.5	0.1	0.0	4.7	1.1		4.9	160.1		2.4	0.8	0.5
Delay (s)	171.7	23.6	21.7	43.8	29.6		38.6	188.8		36.7	26.1	19.2
Level of Service	F	C	C	D	C		D	F		D	C	B
Approach Delay (s)		93.7			30.7			173.6			24.7	
Approach LOS		F			C			F			C	

Intersection Summary

HCM Average Control Delay	95.8	HCM Level of Service	F
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	84.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: 8th & Webster

Long-Term (2035) No Project - alt. 3

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	619	744	0	0	0	0	0	1141	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	4.0
Lane Util. Factor				0.86	0.86						0.86	0.86
Frt				1.00	1.00						0.99	0.85
Flt Protected				0.95	0.99						1.00	1.00
Satd. Flow (prot)				1522	4740						4761	1362
Flt Permitted				0.95	0.99						1.00	1.00
Satd. Flow (perm)				1522	4740						4761	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.93	0.93
Adj. Flow (vph)	0	0	0	666	800	0	0	0	0	0	1227	457
RTOR Reduction (vph)	0	0	0	252	76	0	0	0	0	0	7	254
Lane Group Flow (vph)	0	0	0	108	1030	0	0	0	0	0	1302	121
Turn Type				Perm							Perm	
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)				27.0	27.0						29.0	29.0
Effective Green, g (s)				27.0	27.0						29.0	29.0
Actuated g/C Ratio				0.30	0.30						0.32	0.32
Clearance Time (s)				4.0	4.0						4.0	4.0
Lane Grp Cap (vph)				457	1422						1534	439
v/s Ratio Prot											c0.27	
v/s Ratio Perm				0.07	0.22							0.09
v/c Ratio				0.24	0.72						0.85	0.28
Uniform Delay, d1				23.7	28.2						28.5	22.7
Progression Factor				1.00	1.00						1.00	1.00
Incremental Delay, d2				1.2	3.2						6.0	1.5
Delay (s)				24.9	31.4						34.5	24.2
Level of Service				C	C						C	C
Approach Delay (s)	0.0				29.8			0.0			32.2	
Approach LOS	A				C			A			C	
Intersection Summary												
HCM Average Control Delay	31.1			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.79											
Actuated Cycle Length (s)	90.0			Sum of lost time (s)				34.0				
Intersection Capacity Utilization	43.4%			ICU Level of Service				A				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: 7th & Webster

Long-Term (2035) No Project - alt. 3

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	853	1141	0	0	0	0	0	0	260	1489	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0								4.0	
Lane Util. Factor		0.86	0.86								0.91	
Fr _t		0.94	0.85								1.00	
Flt Protected		1.00	1.00								0.99	
Satd. Flow (prot)		4517	1362								5048	
Flt Permitted		1.00	1.00								0.99	
Satd. Flow (perm)		4517	1362								5048	
Peak-hour factor, PHF	0.92	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.92
Adj. Flow (vph)	0	958	1282	0	0	0	0	0	0	292	1673	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	41	0
Lane Group Flow (vph)	0	1599	641	0	0	0	0	0	0	0	1924	0
Turn Type			Perm								Perm	
Protected Phases		6									8	
Permitted Phases			6								8	
Actuated Green, G (s)	32.0	32.0									20.0	
Effective Green, g (s)	32.0	32.0									20.0	
Actuated g/C Ratio	0.53	0.53									0.33	
Clearance Time (s)		4.0	4.0								4.0	
Lane Grp Cap (vph)		2409	726								1683	
v/s Ratio Prot		0.35										
v/s Ratio Perm			c0.47								0.38	
v/c Ratio		0.66	0.88								1.14	
Uniform Delay, d1	10.1	12.3									20.0	
Progression Factor	1.00	1.00									1.00	
Incremental Delay, d2	1.5	14.6									72.2	
Delay (s)	11.6	26.9									92.2	
Level of Service	B	C									F	
Approach Delay (s)	16.0		0.0				0.0				92.2	
Approach LOS	B		A				A				F	
Intersection Summary												
HCM Average Control Delay		51.6		HCM Level of Service						D		
HCM Volume to Capacity ratio		0.98										
Actuated Cycle Length (s)		60.0		Sum of lost time (s)						8.0		
Intersection Capacity Utilization		87.8%		ICU Level of Service						E		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
3: 7th & Harrison

Long-Term (2035) No Project - alt. 3
PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	320	773	0	0	0	0	0	804	1895	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	2500	1900	1900	1900
Total Lost time (s)	5.0							5.0	5.0			
Lane Util. Factor	0.91							0.91	*1.00			
Fr _t	1.00							1.00	1.00			
Flt Protected	0.99							1.00	1.00			
Satd. Flow (prot)	5012							5085	4902			
Flt Permitted	0.99							1.00	1.00			
Satd. Flow (perm)	5012							5085	4902			
Peak-hour factor, PHF	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	352	849	0	0	0	0	0	884	2082	0	0	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	223	0	0	0
Lane Group Flow (vph)	0	1196	0	0	0	0	0	884	1859	0	0	0
Turn Type	Perm								Perm			
Protected Phases		6							4			
Permitted Phases	6									4		
Actuated Green, G (s)	34.0							16.0	16.0			
Effective Green, g (s)	34.0							16.0	16.0			
Actuated g/C Ratio	0.57							0.27	0.27			
Clearance Time (s)	5.0							5.0	5.0			
Lane Grp Cap (vph)	2840							1356	1307			
v/s Ratio Prot								0.17				
v/s Ratio Perm	0.24								c0.38			
v/c Ratio	0.42							0.65	1.42			
Uniform Delay, d1	7.4							19.5	22.0			
Progression Factor	0.48							1.00	1.00			
Incremental Delay, d2	0.3							2.4	194.6			
Delay (s)	3.8							22.0	216.6			
Level of Service	A							C	F			
Approach Delay (s)	3.8				0.0			158.6		0.0		
Approach LOS	A				A			F		A		
Intersection Summary												
HCM Average Control Delay	114.0							HCM Level of Service		F		
HCM Volume to Capacity ratio	0.74											
Actuated Cycle Length (s)	60.0							Sum of lost time (s)		10.0		
Intersection Capacity Utilization	87.0%							ICU Level of Service		E		
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
4: 6th & Broadway

Long-Term (2035) No Project - alt. 3
PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	363	193	854	130	433	0	0	953	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91	
Fr _t				1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3539	1583	1770	3539			5045	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3539	1583	1770	3539			5045	
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	0	0	386	205	909	138	461	0	0	1014	57
RTOR Reduction (vph)	0	0	0	0	0	187	0	0	0	0	8	0
Lane Group Flow (vph)	0	0	0	386	205	722	138	461	0	0	1063	0
Turn Type				Perm		Perm		Prot				
Protected Phases					2		7	4			8	
Permitted Phases				2		2						
Actuated Green, G (s)				31.0	31.0	31.0	7.9	36.5			25.1	
Effective Green, g (s)				31.0	31.0	31.0	7.9	36.5			25.1	
Actuated g/C Ratio				0.41	0.41	0.41	0.11	0.49			0.33	
Clearance Time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				732	1463	654	186	1722			1688	
v/s Ratio Prot					0.06		c0.08	0.13			c0.21	
v/s Ratio Perm				0.22		c0.46						
v/c Ratio				0.53	0.14	1.10	0.74	0.27			0.63	
Uniform Delay, d1				16.5	13.7	22.0	32.6	11.4			21.0	
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2				2.7	0.2	67.1	13.0	0.4			1.8	
Delay (s)				19.2	13.9	89.1	45.6	11.7			22.8	
Level of Service				B	B	F	D	B			C	
Approach Delay (s)	0.0				60.8			19.5			22.8	
Approach LOS	A				E			B			C	
Intersection Summary												
HCM Average Control Delay	40.2				HCM Level of Service			D				
HCM Volume to Capacity ratio	0.87											
Actuated Cycle Length (s)	75.0				Sum of lost time (s)			11.0				
Intersection Capacity Utilization	71.5%				ICU Level of Service			C				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Broadway & 5th

Long-Term (2035) No Project - alt. 3

PM Peak Hour

Movement	SEL2	SEL	SET	SER	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	27	1308	406	220	528	409	90	523	348	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	5.0	5.0	5.0	4.0	4.0	5.0	5.0
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00
Satd. Flow (prot)	1610	3288	1583	3539	1583	1770	1770	1770	1863	1863
Flt Permitted	0.95	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00
Satd. Flow (perm)	1610	3288	1583	3539	1583	1770	1770	1770	1863	1863
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	28	1377	427	232	556	431	95	551	366	474
RTOR Reduction (vph)	0	0	0	45	0	9	0	0	0	0
Lane Group Flow (vph)	0	703	1129	187	556	517	0	551	366	474
Turn Type	Perm	Perm		Perm		Perm		Prot	Prot	
Protected Phases			6		4			3	3	8
Permitted Phases	6	6		6		4				
Actuated Green, G (s)	26.0	26.0	26.0	31.0	31.0		20.0	20.0	55.0	
Effective Green, g (s)	26.0	26.0	26.0	31.0	31.0		20.0	20.0	55.0	
Actuated g/C Ratio	0.29	0.29	0.29	0.34	0.34		0.22	0.22	0.61	
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0		4.0	4.0	5.0	
Vehicle Extension (s)	2.5	2.5	2.5	4.0	4.0		2.0	2.0	4.0	
Lane Grp Cap (vph)	465	950	457	1219	545		393	393	1139	
v/s Ratio Prot				0.16			c0.31	0.21	0.25	
v/s Ratio Perm	c0.44	0.34	0.12		c0.33					
v/c Ratio	1.51	1.44dl	0.41	0.46	0.95		1.40	0.93	0.42	
Uniform Delay, d1	32.0	32.0	25.8	22.9	28.7		35.0	34.3	9.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	241.2	95.4	2.7	1.2	27.9		195.7	28.3	1.1	
Delay (s)	273.2	127.4	28.5	24.2	56.6		230.7	62.6	10.2	
Level of Service	F	F	C	C	E		F	E	B	
Approach Delay (s)		166.0		39.9					111.4	
Approach LOS		F		D					F	
Intersection Summary										
HCM Average Control Delay	119.2	HCM Level of Service					F			
HCM Volume to Capacity ratio	1.26									
Actuated Cycle Length (s)	90.0	Sum of lost time (s)					13.0			
Intersection Capacity Utilization	106.9%	ICU Level of Service					G			
Analysis Period (min)	15									
dl Defacto Left Lane. Recode with 1 though lane as a left lane.										
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis
6: 6th & Jackson

Long-Term (2035) No Project - alt. 3
PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	10	441	56	525	356	0	0	310	1602
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2300
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	4.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.97			1.00	1.00
Satd. Flow (prot)				1770	1863	1583		1809			1863	1917
Flt Permitted				0.95	1.00	1.00		0.65			1.00	1.00
Satd. Flow (perm)				1770	1863	1583		1203			1863	1917
Peak-hour factor, PHF	0.92	0.92	0.92	0.97	0.97	0.97	0.97	0.97	0.92	0.92	0.97	0.97
Adj. Flow (vph)	0	0	0	10	455	58	541	367	0	0	320	1652
RTOR Reduction (vph)	0	0	0	0	0	44	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	10	455	14	0	908	0	0	320	1652
Turn Type				Perm		Perm	Perm					Free
Protected Phases					2			4				8
Permitted Phases				2		2	4					Free
Actuated Green, G (s)				14.5	14.5	14.5		34.5			34.5	60.0
Effective Green, g (s)				14.5	14.5	14.5		34.5			34.5	60.0
Actuated g/C Ratio				0.24	0.24	0.24		0.58			0.58	1.00
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	
Lane Grp Cap (vph)				428	450	383		692			1071	1917
v/s Ratio Prot					0.24						0.17	
v/s Ratio Perm				0.01		0.01		c0.76			c0.86	
v/c Ratio				0.02	1.01	0.04		1.31			0.30	0.86
Uniform Delay, d1				17.4	22.8	17.4		12.8			6.5	0.0
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.1	45.2	0.2		150.7			0.7	5.4
Delay (s)				17.5	68.0	17.6		163.4			7.3	5.4
Level of Service				B	E	B		F			A	A
Approach Delay (s)	0.0				61.4			163.4			5.7	
Approach LOS	A				E			F			A	
Intersection Summary												
HCM Average Control Delay				56.3			HCM Level of Service			E		
HCM Volume to Capacity ratio				1.15								
Actuated Cycle Length (s)				60.0			Sum of lost time (s)			5.5		
Intersection Capacity Utilization				113.5%			ICU Level of Service			H		
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: 5th & Jackson

Long-Term (2035) No Project - alt. 3

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	401	605	454	0	0	0	0	470	47	143	167	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5					4.5			4.5	
Lane Util. Factor		0.95	1.00					1.00			1.00	
Frt		1.00	0.85					0.99			1.00	
Flt Protected		0.98	1.00					1.00			0.98	
Satd. Flow (prot)		3470	1583					1840			1821	
Flt Permitted		0.98	1.00					1.00			0.35	
Satd. Flow (perm)		3470	1583					1840			659	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.88	0.88	0.88	0.88	0.92
Adj. Flow (vph)	456	688	516	0	0	0	0	534	53	162	190	0
RTOR Reduction (vph)	0	0	304	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	1144	212	0	0	0	0	581	0	0	352	0
Turn Type	Perm		Perm							Perm		
Protected Phases		6						4			8	
Permitted Phases	6		6							8		
Actuated Green, G (s)	24.5	24.5						26.0			26.0	
Effective Green, g (s)	24.5	24.5						26.0			26.0	
Actuated g/C Ratio	0.41	0.41						0.44			0.44	
Clearance Time (s)	4.5	4.5						4.5			4.5	
Lane Grp Cap (vph)	1429	652						804			288	
v/s Ratio Prot								0.32				
v/s Ratio Perm	0.33	0.13									0.53	
v/c Ratio	0.80	0.33						0.72			1.22	
Uniform Delay, d1	15.4	11.9						13.8			16.8	
Progression Factor	1.00	1.00						1.00			1.00	
Incremental Delay, d2	4.8	1.3						5.6			127.1	
Delay (s)	20.2	13.2						19.4			143.8	
Level of Service	C	B						B			F	
Approach Delay (s)	18.0			0.0				19.4			143.8	
Approach LOS	B			A				B			F	
Intersection Summary												
HCM Average Control Delay	35.3			HCM Level of Service				D				
HCM Volume to Capacity ratio	1.02											
Actuated Cycle Length (s)	59.5			Sum of lost time (s)				9.0				
Intersection Capacity Utilization	88.9%			ICU Level of Service				E				
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
8: Willie Stargell & Webster

Long-Term (2035) No Project - alt. 3
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑↑	↑↑
Volume (vph)	572	323	101	799	1556	692
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.91	0.88
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	5085	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	5085	2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	596	336	105	832	1621	721
RTOR Reduction (vph)	0	212	0	0	0	505
Lane Group Flow (vph)	596	124	105	832	1621	216
Turn Type		Perm	Prot		Perm	
Protected Phases	4		5	2	6	
Permitted Phases		4			6	
Actuated Green, G (s)	16.5	16.5	6.1	25.5	15.4	15.4
Effective Green, g (s)	16.5	16.5	6.1	25.5	15.4	15.4
Actuated g/C Ratio	0.32	0.32	0.12	0.50	0.30	0.30
Clearance Time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1100	507	210	1752	1521	833
v/s Ratio Prot	c0.17		0.06	c0.24	c0.32	
v/s Ratio Perm		0.08			0.08	
v/c Ratio	0.54	0.24	0.50	0.47	1.07	0.26
Uniform Delay, d1	14.4	12.9	21.3	8.6	18.1	13.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3	8.3	0.9	42.8	0.2
Delay (s)	14.9	13.2	29.5	9.5	60.9	13.9
Level of Service	B	B	C	A	E	B
Approach Delay (s)	14.3			11.8	46.4	
Approach LOS	B			B	D	
Intersection Summary						
HCM Average Control Delay	31.6	HCM Level of Service			C	
HCM Volume to Capacity ratio	0.78					
Actuated Cycle Length (s)	51.5	Sum of lost time (s)			14.5	
Intersection Capacity Utilization	63.2%	ICU Level of Service			B	
Analysis Period (min)	15					
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

9: W Midway & Main

Long-Term (2035) No Project - alt. 3

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	86	216	165	30	159	103	68	126	15	109	279	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5	3.5		3.5			3.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		0.95			0.95	
Fr _t	1.00	0.85		1.00	0.85	0.99		0.99			0.98	
Flt Protected	0.99	1.00		0.99	1.00	0.98		0.98			0.99	
Satd. Flow (prot)	1837	1583		1848	1583		3446			3426		
Flt Permitted	0.83	1.00		0.89	1.00	0.70		0.70			0.79	
Satd. Flow (perm)	1539	1583		1664	1583		2452			2734		
Peak-hour factor, PHF	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Adj. Flow (vph)	134	338	258	47	248	161	106	197	23	170	436	94
RTOR Reduction (vph)	0	0	146	0	0	94	0	14	0	0	31	0
Lane Group Flow (vph)	0	472	112	0	295	67	0	312	0	0	669	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	14.7	14.7		14.7	14.7		13.4			13.4		
Effective Green, g (s)	14.7	14.7		14.7	14.7		13.4			13.4		
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.38			0.38		
Clearance Time (s)	3.5	3.5		3.5	3.5		3.5			3.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0			3.0		
Lane Grp Cap (vph)	645	663		697	663		936			1044		
v/s Ratio Prot												
v/s Ratio Perm	c0.31	0.07		0.18	0.04		0.13			c0.24		
v/c Ratio	0.73	0.17		0.42	0.10		0.33			0.64		
Uniform Delay, d1	8.5	6.4		7.2	6.2		7.7			8.9		
Progression Factor	1.00	1.00		1.00	1.00		1.00			1.00		
Incremental Delay, d2	4.3	0.1		0.4	0.1		0.2			1.4		
Delay (s)	12.8	6.5		7.6	6.3		7.9			10.2		
Level of Service	B	A		A	A		A			B		
Approach Delay (s)	10.6			7.1			7.9			10.2		
Approach LOS	B			A			A			B		
Intersection Summary												
HCM Average Control Delay	9.4				HCM Level of Service					A		
HCM Volume to Capacity ratio	0.69											
Actuated Cycle Length (s)	35.1				Sum of lost time (s)					7.0		
Intersection Capacity Utilization	58.2%				ICU Level of Service					B		
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Atlantic & Main

Long-Term (2035) No Project - alt. 3

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	232	110	47	354	79	115	132	27	104	323	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	0.95	1.00		0.95	1.00		1.00	0.95		0.91	0.91	
Fr _t	1.00	0.85		1.00	0.85		1.00	0.97		1.00	0.98	
Flt Protected	1.00	1.00		0.99	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3537	1583		3518	1583		1770	3450		1610	3311	
Flt Permitted	0.95	1.00		0.87	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3358	1583		3091	1583		1770	3450		1610	3311	
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	4	314	149	64	478	107	155	178	36	141	436	77
RTOR Reduction (vph)	0	0	106	0	0	76	0	24	0	0	16	0
Lane Group Flow (vph)	0	318	43	0	542	31	155	190	0	127	511	0
Turn Type	Perm		Perm		Perm		Split			Split		
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	16.6	16.6		16.6	16.6	11.4	11.4			15.6	15.6	
Effective Green, g (s)	16.6	16.6		16.6	16.6	11.4	11.4			15.6	15.6	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.20	0.20			0.27	0.27	
Clearance Time (s)	4.0	4.0		4.0	4.0	5.0	5.0			5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	968	456		891	456	350	683			436	897	
v/s Ratio Prot						c0.09	0.06			0.08	c0.15	
v/s Ratio Perm	0.09	0.03		c0.18	0.02							
v/c Ratio	0.33	0.09		0.61	0.07	0.44	0.28			0.29	0.57	
Uniform Delay, d1	16.1	15.0		17.7	14.9	20.3	19.6			16.6	18.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2	0.2	0.1		1.2	0.1	0.9	0.2			0.4	0.8	
Delay (s)	16.3	15.1		18.9	14.9	21.2	19.8			17.0	18.9	
Level of Service	B	B		B	B	C	B			B	B	
Approach Delay (s)	15.9			18.2			20.4			18.6		
Approach LOS	B			B			C			B		
Intersection Summary												
HCM Average Control Delay	18.2	HCM Level of Service					B					
HCM Volume to Capacity ratio	0.55											
Actuated Cycle Length (s)	57.6	Sum of lost time (s)					14.0					
Intersection Capacity Utilization	48.2%	ICU Level of Service					A					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

Long-Term (2035) No Project - alt. 3

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑		↑↑	↑↑		↑	↑↑	↑
Volume (vph)	208	275	101	181	501	158	157	534	166	398	1006	465
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Fr _t	1.00	1.00	0.85	1.00	0.96		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3412		1770	3413		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3412		1770	3413		1770	3539	1583
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
Adj. Flow (vph)	226	299	110	197	545	172	171	580	180	433	1093	505
RTOR Reduction (vph)	0	0	81	0	31	0	0	26	0	0	0	97
Lane Group Flow (vph)	226	299	29	197	686	0	171	734	0	433	1093	408
Turn Type	Prot		Perm	Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	8.1	24.7	24.7	8.1	24.7		13.4	28.6		16.1	31.3	39.4
Effective Green, g (s)	8.1	24.7	24.7	8.1	24.7		13.4	28.6		16.1	31.3	39.4
Actuated g/C Ratio	0.09	0.26	0.26	0.09	0.26		0.14	0.30		0.17	0.33	0.42
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0
Lane Grp Cap (vph)	294	925	414	152	892		251	1033		302	1172	727
v/s Ratio Prot	0.07	0.08		c0.11	c0.20		0.10	0.22		c0.24	c0.31	0.05
v/s Ratio Perm			0.02									0.21
v/c Ratio	0.77	0.32	0.07	1.30	0.77		0.68	0.71		1.43	0.93	0.56
Uniform Delay, d1	42.3	28.2	26.3	43.2	32.3		38.5	29.3		39.2	30.6	21.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	11.4	0.1	0.0	173.1	3.6		7.4	1.9		213.2	13.0	1.0
Delay (s)	53.7	28.2	26.3	216.3	35.9		45.9	31.2		252.4	43.6	22.0
Level of Service	D	C	C	F	D		D	C		F	D	C
Approach Delay (s)		37.0			74.8			33.9			82.7	
Approach LOS		D			E			C			F	

Intersection Summary

HCM Average Control Delay	64.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	94.5	Sum of lost time (s)	17.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: 8th & Webster

Long-Term (2035) No Project - alt. 3

Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	453	807	0	0	0	0	0	747	366
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	4.0
Lane Util. Factor				0.86	0.86						0.86	0.86
Frt				1.00	1.00						0.98	0.85
Flt Protected				0.95	0.99						1.00	1.00
Satd. Flow (prot)				1522	4769						4708	1362
Flt Permitted				0.95	0.99						1.00	1.00
Satd. Flow (perm)				1522	4769						4708	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92	0.95	0.95	
Adj. Flow (vph)	0	0	0	477	849	0	0	0	0	0	786	385
RTOR Reduction (vph)	0	0	0	224	27	0	0	0	0	0	22	178
Lane Group Flow (vph)	0	0	0	96	979	0	0	0	0	0	887	84
Turn Type				Perm							Perm	
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)				27.0	27.0						29.0	29.0
Effective Green, g (s)				27.0	27.0						29.0	29.0
Actuated g/C Ratio				0.30	0.30						0.32	0.32
Clearance Time (s)				4.0	4.0						4.0	4.0
Lane Grp Cap (vph)				457	1431						1517	439
v/s Ratio Prot											c0.19	
v/s Ratio Perm				0.06	0.21							0.06
v/c Ratio				0.21	0.68						0.58	0.19
Uniform Delay, d1				23.5	27.7						25.5	22.0
Progression Factor				1.00	1.00						1.00	1.00
Incremental Delay, d2				1.0	2.7						1.7	1.0
Delay (s)				24.6	30.4						27.1	23.0
Level of Service				C	C						C	C
Approach Delay (s)	0.0				29.0			0.0			26.2	
Approach LOS	A				C			A			C	
Intersection Summary												
HCM Average Control Delay				27.7	HCM Level of Service					C		
HCM Volume to Capacity ratio				0.63								
Actuated Cycle Length (s)				90.0	Sum of lost time (s)					34.0		
Intersection Capacity Utilization				42.3%	ICU Level of Service					A		
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: 7th & Webster

Long-Term (2035) No Project - alt. 3

Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	628	898	0	0	0	0	0	0	205	1055	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0								4.0	
Lane Util. Factor		0.86	0.86								0.91	
Fr _t		0.94	0.85								1.00	
Flt Protected		1.00	1.00								0.99	
Satd. Flow (prot)		4505	1362								5044	
Flt Permitted		1.00	1.00								0.99	
Satd. Flow (perm)		4505	1362								5044	
Peak-hour factor, PHF	0.92	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.92
Adj. Flow (vph)	0	690	987	0	0	0	0	0	0	225	1159	0
RTOR Reduction (vph)	0	24	24	0	0	0	0	0	0	0	44	0
Lane Group Flow (vph)	0	1160	469	0	0	0	0	0	0	0	1340	0
Turn Type			Perm								Perm	
Protected Phases		6									8	
Permitted Phases			6								8	
Actuated Green, G (s)	16.0	16.0									21.0	
Effective Green, g (s)	16.0	16.0									21.0	
Actuated g/C Ratio	0.36	0.36									0.47	
Clearance Time (s)		4.0	4.0								4.0	
Lane Grp Cap (vph)		1602	484								2354	
v/s Ratio Prot		0.26										
v/s Ratio Perm			c0.34								0.27	
v/c Ratio		0.88dr	0.97								0.57	
Uniform Delay, d1	12.6	14.2									8.7	
Progression Factor	1.00	1.00									0.72	
Incremental Delay, d2	2.9	33.7									0.9	
Delay (s)	15.5	47.9									7.1	
Level of Service	B	D									A	
Approach Delay (s)	25.0			0.0			0.0				7.1	
Approach LOS	C			A			A				A	
Intersection Summary												
HCM Average Control Delay		16.9		HCM Level of Service						B		
HCM Volume to Capacity ratio		0.74										
Actuated Cycle Length (s)		45.0		Sum of lost time (s)						8.0		
Intersection Capacity Utilization		68.3%		ICU Level of Service						C		
Analysis Period (min)		15										
dr Defacto Right Lane. Recode with 1 though lane as a right lane.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
3: 7th & Harrison

Long-Term (2035) No Project - alt. 3
Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	231	567	0	0	0	0	0	916	1845	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	2500	1900	1900	1900
Total Lost time (s)		5.0						5.0	5.0			
Lane Util. Factor		0.91						0.91	*1.00			
Fr _t		1.00						1.00	1.00			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5013						5085	4902			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5013						5085	4902			
Peak-hour factor, PHF	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	260	637	0	0	0	0	0	1029	2073	0	0	0
RTOR Reduction (vph)	0	16	0	0	0	0	0	0	166	0	0	0
Lane Group Flow (vph)	0	881	0	0	0	0	0	1029	1907	0	0	0
Turn Type	Perm								Perm			
Protected Phases		6							4			
Permitted Phases	6									4		
Actuated Green, G (s)		18.0						17.0	17.0			
Effective Green, g (s)		18.0						17.0	17.0			
Actuated g/C Ratio		0.40						0.38	0.38			
Clearance Time (s)		5.0						5.0	5.0			
Lane Grp Cap (vph)		2005						1921	1852			
v/s Ratio Prot								0.20				
v/s Ratio Perm		0.18							c0.39			
v/c Ratio		0.44						0.54	1.03			
Uniform Delay, d1		9.8						10.9	14.0			
Progression Factor		0.71						1.00	1.00			
Incremental Delay, d2		0.5						1.1	28.9			
Delay (s)		7.5						12.0	42.9			
Level of Service		A						B	D			
Approach Delay (s)		7.5			0.0			32.7		0.0		
Approach LOS		A			A			C		A		
Intersection Summary												
HCM Average Control Delay		27.0						HCM Level of Service		C		
HCM Volume to Capacity ratio		0.73										
Actuated Cycle Length (s)		45.0						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		73.0%						ICU Level of Service		D		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
4: 6th & Broadway

Long-Term (2035) No Project - alt. 3
Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				↑	↑↑	↑	↑	↑↑			↑↑↑↓	
Volume (vph)	0	0	0	318	225	730	83	300	0	0	658	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3539	1583	1770	3539			5024	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3539	1583	1770	3539			5024	
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
Adj. Flow (vph)	0	0	0	346	245	793	90	326	0	0	715	62
RTOR Reduction (vph)	0	0	0	0	0	270	0	0	0	0	12	0
Lane Group Flow (vph)	0	0	0	346	245	523	90	326	0	0	765	0
Turn Type				Perm		Perm		Prot				
Protected Phases					2		7	4			8	
Permitted Phases				2		2						
Actuated Green, G (s)				31.0	31.0	31.0	7.0	36.5			26.0	
Effective Green, g (s)				31.0	31.0	31.0	7.0	36.5			26.0	
Actuated g/C Ratio				0.41	0.41	0.41	0.09	0.49			0.35	
Clearance Time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				732	1463	654	165	1722			1742	
v/s Ratio Prot					0.07		c0.05	0.09			c0.15	
v/s Ratio Perm				0.20		c0.33						
v/c Ratio				0.47	0.17	0.80	0.55	0.19			0.44	
Uniform Delay, d1				16.0	13.9	19.3	32.5	10.9			18.9	
Progression Factor				1.00	1.00	1.00	1.48	0.51			1.00	
Incremental Delay, d2				2.2	0.2	9.9	1.9	0.2			0.8	
Delay (s)				18.2	14.1	29.2	49.9	5.8			19.7	
Level of Service				B	B	C	D	A			B	
Approach Delay (s)	0.0				23.8			15.3			19.7	
Approach LOS	A				C			B			B	
Intersection Summary												
HCM Average Control Delay	21.2			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.63											
Actuated Cycle Length (s)	75.0			Sum of lost time (s)				11.0				
Intersection Capacity Utilization	60.2%			ICU Level of Service				B				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Broadway & 5th

Long-Term (2035) No Project - alt. 3

Weekend Peak Hour of Generator

Movement	SEL2	SEL	SET	SER	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	31	794	207	136	283	232	62	324	189	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	3.5	3.5	3.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85		1.00	1.00	1.00	1.00
Flt Protected	0.95	0.97	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1610	3281	1583	3539	1583		1770	1770	1863	
Flt Permitted	0.95	0.97	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	1610	3281	1583	3539	1583		1770	1770	1863	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	33	845	220	145	301	247	66	345	201	310
RTOR Reduction (vph)	0	0	0	57	0	12	0	0	0	0
Lane Group Flow (vph)	0	439	659	88	301	301	0	345	201	310
Turn Type	Perm	Perm		Perm		Perm		Prot	Prot	
Protected Phases			6		4			3	3	8
Permitted Phases	6	6		6		4				
Actuated Green, G (s)	22.5	22.5	22.5	23.0	23.0		16.0	16.0	42.5	
Effective Green, g (s)	22.5	22.5	22.5	23.0	23.0		16.0	16.0	42.5	
Actuated g/C Ratio	0.30	0.30	0.30	0.31	0.31		0.21	0.21	0.57	
Clearance Time (s)	5.5	5.5	5.5	3.5	3.5		4.5	4.5	4.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)	483	984	475	1085	485		378	378	1056	
v/s Ratio Prot				0.09			c0.19	0.11	0.17	
v/s Ratio Perm	c0.27	0.20	0.06		c0.19					
v/c Ratio	0.91	0.87	0.18	0.28	0.62		0.91	0.53	0.29	
Uniform Delay, d1	25.3	23.0	19.5	19.7	22.3		28.8	26.2	8.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.38	1.40	0.80	
Incremental Delay, d2	23.6	3.6	0.9	0.6	5.8		23.7	0.7	0.6	
Delay (s)	48.9	26.6	20.3	20.3	28.1		63.5	37.2	7.4	
Level of Service	D	C	C	C	C		E	D	A	
Approach Delay (s)		33.7		24.3					37.0	
Approach LOS		C		C					D	
Intersection Summary										
HCM Average Control Delay	32.6				HCM Level of Service			C		
HCM Volume to Capacity ratio	0.80									
Actuated Cycle Length (s)	75.0				Sum of lost time (s)			13.5		
Intersection Capacity Utilization	69.8%				ICU Level of Service			C		
Analysis Period (min)	15									
dl Defacto Left Lane. Recode with 1 though lane as a left lane.										
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis
6: 6th & Jackson

Long-Term (2035) No Project - alt. 3
Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	12	396	62	375	358	0	0	246	1591
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2300
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	4.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1770	1863	1583		1816			1863	1917
Flt Permitted				0.95	1.00	1.00		0.71			1.00	1.00
Satd. Flow (perm)				1770	1863	1583		1320			1863	1917
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	13	417	65	395	377	0	0	259	1675
RTOR Reduction (vph)	0	0	0	0	0	41	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	13	417	24	0	772	0	0	259	1675
Turn Type				Perm		Perm	Perm					Free
Protected Phases					2			4				8
Permitted Phases				2		2	4					Free
Actuated Green, G (s)				16.5	16.5	16.5		17.5			17.5	45.0
Effective Green, g (s)				16.5	16.5	16.5		17.5			17.5	45.0
Actuated g/C Ratio				0.37	0.37	0.37		0.39			0.39	1.00
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	
Lane Grp Cap (vph)				649	683	580		513			725	1917
v/s Ratio Prot					0.22						0.14	
v/s Ratio Perm				0.01		0.02		c0.59			c0.87	
v/c Ratio				0.02	0.61	0.04		1.50			0.36	0.87
Uniform Delay, d1				9.1	11.6	9.2		13.8			9.8	0.0
Progression Factor				1.00	1.00	1.00		1.24			1.00	1.00
Incremental Delay, d2				0.1	4.0	0.1		236.5			1.4	5.9
Delay (s)				9.1	15.7	9.3		253.5			11.1	5.9
Level of Service				A	B	A		F			B	A
Approach Delay (s)	0.0				14.7			253.5			6.6	
Approach LOS	A				B			F			A	
Intersection Summary												
HCM Average Control Delay	67.4				HCM Level of Service			E				
HCM Volume to Capacity ratio	1.15											
Actuated Cycle Length (s)	45.0				Sum of lost time (s)			5.5				
Intersection Capacity Utilization	88.8%				ICU Level of Service			E				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
7: 5th & Jackson

Long-Term (2035) No Project - alt. 3
Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	262	410	347	0	0	0	0	286	35	89	97	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5					4.5			4.5	
Lane Util. Factor		0.95	1.00					1.00			1.00	
Fr _t		1.00	0.85					0.99			1.00	
Flt Protected		0.98	1.00					1.00			0.98	
Satd. Flow (prot)		3472	1583					1835			1819	
Flt Permitted		0.98	1.00					1.00			0.74	
Satd. Flow (perm)		3472	1583					1835			1383	
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.92
Adj. Flow (vph)	282	441	373	0	0	0	0	308	38	96	104	0
RTOR Reduction (vph)	0	0	269	0	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	723	104	0	0	0	0	336	0	0	200	0
Turn Type	Perm		Perm							Perm		
Protected Phases		6						4			8	
Permitted Phases	6		6							8		
Actuated Green, G (s)	12.5	12.5						23.5			23.5	
Effective Green, g (s)	12.5	12.5						23.5			23.5	
Actuated g/C Ratio	0.28	0.28						0.52			0.52	
Clearance Time (s)	4.5	4.5						4.5			4.5	
Lane Grp Cap (vph)	964	440						958			722	
v/s Ratio Prot								c0.18				
v/s Ratio Perm	0.21	0.07								0.14		
v/c Ratio	0.75	0.24						0.35			0.28	
Uniform Delay, d1	14.8	12.6						6.3			6.0	
Progression Factor	1.00	1.00						1.00			1.29	
Incremental Delay, d2	5.3	1.3						1.0			0.9	
Delay (s)	20.2	13.8						7.3			8.7	
Level of Service	C	B						A			A	
Approach Delay (s)	18.0			0.0				7.3			8.7	
Approach LOS	B			A				A			A	
Intersection Summary												
HCM Average Control Delay	14.6			HCM Level of Service				B				
HCM Volume to Capacity ratio	0.49											
Actuated Cycle Length (s)	45.0			Sum of lost time (s)				9.0				
Intersection Capacity Utilization	69.4%			ICU Level of Service				C				
Analysis Period (min)	15											
c Critical Lane Group												

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑↑	↑↑
Volume (vph)	454	182	87	931	1021	496
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.91	0.88
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	5085	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	5085	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	478	192	92	980	1075	522
RTOR Reduction (vph)	0	136	0	0	0	358
Lane Group Flow (vph)	478	56	92	980	1075	164
Turn Type		Perm	Prot		Perm	
Protected Phases	4		5	2	6	
Permitted Phases		4			6	
Actuated Green, G (s)	14.3	14.3	6.1	25.6	15.5	15.5
Effective Green, g (s)	14.3	14.3	6.1	25.6	15.5	15.5
Actuated g/C Ratio	0.29	0.29	0.12	0.52	0.31	0.31
Clearance Time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	994	458	219	1834	1595	874
v/s Ratio Prot	c0.14		0.05	c0.28	c0.21	
v/s Ratio Perm		0.04			0.06	
v/c Ratio	0.48	0.12	0.42	0.53	0.67	0.19
Uniform Delay, d1	14.5	12.9	20.0	7.9	14.8	12.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	5.8	1.1	1.1	0.1
Delay (s)	14.9	13.0	25.8	9.0	15.9	12.5
Level of Service	B	B	C	A	B	B
Approach Delay (s)	14.3			10.5	14.8	
Approach LOS	B			B	B	
Intersection Summary						
HCM Average Control Delay	13.3	HCM Level of Service			B	
HCM Volume to Capacity ratio	0.61					
Actuated Cycle Length (s)	49.4	Sum of lost time (s)			14.5	
Intersection Capacity Utilization	48.7%	ICU Level of Service			A	
Analysis Period (min)	15					
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

9: W Midway & Main

Long-Term (2035) No Project - alt. 3

Weekend Peak Hour of Generator

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	161	112	33	174	101	98	189	29	86	177	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5	3.5		3.5			3.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		0.95			0.95	
Fr _t	1.00	0.85		1.00	0.85	0.85		0.99			0.98	
Flt Protected	0.99	1.00		0.99	1.00	1.00		0.98			0.99	
Satd. Flow (prot)	1838	1583		1848	1583		3437			3409		
Flt Permitted	0.83	1.00		0.90	1.00	1.00		0.75			0.77	
Satd. Flow (perm)	1544	1583		1682	1583		2610			2654		
Peak-hour factor, PHF	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Adj. Flow (vph)	88	233	162	48	252	146	142	274	42	125	257	71
RTOR Reduction (vph)	0	0	109	0	0	98	0	18	0	0	36	0
Lane Group Flow (vph)	0	321	53	0	300	48	0	440	0	0	417	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	9.0	9.0		9.0	9.0		11.6			11.6		
Effective Green, g (s)	9.0	9.0		9.0	9.0		11.6			11.6		
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.42			0.42		
Clearance Time (s)	3.5	3.5		3.5	3.5		3.5			3.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0			3.0		
Lane Grp Cap (vph)	503	516		548	516		1097			1115		
v/s Ratio Prot												
v/s Ratio Perm	c0.21	0.03		0.18	0.03		c0.17			0.16		
v/c Ratio	0.64	0.10		0.55	0.09		0.40			0.37		
Uniform Delay, d1	7.9	6.5		7.6	6.5		5.6			5.5		
Progression Factor	1.00	1.00		1.00	1.00		1.00			1.00		
Incremental Delay, d2	2.7	0.1		1.1	0.1		0.2			0.2		
Delay (s)	10.6	6.6		8.8	6.5		5.8			5.7		
Level of Service	B	A		A	A		A			A		
Approach Delay (s)	9.2			8.0			5.8			5.7		
Approach LOS	A			A			A			A		
Intersection Summary												
HCM Average Control Delay	7.2				HCM Level of Service					A		
HCM Volume to Capacity ratio	0.50											
Actuated Cycle Length (s)	27.6				Sum of lost time (s)					7.0		
Intersection Capacity Utilization	54.1%				ICU Level of Service					A		
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Atlantic & Main

Long-Term (2035) No Project - alt. 3

Weekend Peak Hour of Generator

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	251	201	93	356	154	215	330	77	138	332	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		5.0
Lane Util. Factor	0.95	1.00		0.95	1.00	1.00	0.95		0.91	0.91		
Fr _t	1.00	0.85		1.00	0.85	1.00	0.97		1.00	0.98		
Flt Protected	1.00	1.00		0.99	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	3523	1583		3503	1583	1770	3439		1610	3313		
Flt Permitted	0.87	1.00		0.76	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (perm)	3092	1583		2701	1583	1770	3439		1610	3313		
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	33	318	254	118	451	195	272	418	97	175	420	72
RTOR Reduction (vph)	0	0	180	0	0	138	0	26	0	0	16	0
Lane Group Flow (vph)	0	351	74	0	569	57	272	489	0	157	494	0
Turn Type	Perm		Perm		Perm		Split			Split		
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	19.5	19.5		19.5	19.5	17.4	17.4		16.1	16.1		
Effective Green, g (s)	19.5	19.5		19.5	19.5	17.4	17.4		16.1	16.1		
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.26	0.26		0.24	0.24		
Clearance Time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	900	461		786	461	460	893		387	796		
v/s Ratio Prot						c0.15	0.14		0.10	c0.15		
v/s Ratio Perm	0.11	0.05		c0.21	0.04							
v/c Ratio	0.39	0.16		0.72	0.12	0.59	0.55		0.41	0.62		
Uniform Delay, d1	19.0	17.7		21.3	17.5	21.7	21.4		21.4	22.7		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.3	0.2		3.3	0.1	2.0	0.7		0.7	1.5		
Delay (s)	19.3	17.8		24.7	17.6	23.7	22.1		22.1	24.2		
Level of Service	B	B		C	B	C	C		C	C		
Approach Delay (s)	18.7			22.8			22.7			23.7		
Approach LOS	B			C			C			C		
Intersection Summary												
HCM Average Control Delay	22.1	HCM Level of Service					C					
HCM Volume to Capacity ratio	0.65											
Actuated Cycle Length (s)	67.0	Sum of lost time (s)					14.0					
Intersection Capacity Utilization	57.1%	ICU Level of Service					B					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

Long-Term (2035) No Project - alt. 3

Weekend Peak Hour of Generator

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑		↑↑	↑↑		↑	↑↑	↑
Volume (vph)	247	253	89	101	391	120	135	758	120	231	712	385
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Fr _t	1.00	1.00	0.85	1.00	0.96		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3414		1770	3467		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3414		1770	3467		1770	3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	257	264	93	105	407	125	141	790	125	241	742	401
RTOR Reduction (vph)	0	0	72	0	31	0	0	11	0	0	0	143
Lane Group Flow (vph)	257	264	21	105	501	0	141	904	0	241	742	258
Turn Type	Prot		Perm	Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	8.1	19.2	19.2	8.1	19.2		11.8	26.2		15.8	30.2	38.3
Effective Green, g (s)	8.1	19.2	19.2	8.1	19.2		11.8	26.2		15.8	30.2	38.3
Actuated g/C Ratio	0.09	0.22	0.22	0.09	0.22		0.14	0.30		0.18	0.35	0.44
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0
Lane Grp Cap (vph)	322	787	352	166	760		242	1053		324	1238	776
v/s Ratio Prot	c0.07	0.07		0.06	c0.15		0.08	c0.26		c0.14	c0.21	0.03
v/s Ratio Perm			0.01									0.13
v/c Ratio	0.80	0.34	0.06	0.63	0.66		0.58	0.86		0.74	0.60	0.33
Uniform Delay, d1	38.3	28.2	26.4	37.7	30.6		34.9	28.3		33.3	23.1	15.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	12.9	0.1	0.0	7.6	1.6		3.5	6.8		8.9	0.5	0.3
Delay (s)	51.2	28.3	26.5	45.3	32.2		38.5	35.1		42.3	23.6	15.9
Level of Service	D	C	C	D	C		D	D		D	C	B
Approach Delay (s)		37.6			34.3			35.6			24.6	
Approach LOS		D			C			D			C	
Intersection Summary												
HCM Average Control Delay		31.6				HCM Level of Service				C		
HCM Volume to Capacity ratio		0.80										
Actuated Cycle Length (s)		86.3				Sum of lost time (s)			21.0			
Intersection Capacity Utilization		73.4%				ICU Level of Service			D			
Analysis Period (min)		15										
c Critical Lane Group												

2035 plus Alternative 1 & 2 Project Conditions

HCM Signalized Intersection Capacity Analysis

1: 8th & Webster

Cumulative (2035) Plus Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	413	1060	0	0	0	0	0	590	394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	4.0
Lane Util. Factor				0.86	0.86						0.86	0.86
Frt				1.00	1.00						0.97	0.85
Flt Protected				0.95	1.00						1.00	1.00
Satd. Flow (prot)				1522	4794						4645	1362
Flt Permitted				0.95	1.00						1.00	1.00
Satd. Flow (perm)				1522	4794						4645	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.92	0.92	0.93	0.93	
Adj. Flow (vph)	0	0	0	444	1140	0	0	0	0	0	634	424
RTOR Reduction (vph)	0	0	0	267	6	0	0	0	0	0	54	164
Lane Group Flow (vph)	0	0	0	115	1196	0	0	0	0	0	762	78
Turn Type				Perm							Perm	
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)				27.0	27.0						29.0	29.0
Effective Green, g (s)				27.0	27.0						29.0	29.0
Actuated g/C Ratio				0.30	0.30						0.32	0.32
Clearance Time (s)				4.0	4.0						4.0	4.0
Lane Grp Cap (vph)				457	1438						1497	439
v/s Ratio Prot											c0.16	
v/s Ratio Perm				0.08	0.25							0.06
v/c Ratio				0.25	0.83						0.51	0.18
Uniform Delay, d1				23.8	29.4						24.7	21.9
Progression Factor				1.00	1.00						1.00	1.00
Incremental Delay, d2				1.3	5.7						1.2	0.9
Delay (s)				25.2	35.1						26.0	22.8
Level of Service				C	D						C	C
Approach Delay (s)	0.0				32.7			0.0			25.2	
Approach LOS	A				C			A			C	
Intersection Summary												
HCM Average Control Delay	29.7			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.66											
Actuated Cycle Length (s)	90.0			Sum of lost time (s)				34.0				
Intersection Capacity Utilization	42.3%			ICU Level of Service				A				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: 7th & Webster

Cumulative (2035) Plus Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	474	756	0	0	0	0	0	0	174	821	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0								4.0	
Lane Util. Factor		0.86	0.86								0.91	
Fr _t		0.93	0.85								1.00	
Flt Protected		1.00	1.00								0.99	
Satd. Flow (prot)		4486	1362								5041	
Flt Permitted		1.00	1.00								0.99	
Satd. Flow (perm)		4486	1362								5041	
Peak-hour factor, PHF	0.92	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.92
Adj. Flow (vph)	0	539	859	0	0	0	0	0	0	198	933	0
RTOR Reduction (vph)	0	26	26	0	0	0	0	0	0	0	55	0
Lane Group Flow (vph)	0	943	403	0	0	0	0	0	0	0	1076	0
Turn Type			Perm								Perm	
Protected Phases		6									8	
Permitted Phases			6								8	
Actuated Green, G (s)	28.0	28.0									24.0	
Effective Green, g (s)	28.0	28.0									24.0	
Actuated g/C Ratio	0.47	0.47									0.40	
Clearance Time (s)		4.0	4.0								4.0	
Lane Grp Cap (vph)	2093	636									2016	
v/s Ratio Prot		0.21										
v/s Ratio Perm			c0.30								0.21	
v/c Ratio	0.45	0.63									0.53	
Uniform Delay, d1	10.8	12.1									13.7	
Progression Factor	1.00	1.00									1.00	
Incremental Delay, d2	0.7	4.8									1.0	
Delay (s)	11.5	16.9									14.7	
Level of Service	B	B									B	
Approach Delay (s)	13.2			0.0			0.0				14.7	
Approach LOS	B			A			A				B	
Intersection Summary												
HCM Average Control Delay	13.9			HCM Level of Service						B		
HCM Volume to Capacity ratio	0.59											
Actuated Cycle Length (s)	60.0			Sum of lost time (s)						8.0		
Intersection Capacity Utilization	57.9%			ICU Level of Service						B		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 7th & Harrison

Cumulative (2035) Plus Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	181	457	0	0	0	0	0	1211	2144	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	2500	1900	1900	1900
Total Lost time (s)	5.0							5.0	5.0			
Lane Util. Factor	0.91							0.91	*1.00			
Fr _t	1.00							1.00	1.00			
Flt Protected	0.99							1.00	1.00			
Satd. Flow (prot)	5014							5085	4902			
Flt Permitted	0.99							1.00	1.00			
Satd. Flow (perm)	5014							5085	4902			
Peak-hour factor, PHF	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.97	0.97	0.92	0.92	0.92
Adj. Flow (vph)	187	471	0	0	0	0	0	1248	2210	0	0	0
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	345	0	0	0
Lane Group Flow (vph)	0	651	0	0	0	0	0	1248	1865	0	0	0
Turn Type	Perm								Perm			
Protected Phases		6							4			
Permitted Phases	6									4		
Actuated Green, G (s)	27.0							23.0	23.0			
Effective Green, g (s)	27.0							23.0	23.0			
Actuated g/C Ratio	0.45							0.38	0.38			
Clearance Time (s)	5.0							5.0	5.0			
Lane Grp Cap (vph)	2256							1949	1879			
v/s Ratio Prot								0.25				
v/s Ratio Perm	0.13								c0.38			
v/c Ratio	0.29							0.64	0.99			
Uniform Delay, d1	10.4							15.1	18.4			
Progression Factor	0.68							1.00	1.00			
Incremental Delay, d2	0.3							1.6	19.1			
Delay (s)	7.4							16.7	37.5			
Level of Service	A							B	D			
Approach Delay (s)	7.4				0.0			30.0		0.0		
Approach LOS	A				A			C		A		
Intersection Summary												
HCM Average Control Delay	26.4							HCM Level of Service	C			
HCM Volume to Capacity ratio	0.61											
Actuated Cycle Length (s)	60.0							Sum of lost time (s)	10.0			
Intersection Capacity Utilization	87.8%							ICU Level of Service	E			
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: 6th & Broadway

Cumulative (2035) Plus Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	385	322	818	60	255	0	0	554	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.98	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3539	1583	1770	3539			4992	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3539	1583	1770	3539			4992	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	405	339	861	63	268	0	0	583	81
RTOR Reduction (vph)	0	0	0	0	0	316	0	0	0	0	21	0
Lane Group Flow (vph)	0	0	0	405	339	545	63	268	0	0	643	0
Turn Type				Perm		Perm		Prot				
Protected Phases					2		7	4			8	
Permitted Phases				2		2						
Actuated Green, G (s)				31.0	31.0	31.0	5.1	36.5			27.9	
Effective Green, g (s)				31.0	31.0	31.0	5.1	36.5			27.9	
Actuated g/C Ratio				0.41	0.41	0.41	0.07	0.49			0.37	
Clearance Time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				732	1463	654	120	1722			1857	
v/s Ratio Prot					0.10		c0.04	0.08			c0.13	
v/s Ratio Perm				0.23		c0.34						
v/c Ratio				0.55	0.23	0.83	0.53	0.16			0.35	
Uniform Delay, d1				16.7	14.3	19.7	33.8	10.7			17.0	
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2				3.0	0.4	11.9	1.9	0.2			0.5	
Delay (s)				19.7	14.6	31.6	35.7	10.9			17.5	
Level of Service				B	B	C	D	B			B	
Approach Delay (s)	0.0				25.0			15.6			17.5	
Approach LOS	A				C			B			B	
Intersection Summary												
HCM Average Control Delay	21.9			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.60											
Actuated Cycle Length (s)	75.0			Sum of lost time (s)				11.0				
Intersection Capacity Utilization	64.4%			ICU Level of Service				C				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Broadway & 5th

Cumulative (2035) Plus Project

AM Peak Hour

Movement	SEL2	SEL	SET	SER	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	58	936	170	157	259	239	82	397	178	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	5.0	5.0	5.0	4.0	4.0	5.0	5.0
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85		1.00	1.00	1.00	1.00
Flt Protected	0.95	0.96	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1610	3269	1583	3539	1583		1770	1770	1863	
Flt Permitted	0.95	0.96	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	1610	3269	1583	3539	1583		1770	1770	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	1017	185	171	282	260	89	432	193	390
RTOR Reduction (vph)	0	0	0	52	0	14	0	0	0	0
Lane Group Flow (vph)	0	541	724	119	282	335	0	432	193	390
Turn Type	Perm	Perm		Perm		Perm		Prot	Prot	
Protected Phases			6		4			3	3	8
Permitted Phases	6	6		6		4				
Actuated Green, G (s)	26.0	26.0	26.0	31.0	31.0		20.0	20.0	55.0	
Effective Green, g (s)	26.0	26.0	26.0	31.0	31.0		20.0	20.0	55.0	
Actuated g/C Ratio	0.29	0.29	0.29	0.34	0.34		0.22	0.22	0.61	
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0		4.0	4.0	5.0	
Vehicle Extension (s)	2.5	2.5	2.5	4.0	4.0		2.0	2.0	4.0	
Lane Grp Cap (vph)	465	944	457	1219	545		393	393	1139	
v/s Ratio Prot				0.08			c0.24	0.11	0.21	
v/s Ratio Perm	c0.34	0.22	0.08		c0.21					
v/c Ratio	1.16	1.11dl	0.26	0.23	0.62		1.10	0.49	0.34	
Uniform Delay, d1	32.0	29.2	24.6	21.0	24.5		35.0	30.6	8.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	94.9	5.9	1.4	0.4	5.1		74.9	0.4	0.8	
Delay (s)	126.9	35.2	26.0	21.5	29.7		109.9	30.9	9.4	
Level of Service	F	D	C	C	C		F	C	A	
Approach Delay (s)		68.6		26.0					56.3	
Approach LOS		E		C					E	
Intersection Summary										
HCM Average Control Delay	55.8				HCM Level of Service			E		
HCM Volume to Capacity ratio	0.93									
Actuated Cycle Length (s)	90.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization	78.6%				ICU Level of Service			D		
Analysis Period (min)	15									
dl Defacto Left Lane. Recode with 1 though lane as a left lane.										
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

6: 6th & Jackson

Cumulative (2035) Plus Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	16	419	79	289	426	0	0	240	1872
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2300
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	4.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	1.00
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1770	1863	1583		1826			1863	2255
Flt Permitted				0.95	1.00	1.00		0.75			1.00	1.00
Satd. Flow (perm)				1770	1863	1583		1404			1863	2255
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
Adj. Flow (vph)	0	0	0	17	455	86	314	463	0	0	261	2035
RTOR Reduction (vph)	0	0	0	0	0	65	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	17	455	21	0	777	0	0	261	2035
Turn Type				Perm		Perm	Perm					Free
Protected Phases					2			4				8
Permitted Phases				2		2	4					Free
Actuated Green, G (s)				14.5	14.5	14.5		34.5			34.5	60.0
Effective Green, g (s)				14.5	14.5	14.5		34.5			34.5	60.0
Actuated g/C Ratio				0.24	0.24	0.24		0.58			0.58	1.00
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	
Lane Grp Cap (vph)				428	450	383		807			1071	2255
v/s Ratio Prot					0.24						0.14	
v/s Ratio Perm				0.01		0.01		0.55			c0.90	
v/c Ratio				0.04	1.01	0.05		0.96			0.24	0.90
Uniform Delay, d1				17.4	22.8	17.5		12.1			6.3	0.0
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.2	45.2	0.3		23.8			0.5	6.4
Delay (s)				17.6	68.0	17.8		36.0			6.8	6.4
Level of Service				B	E	B		D			A	A
Approach Delay (s)	0.0				58.7			36.0			6.5	
Approach LOS	A				E			D			A	
Intersection Summary												
HCM Average Control Delay				20.8			HCM Level of Service			C		
HCM Volume to Capacity ratio				0.90								
Actuated Cycle Length (s)				60.0			Sum of lost time (s)			0.0		
Intersection Capacity Utilization				103.0%			ICU Level of Service			G		
Analysis Period (min)				15								
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: 5th & Jackson

Cumulative (2035) Plus Project

AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	361	581	554	0	0	0	0	359	53	133	114	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5			4.5	
Lane Util. Factor	0.95	1.00						1.00			1.00	
Fr _t	1.00	0.85						0.98			1.00	
Flt Protected	0.98	1.00						1.00			0.97	
Satd. Flow (prot)	3473	1583						1830			1814	
Flt Permitted	0.98	1.00						1.00			0.58	
Satd. Flow (perm)	3473	1583						1830			1079	
Peak-hour factor, PHF	0.84	0.84	0.84	0.92	0.92	0.92	0.92	0.84	0.84	0.84	0.84	0.92
Adj. Flow (vph)	430	692	660	0	0	0	0	427	63	158	136	0
RTOR Reduction (vph)	0	0	477	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	1122	183	0	0	0	0	478	0	0	294	0
Turn Type	Perm		Perm							Perm		
Protected Phases		6						4			8	
Permitted Phases	6		6							8		
Actuated Green, G (s)	12.5	12.5						23.5			23.5	
Effective Green, g (s)	12.5	12.5						23.5			23.5	
Actuated g/C Ratio	0.28	0.28						0.52			0.52	
Clearance Time (s)	4.5	4.5						4.5			4.5	
Lane Grp Cap (vph)	965	440						956			563	
v/s Ratio Prot								0.26				
v/s Ratio Perm	0.32	0.12								0.27		
v/c Ratio	1.16	0.42						0.50			0.52	
Uniform Delay, d1	16.2	13.3						7.0			7.1	
Progression Factor	1.00	1.00						1.00			1.00	
Incremental Delay, d2	84.7	2.9						1.9			3.4	
Delay (s)	101.0	16.2						8.8			10.5	
Level of Service	F	B						A			B	
Approach Delay (s)	69.6			0.0				8.8			10.5	
Approach LOS	E			A				A			B	
Intersection Summary												
HCM Average Control Delay	51.2			HCM Level of Service				D				
HCM Volume to Capacity ratio	0.74											
Actuated Cycle Length (s)	45.0			Sum of lost time (s)				9.0				
Intersection Capacity Utilization	79.5%			ICU Level of Service				D				
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: Willie Stargell & Webster

Cumulative (2035) Plus Project

AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑↑	↑↑
Volume (vph)	557	126	127	1439	904	606
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.91	0.88
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	5085	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	5085	2787
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	679	154	155	1755	1102	739
RTOR Reduction (vph)	0	103	0	0	0	521
Lane Group Flow (vph)	679	51	155	1755	1102	218
Turn Type		Perm	Prot		Perm	
Protected Phases	4		5	2	6	
Permitted Phases		4			6	
Actuated Green, G (s)	17.1	17.1	6.1	25.5	15.4	15.4
Effective Green, g (s)	17.1	17.1	6.1	25.5	15.4	15.4
Actuated g/C Ratio	0.33	0.33	0.12	0.49	0.30	0.30
Clearance Time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1127	520	207	1732	1503	824
v/s Ratio Prot	c0.20		0.09	c0.50	0.22	
v/s Ratio Perm		0.03			0.08	
v/c Ratio	0.60	0.10	0.75	1.01	0.73	0.27
Uniform Delay, d1	14.7	12.1	22.3	13.3	16.5	14.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.1	21.7	25.0	1.9	0.2
Delay (s)	15.6	12.2	44.0	38.3	18.4	14.2
Level of Service	B	B	D	D	B	B
Approach Delay (s)	15.0			38.7	16.7	
Approach LOS	B			D	B	
Intersection Summary						
HCM Average Control Delay	25.6	HCM Level of Service			C	
HCM Volume to Capacity ratio	0.85					
Actuated Cycle Length (s)	52.1	Sum of lost time (s)			9.5	
Intersection Capacity Utilization	63.6%	ICU Level of Service			B	
Analysis Period (min)	15					
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

9: W Midway & Main

Cumulative (2035) Plus Project

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	177	127	38	335	103	262	261	44	67	84	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5	3.5		3.5			3.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		0.95			0.95	
Fr _t	1.00	0.85		1.00	0.85	0.85		0.99			0.97	
Flt Protected	0.99	1.00		0.99	1.00	1.00		0.98			0.98	
Satd. Flow (prot)	1846	1583		1853	1583		3419			3368		
Flt Permitted	0.76	1.00		0.94	1.00	1.00		0.71			0.67	
Satd. Flow (perm)	1423	1583		1754	1583		2493			2281		
Peak-hour factor, PHF	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Adj. Flow (vph)	57	260	187	56	493	151	385	384	65	99	124	60
RTOR Reduction (vph)	0	0	110	0	0	82	0	13	0	0	34	0
Lane Group Flow (vph)	0	317	77	0	549	69	0	821	0	0	249	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	18.2	18.2		18.2	18.2		18.9			18.9		
Effective Green, g (s)	18.2	18.2		18.2	18.2		18.9			18.9		
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.43			0.43		
Clearance Time (s)	3.5	3.5		3.5	3.5		3.5			3.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0			3.0		
Lane Grp Cap (vph)	587	653		724	653		1068			978		
v/s Ratio Prot												
v/s Ratio Perm	0.22	0.05		c0.31	0.04		c0.33			0.11		
v/c Ratio	0.54	0.12		0.76	0.11		0.77			0.25		
Uniform Delay, d1	9.8	8.0		11.1	8.0		10.7			8.1		
Progression Factor	1.00	1.00		1.00	1.00		1.00			1.00		
Incremental Delay, d2	1.0	0.1		4.6	0.1		3.4			0.1		
Delay (s)	10.8	8.1		15.6	8.0		14.1			8.2		
Level of Service	B	A		B	A		B			A		
Approach Delay (s)	9.8			14.0			14.1			8.2		
Approach LOS	A			B			B			A		
Intersection Summary												
HCM Average Control Delay	12.4				HCM Level of Service			B				
HCM Volume to Capacity ratio	0.76											
Actuated Cycle Length (s)	44.1				Sum of lost time (s)			7.0				
Intersection Capacity Utilization	66.4%				ICU Level of Service			C				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Atlantic & Main

Cumulative (2035) Plus Project

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	86	144	71	96	157	157	373	71	90	139	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	0.95	1.00		0.95	1.00		1.00	0.95		0.91	0.91	
Fr _t	1.00	0.85		1.00	0.85		1.00	0.98		1.00	0.99	
Flt Protected	0.99	1.00		0.98	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3494	1583		3466	1583		1770	3455		1610	3333	
Flt Permitted	0.85	1.00		0.78	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	2994	1583		2761	1583		1770	3455		1610	3333	
Peak-hour factor, PHF	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Adj. Flow (vph)	39	113	189	93	126	207	207	491	93	118	183	20
RTOR Reduction (vph)	0	0	147	0	0	161	0	19	0	0	10	0
Lane Group Flow (vph)	0	152	42	0	219	46	207	565	0	105	206	0
Turn Type	Perm		Perm		Perm		Split			Split		
Protected Phases		4			8			2	2		6	6
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	11.3	11.3		11.3	11.3	15.7	15.7			10.1	10.1	
Effective Green, g (s)	11.3	11.3		11.3	11.3	15.7	15.7			10.1	10.1	
Actuated g/C Ratio	0.22	0.22		0.22	0.22	0.31	0.31			0.20	0.20	
Clearance Time (s)	4.0	4.0		4.0	4.0	5.0	5.0			5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	662	350		611	350	544	1062			318	659	
v/s Ratio Prot						0.12	c0.16			c0.07	0.06	
v/s Ratio Perm	0.05	0.03		c0.08	0.03							
v/c Ratio	0.23	0.12		0.36	0.13	0.38	0.53			0.33	0.31	
Uniform Delay, d1	16.3	15.9		16.8	16.0	13.9	14.7			17.6	17.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2	0.2	0.2		0.4	0.2	0.4	0.5			0.6	0.3	
Delay (s)	16.5	16.1		17.2	16.1	14.3	15.2			18.2	17.8	
Level of Service	B	B		B	B	B	B			B	B	
Approach Delay (s)	16.3			16.7			15.0			17.9		
Approach LOS	B			B			B			B		
Intersection Summary												
HCM Average Control Delay	16.1				HCM Level of Service					B		
HCM Volume to Capacity ratio	0.42											
Actuated Cycle Length (s)	51.1				Sum of lost time (s)					14.0		
Intersection Capacity Utilization	39.5%				ICU Level of Service					A		
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

Cumulative (2035) Plus Project

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑		↑	↑↑		↑	↑↑	↑
Volume (vph)	342	270	90	37	357	120	133	1095	91	114	525	386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Fr _t	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3406		1770	3498		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3406		1770	3498		1770	3539	1583
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	438	346	115	47	458	154	171	1404	117	146	673	495
RTOR Reduction (vph)	0	0	80	0	34	0	0	5	0	0	0	123
Lane Group Flow (vph)	438	346	35	47	578	0	171	1516	0	146	673	372
Turn Type	Prot		Perm	Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	8.2	26.0	26.0	4.4	22.2		12.9	27.3		11.9	26.3	34.5
Effective Green, g (s)	8.2	26.0	26.0	4.4	22.2		12.9	27.3		11.9	26.3	34.5
Actuated g/C Ratio	0.09	0.30	0.30	0.05	0.26		0.15	0.32		0.14	0.30	0.40
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0
Lane Grp Cap (vph)	325	1063	475	90	873		264	1103		243	1075	704
v/s Ratio Prot	c0.13	c0.10		0.03	c0.17		c0.10	c0.43		0.08	0.19	0.05
v/s Ratio Perm			0.02									0.18
v/c Ratio	1.35	0.33	0.07	0.52	0.66		0.65	1.37		0.60	0.63	0.53
Uniform Delay, d1	39.2	23.5	21.7	40.1	28.8		34.7	29.6		35.1	25.9	19.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	175.6	0.1	0.0	5.4	1.5		5.4	174.1		4.1	0.8	0.7
Delay (s)	214.8	23.6	21.7	45.4	30.3		40.1	203.7		39.3	26.7	20.6
Level of Service	F	C	C	D	C		D	F		D	C	C
Approach Delay (s)		116.5			31.4			187.2			25.8	
Approach LOS		F			C			F			C	

Intersection Summary

HCM Average Control Delay	104.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	86.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: 8th & Webster

Cumulative (2035) Plus Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	631	744	0	0	0	0	0	1179	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	4.0
Lane Util. Factor				0.86	0.86						0.86	0.86
Frt				1.00	1.00						0.99	0.85
Flt Protected				0.95	0.99						1.00	1.00
Satd. Flow (prot)				1522	4738						4767	1362
Flt Permitted				0.95	0.99						1.00	1.00
Satd. Flow (perm)				1522	4738						4767	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.93	0.93
Adj. Flow (vph)	0	0	0	678	800	0	0	0	0	0	1268	457
RTOR Reduction (vph)	0	0	0	251	80	0	0	0	0	0	7	260
Lane Group Flow (vph)	0	0	0	108	1039	0	0	0	0	0	1334	124
Turn Type				Perm							Perm	
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)				27.0	27.0						29.0	29.0
Effective Green, g (s)				27.0	27.0						29.0	29.0
Actuated g/C Ratio				0.30	0.30						0.32	0.32
Clearance Time (s)				4.0	4.0						4.0	4.0
Lane Grp Cap (vph)				457	1421						1536	439
v/s Ratio Prot											c0.28	
v/s Ratio Perm				0.07	0.22							0.09
v/c Ratio				0.24	0.73						0.87	0.28
Uniform Delay, d1				23.7	28.2						28.7	22.7
Progression Factor				1.00	1.00						1.00	1.00
Incremental Delay, d2				1.2	3.4						6.9	1.6
Delay (s)				24.9	31.6						35.6	24.3
Level of Service				C	C						D	C
Approach Delay (s)	0.0				30.0			0.0			33.1	
Approach LOS	A				C			A			C	
Intersection Summary												
HCM Average Control Delay	31.7			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.80											
Actuated Cycle Length (s)	90.0			Sum of lost time (s)				34.0				
Intersection Capacity Utilization	44.1%			ICU Level of Service				A				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: 7th & Webster

Cumulative (2035) Plus Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	853	1141	0	0	0	0	0	0	260	1538	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0								4.0	
Lane Util. Factor		0.86	0.86								0.91	
Fr _t		0.94	0.85								1.00	
Flt Protected		1.00	1.00								0.99	
Satd. Flow (prot)		4517	1362								5049	
Flt Permitted		1.00	1.00								0.99	
Satd. Flow (perm)		4517	1362								5049	
Peak-hour factor, PHF	0.92	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.92
Adj. Flow (vph)	0	958	1282	0	0	0	0	0	0	292	1728	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	39	0
Lane Group Flow (vph)	0	1599	641	0	0	0	0	0	0	0	1981	0
Turn Type			Perm								Perm	
Protected Phases		6									8	
Permitted Phases			6								8	
Actuated Green, G (s)	32.0	32.0									20.0	
Effective Green, g (s)	32.0	32.0									20.0	
Actuated g/C Ratio	0.53	0.53									0.33	
Clearance Time (s)		4.0	4.0								4.0	
Lane Grp Cap (vph)		2409	726								1683	
v/s Ratio Prot		0.35										
v/s Ratio Perm			c0.47								0.39	
v/c Ratio		0.66	0.88								1.18	
Uniform Delay, d1	10.1	12.3									20.0	
Progression Factor	1.00	1.00									1.00	
Incremental Delay, d2	1.5	14.6									86.2	
Delay (s)	11.6	26.9									106.2	
Level of Service	B	C									F	
Approach Delay (s)	16.0		0.0				0.0				106.2	
Approach LOS	B		A				A				F	
Intersection Summary												
HCM Average Control Delay		58.7		HCM Level of Service						E		
HCM Volume to Capacity ratio		1.00										
Actuated Cycle Length (s)		60.0		Sum of lost time (s)						8.0		
Intersection Capacity Utilization		88.8%		ICU Level of Service						E		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 7th & Harrison

Cumulative (2035) Plus Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	320	773	0	0	0	0	0	857	1962	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	2500	1900	1900	1900
Total Lost time (s)	5.0							5.0	5.0			
Lane Util. Factor	0.91							0.91	*1.00			
Fr _t	1.00							1.00	1.00			
Flt Protected	0.99							1.00	1.00			
Satd. Flow (prot)	5012							5085	4902			
Flt Permitted	0.99							1.00	1.00			
Satd. Flow (perm)	5012							5085	4902			
Peak-hour factor, PHF	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	352	849	0	0	0	0	0	942	2156	0	0	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	223	0	0	0
Lane Group Flow (vph)	0	1198	0	0	0	0	0	942	1933	0	0	0
Turn Type	Perm								Perm			
Protected Phases		6							4			
Permitted Phases	6									4		
Actuated Green, G (s)	34.0							16.0	16.0			
Effective Green, g (s)	34.0							16.0	16.0			
Actuated g/C Ratio	0.57							0.27	0.27			
Clearance Time (s)	5.0							5.0	5.0			
Lane Grp Cap (vph)	2840							1356	1307			
v/s Ratio Prot								0.19				
v/s Ratio Perm	0.24								c0.39			
v/c Ratio	0.42							0.69	1.48			
Uniform Delay, d1	7.4							19.8	22.0			
Progression Factor	0.48							1.00	1.00			
Incremental Delay, d2	0.3							3.0	219.7			
Delay (s)	3.9							22.8	241.7			
Level of Service	A							C	F			
Approach Delay (s)	3.9				0.0			175.1		0.0		
Approach LOS	A				A			F		A		
Intersection Summary												
HCM Average Control Delay	127.3							HCM Level of Service		F		
HCM Volume to Capacity ratio	0.76											
Actuated Cycle Length (s)	60.0							Sum of lost time (s)		10.0		
Intersection Capacity Utilization	88.8%							ICU Level of Service		E		
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4: 6th & Broadway

Cumulative (2035) Plus Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	375	193	854	130	433	0	0	953	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91	
Fr _t				1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3539	1583	1770	3539			5045	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3539	1583	1770	3539			5045	
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	0	0	399	205	909	138	461	0	0	1014	57
RTOR Reduction (vph)	0	0	0	0	0	187	0	0	0	0	8	0
Lane Group Flow (vph)	0	0	0	399	205	722	138	461	0	0	1063	0
Turn Type				Perm		Perm		Prot				
Protected Phases					2		7	4			8	
Permitted Phases				2		2						
Actuated Green, G (s)				31.0	31.0	31.0	7.9	36.5			25.1	
Effective Green, g (s)				31.0	31.0	31.0	7.9	36.5			25.1	
Actuated g/C Ratio				0.41	0.41	0.41	0.11	0.49			0.33	
Clearance Time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				732	1463	654	186	1722			1688	
v/s Ratio Prot					0.06		c0.08	0.13			c0.21	
v/s Ratio Perm				0.23		c0.46						
v/c Ratio				0.55	0.14	1.10	0.74	0.27			0.63	
Uniform Delay, d1				16.7	13.7	22.0	32.6	11.4			21.0	
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2				2.9	0.2	67.1	13.0	0.4			1.8	
Delay (s)				19.6	13.9	89.1	45.6	11.7			22.8	
Level of Service				B	B	F	D	B			C	
Approach Delay (s)	0.0				60.6			19.5			22.8	
Approach LOS	A				E			B			C	
Intersection Summary												
HCM Average Control Delay	40.1				HCM Level of Service			D				
HCM Volume to Capacity ratio	0.87											
Actuated Cycle Length (s)	75.0				Sum of lost time (s)			11.0				
Intersection Capacity Utilization	71.5%				ICU Level of Service			C				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Broadway & 5th

Cumulative (2035) Plus Project

PM Peak Hour

Movement	SEL2	SEL	SET	SER	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	27	1330	406	220	528	411	90	535	348	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	5.0	5.0	5.0	4.0	4.0	5.0	5.0
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85		1.00	1.00	1.00	1.00
Flt Protected	0.95	0.97	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1610	3287	1583	3539	1583		1770	1770	1863	
Flt Permitted	0.95	0.97	1.00	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	1610	3287	1583	3539	1583		1770	1770	1863	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	28	1400	427	232	556	433	95	563	366	474
RTOR Reduction (vph)	0	0	0	44	0	9	0	0	0	0
Lane Group Flow (vph)	0	714	1141	188	556	519	0	563	366	474
Turn Type	Perm	Perm		Perm		Perm		Prot	Prot	
Protected Phases			6		4			3	3	8
Permitted Phases	6	6		6		4				
Actuated Green, G (s)	26.0	26.0	26.0	31.0	31.0		20.0	20.0	55.0	
Effective Green, g (s)	26.0	26.0	26.0	31.0	31.0		20.0	20.0	55.0	
Actuated g/C Ratio	0.29	0.29	0.29	0.34	0.34		0.22	0.22	0.61	
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0		4.0	4.0	5.0	
Vehicle Extension (s)	2.5	2.5	2.5	4.0	4.0		2.0	2.0	4.0	
Lane Grp Cap (vph)	465	950	457	1219	545		393	393	1139	
v/s Ratio Prot				0.16			c0.32	0.21	0.25	
v/s Ratio Perm	c0.44	0.35	0.12		c0.33					
v/c Ratio	1.54	1.47	dl 0.41	0.46	0.95		1.43	0.93	0.42	
Uniform Delay, d1	32.0	32.0	25.8	22.9	28.8		35.0	34.3	9.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	251.6	100.6	2.7	1.2	28.5		208.8	28.3	1.1	
Delay (s)	283.6	132.6	28.5	24.2	57.3		243.8	62.6	10.2	
Level of Service	F	F	C	C	E		F	E	B	
Approach Delay (s)			172.7		40.3				117.6	
Approach LOS			F		D				F	
Intersection Summary										
HCM Average Control Delay	124.4				HCM Level of Service			F		
HCM Volume to Capacity ratio	1.27									
Actuated Cycle Length (s)	90.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization	108.3%				ICU Level of Service			G		
Analysis Period (min)	15									
dl	Defacto Left Lane. Recode with 1 though lane as a left lane.									
c	Critical Lane Group									

HCM Signalized Intersection Capacity Analysis

6: 6th & Jackson

Cumulative (2035) Plus Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	10	441	56	525	358	0	0	340	1639
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2300
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	4.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.97			1.00	1.00
Satd. Flow (prot)				1770	1863	1583		1809			1863	1917
Flt Permitted				0.95	1.00	1.00		0.62			1.00	1.00
Satd. Flow (perm)				1770	1863	1583		1153			1863	1917
Peak-hour factor, PHF	0.92	0.92	0.92	0.97	0.97	0.97	0.97	0.97	0.92	0.92	0.97	0.97
Adj. Flow (vph)	0	0	0	10	455	58	541	369	0	0	351	1690
RTOR Reduction (vph)	0	0	0	0	0	44	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	10	455	14	0	910	0	0	351	1690
Turn Type				Perm		Perm	Perm					Free
Protected Phases					2			4				8
Permitted Phases				2		2	4					Free
Actuated Green, G (s)				14.5	14.5	14.5		34.5			34.5	60.0
Effective Green, g (s)				14.5	14.5	14.5		34.5			34.5	60.0
Actuated g/C Ratio				0.24	0.24	0.24		0.58			0.58	1.00
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	
Lane Grp Cap (vph)				428	450	383		663			1071	1917
v/s Ratio Prot					0.24						0.19	
v/s Ratio Perm				0.01		0.01		c0.79			c0.88	
v/c Ratio				0.02	1.01	0.04		1.37			0.33	0.88
Uniform Delay, d1				17.4	22.8	17.4		12.8			6.7	0.0
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.1	45.2	0.2		177.1			0.8	6.3
Delay (s)				17.5	68.0	17.6		189.9			7.5	6.3
Level of Service				B	E	B		F			A	A
Approach Delay (s)	0.0				61.4			189.9			6.5	
Approach LOS	A				E			F			A	
Intersection Summary												
HCM Average Control Delay				62.8			HCM Level of Service			E		
HCM Volume to Capacity ratio				1.19								
Actuated Cycle Length (s)				60.0			Sum of lost time (s)			5.5		
Intersection Capacity Utilization				113.6%			ICU Level of Service			H		
Analysis Period (min)				15								

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

7: 5th & Jackson

Cumulative (2035) Plus Project

PM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	403	605	456	0	0	0	0	470	47	173	167	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5				4.5		4.5	
Lane Util. Factor				0.95	1.00				1.00		1.00	
Frt				1.00	0.85				0.99		1.00	
Flt Protected				0.98	1.00				1.00		0.98	
Satd. Flow (prot)				3470	1583				1840		1817	
Flt Permitted				0.98	1.00				1.00		0.31	
Satd. Flow (perm)				3470	1583				1840		580	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.88	0.88	0.88	0.88	0.92
Adj. Flow (vph)	458	688	518	0	0	0	0	534	53	197	190	0
RTOR Reduction (vph)	0	0	305	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	1146	213	0	0	0	0	581	0	0	387	0
Turn Type	Perm		Perm							Perm		
Protected Phases		6							4		8	
Permitted Phases	6		6								8	
Actuated Green, G (s)	24.5	24.5						26.0			26.0	
Effective Green, g (s)	24.5	24.5						26.0			26.0	
Actuated g/C Ratio	0.41	0.41						0.44			0.44	
Clearance Time (s)	4.5	4.5						4.5			4.5	
Lane Grp Cap (vph)	1429	652						804			253	
v/s Ratio Prot								0.32				
v/s Ratio Perm	0.33	0.13									0.67	
v/c Ratio	0.80	0.33						0.72			1.53	
Uniform Delay, d1	15.4	11.9						13.8			16.8	
Progression Factor	1.00	1.00						1.00			1.00	
Incremental Delay, d2	4.8	1.3						5.6			257.4	
Delay (s)	20.2	13.2						19.4			274.1	
Level of Service	C	B						B			F	
Approach Delay (s)	18.0			0.0				19.4			274.1	
Approach LOS	B			A				B			F	
Intersection Summary												
HCM Average Control Delay	55.9			HCM Level of Service				E				
HCM Volume to Capacity ratio	1.18											
Actuated Cycle Length (s)	59.5			Sum of lost time (s)				9.0				
Intersection Capacity Utilization	88.9%			ICU Level of Service				E				
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: Willie Stargell & Webster

Cumulative (2035) Plus Project

PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑↑	↑↑
Volume (vph)	659	352	114	832	1570	763
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.91	0.88
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	5085	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	5085	2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	686	367	119	867	1635	795
RTOR Reduction (vph)	0	205	0	0	0	566
Lane Group Flow (vph)	686	162	119	867	1635	230
Turn Type		Perm	Prot		Perm	
Protected Phases	4		5	2	6	
Permitted Phases		4			6	
Actuated Green, G (s)	18.1	18.1	6.1	25.4	15.3	15.3
Effective Green, g (s)	18.1	18.1	6.1	25.4	15.3	15.3
Actuated g/C Ratio	0.34	0.34	0.12	0.48	0.29	0.29
Clearance Time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1172	541	204	1696	1468	805
v/s Ratio Prot	c0.20		0.07	c0.24	c0.32	
v/s Ratio Perm		0.10			0.08	
v/c Ratio	0.59	0.30	0.58	0.51	1.11	0.29
Uniform Delay, d1	14.4	12.8	22.2	9.5	18.9	14.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.3	11.6	1.1	61.2	0.2
Delay (s)	15.1	13.1	33.9	10.6	80.1	14.8
Level of Service	B	B	C	B	F	B
Approach Delay (s)	14.4			13.4	58.7	
Approach LOS	B			B	E	
Intersection Summary						
HCM Average Control Delay	38.3	HCM Level of Service			D	
HCM Volume to Capacity ratio	0.82					
Actuated Cycle Length (s)	53.0	Sum of lost time (s)			14.5	
Intersection Capacity Utilization	66.7%	ICU Level of Service			C	
Analysis Period (min)	15					
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

9: W Midway & Main

Cumulative (2035) Plus Project

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	86	332	277	30	243	103	147	126	15	109	279	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5	3.5		3.5			3.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		0.95			0.95	
Fr _t	1.00	0.85		1.00	0.85	0.85		0.99			0.98	
Flt Protected	0.99	1.00		0.99	1.00	1.00		0.98			0.99	
Satd. Flow (prot)	1844	1583		1853	1583		3425			3426		
Flt Permitted	0.81	1.00		0.81	1.00	1.00		0.63			0.75	
Satd. Flow (perm)	1513	1583		1508	1583		2209			2598		
Peak-hour factor, PHF	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Adj. Flow (vph)	134	519	433	47	380	161	230	197	23	170	436	94
RTOR Reduction (vph)	0	0	138	0	0	88	0	10	0	0	32	0
Lane Group Flow (vph)	0	653	295	0	427	73	0	440	0	0	668	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	17.2	17.2		17.2	17.2		13.7			13.7		
Effective Green, g (s)	17.2	17.2		17.2	17.2		13.7			13.7		
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.36			0.36		
Clearance Time (s)	3.5	3.5		3.5	3.5		3.5			3.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0			3.0		
Lane Grp Cap (vph)	687	718		684	718		799			939		
v/s Ratio Prot												
v/s Ratio Perm	c0.43	0.19		0.28	0.05		0.20			c0.26		
v/c Ratio	0.95	0.41		0.62	0.10		1.06dl			0.71		
Uniform Delay, d1	9.9	7.0		7.9	5.9		9.6			10.4		
Progression Factor	1.00	1.00		1.00	1.00		1.00			1.00		
Incremental Delay, d2	22.9	0.4		1.8	0.1		0.8			2.6		
Delay (s)	32.8	7.3		9.7	6.0		10.5			13.0		
Level of Service	C	A		A	A		B			B		
Approach Delay (s)	22.6			8.7			10.5			13.0		
Approach LOS	C			A			B			B		
Intersection Summary												
HCM Average Control Delay	15.4				HCM Level of Service			B				
HCM Volume to Capacity ratio	0.84											
Actuated Cycle Length (s)	37.9				Sum of lost time (s)			7.0				
Intersection Capacity Utilization	71.0%				ICU Level of Service			C				
Analysis Period (min)	15											
dl Defacto Left Lane. Recode with 1 though lane as a left lane.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Atlantic & Main

Cumulative (2035) Plus Project

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	232	110	47	354	104	115	186	27	141	399	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		5.0
Lane Util. Factor	0.95	1.00		0.95	1.00	1.00	0.95		0.95	0.91		0.91
Fr _t	1.00	0.85		1.00	0.85	1.00	0.98		1.00	0.98		
Flt Protected	1.00	1.00		0.99	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	3537	1583		3518	1583	1770	3473		1610	3324		
Flt Permitted	0.95	1.00		0.87	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (perm)	3358	1583		3088	1583	1770	3473		1610	3324		
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	4	314	149	64	478	141	155	251	36	191	539	77
RTOR Reduction (vph)	0	0	107	0	0	101	0	16	0	0	12	0
Lane Group Flow (vph)	0	318	42	0	542	40	155	271	0	172	623	0
Turn Type	Perm		Perm		Perm		Split			Split		
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	17.1	17.1		17.1	17.1	11.8	11.8		17.3	17.3		
Effective Green, g (s)	17.1	17.1		17.1	17.1	11.8	11.8		17.3	17.3		
Actuated g/C Ratio	0.28	0.28		0.28	0.28	0.20	0.20		0.29	0.29		
Clearance Time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	954	450		877	450	347	681		463	955		
v/s Ratio Prot						c0.09	0.08		0.11	c0.19		
v/s Ratio Perm	0.09	0.03		c0.18	0.03							
v/c Ratio	0.33	0.09		0.62	0.09	0.45	0.40		0.37	0.65		
Uniform Delay, d1	17.0	15.9		18.7	15.8	21.3	21.1		17.1	18.8		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.2	0.1		1.3	0.1	0.9	0.4		0.5	1.6		
Delay (s)	17.2	15.9		20.0	15.9	22.2	21.5		17.6	20.4		
Level of Service	B	B		C	B	C	C		B	C		
Approach Delay (s)	16.8			19.2			21.8			19.8		
Approach LOS	B			B			C			B		
Intersection Summary												
HCM Average Control Delay	19.4				HCM Level of Service				B			
HCM Volume to Capacity ratio	0.59											
Actuated Cycle Length (s)	60.2				Sum of lost time (s)				14.0			
Intersection Capacity Utilization	50.3%				ICU Level of Service				A			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

Cumulative (2035) Plus Project

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑		↑↑	↑↑		↑	↑↑	↑
Volume (vph)	241	278	101	181	511	171	157	534	166	427	1006	479
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Fr _t	1.00	1.00	0.85	1.00	0.96		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3406		1770	3413		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3406		1770	3413		1770	3539	1583
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
Adj. Flow (vph)	262	302	110	197	555	186	171	580	180	464	1093	521
RTOR Reduction (vph)	0	0	81	0	34	0	0	26	0	0	0	95
Lane Group Flow (vph)	262	302	29	197	707	0	171	734	0	464	1093	426
Turn Type	Prot		Perm	Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	8.1	25.0	25.0	8.1	25.0		13.4	28.6		16.1	31.3	39.4
Effective Green, g (s)	8.1	25.0	25.0	8.1	25.0		13.4	28.6		16.1	31.3	39.4
Actuated g/C Ratio	0.09	0.26	0.26	0.09	0.26		0.14	0.30		0.17	0.33	0.42
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0
Lane Grp Cap (vph)	293	933	417	151	898		250	1030		301	1168	725
v/s Ratio Prot	0.08	0.09		c0.11	c0.21		0.10	0.22		c0.26	c0.31	0.05
v/s Ratio Perm			0.02									0.22
v/c Ratio	0.89	0.32	0.07	1.30	0.79		0.68	0.71		1.54	0.94	0.59
Uniform Delay, d1	42.9	28.1	26.2	43.4	32.4		38.7	29.4		39.3	30.8	21.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	27.2	0.1	0.0	176.7	4.3		7.5	2.0		259.7	13.4	1.2
Delay (s)	70.1	28.2	26.2	220.0	36.7		46.2	31.4		299.0	44.2	22.6
Level of Service	E	C	C	F	D		D	C		F	D	C
Approach Delay (s)		44.2			75.2			34.1			95.7	
Approach LOS		D			E			C			F	

Intersection Summary

HCM Average Control Delay	71.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	94.8	Sum of lost time (s)	17.0
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: 8th & Webster

Cumulative (2035) Plus Project

Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	459	807	0	0	0	0	0	767	366
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	4.0
Lane Util. Factor				0.86	0.86						0.86	0.86
Frt				1.00	1.00						0.98	0.85
Flt Protected				0.95	0.99						1.00	1.00
Satd. Flow (prot)				1522	4768						4713	1362
Flt Permitted				0.95	0.99						1.00	1.00
Satd. Flow (perm)				1522	4768						4713	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92	0.95	0.95	
Adj. Flow (vph)	0	0	0	483	849	0	0	0	0	0	807	385
RTOR Reduction (vph)	0	0	0	227	27	0	0	0	0	0	20	180
Lane Group Flow (vph)	0	0	0	97	981	0	0	0	0	0	906	86
Turn Type				Perm							Perm	
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)				27.0	27.0						29.0	29.0
Effective Green, g (s)				27.0	27.0						29.0	29.0
Actuated g/C Ratio				0.30	0.30						0.32	0.32
Clearance Time (s)				4.0	4.0						4.0	4.0
Lane Grp Cap (vph)				457	1430						1519	439
v/s Ratio Prot											c0.19	
v/s Ratio Perm				0.06	0.21							0.06
v/c Ratio				0.21	0.69						0.60	0.20
Uniform Delay, d1				23.6	27.8						25.6	22.1
Progression Factor				1.00	1.00						1.00	1.00
Incremental Delay, d2				1.1	2.7						1.7	1.0
Delay (s)				24.6	30.5						27.3	23.1
Level of Service				C	C						C	C
Approach Delay (s)	0.0				29.0			0.0			26.4	
Approach LOS	A				C			A			C	
Intersection Summary												
HCM Average Control Delay	27.8			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.64											
Actuated Cycle Length (s)	90.0			Sum of lost time (s)				34.0				
Intersection Capacity Utilization	42.3%			ICU Level of Service				A				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: 7th & Webster

Cumulative (2035) Plus Project

Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	628	898	0	0	0	0	0	0	205	1081	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0								4.0	
Lane Util. Factor		0.86	0.86								0.91	
Fr _t		0.94	0.85								1.00	
Flt Protected		1.00	1.00								0.99	
Satd. Flow (prot)		4505	1362								5045	
Flt Permitted		1.00	1.00								0.99	
Satd. Flow (perm)		4505	1362								5045	
Peak-hour factor, PHF	0.92	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.92
Adj. Flow (vph)	0	690	987	0	0	0	0	0	0	225	1188	0
RTOR Reduction (vph)	0	23	23	0	0	0	0	0	0	0	44	0
Lane Group Flow (vph)	0	1161	470	0	0	0	0	0	0	0	1369	0
Turn Type			Perm								Perm	
Protected Phases		6									8	
Permitted Phases			6								8	
Actuated Green, G (s)	16.0	16.0									21.0	
Effective Green, g (s)	16.0	16.0									21.0	
Actuated g/C Ratio	0.36	0.36									0.47	
Clearance Time (s)		4.0	4.0								4.0	
Lane Grp Cap (vph)		1602	484								2354	
v/s Ratio Prot		0.26										
v/s Ratio Perm			c0.35								0.27	
v/c Ratio		0.89dr	0.97								0.58	
Uniform Delay, d1	12.6	14.3									8.8	
Progression Factor	1.00	1.00									0.73	
Incremental Delay, d2	2.9	34.5									0.9	
Delay (s)	15.5	48.8									7.3	
Level of Service	B	D									A	
Approach Delay (s)	25.3			0.0			0.0				7.3	
Approach LOS	C			A			A				A	
Intersection Summary												
HCM Average Control Delay		17.1		HCM Level of Service						B		
HCM Volume to Capacity ratio		0.75										
Actuated Cycle Length (s)		45.0		Sum of lost time (s)						8.0		
Intersection Capacity Utilization		68.8%		ICU Level of Service						C		
Analysis Period (min)		15										
dr Defacto Right Lane. Recode with 1 though lane as a right lane.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 7th & Harrison

Cumulative (2035) Plus Project

Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	231	567	0	0	0	0	0	936	1871	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	2500	1900	1900	1900
Total Lost time (s)		5.0						5.0	5.0			
Lane Util. Factor		0.91						0.91	*1.00			
Fr _t		1.00						1.00	1.00			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5013						5085	4902			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5013						5085	4902			
Peak-hour factor, PHF	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	260	637	0	0	0	0	0	1052	2102	0	0	0
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	166	0	0	0
Lane Group Flow (vph)	0	882	0	0	0	0	0	1052	1936	0	0	0
Turn Type	Perm								Perm			
Protected Phases		6							4			
Permitted Phases	6									4		
Actuated Green, G (s)		18.0						17.0	17.0			
Effective Green, g (s)		18.0						17.0	17.0			
Actuated g/C Ratio		0.40						0.38	0.38			
Clearance Time (s)		5.0						5.0	5.0			
Lane Grp Cap (vph)		2005						1921	1852			
v/s Ratio Prot								0.21				
v/s Ratio Perm		0.18							c0.39			
v/c Ratio		0.44						0.55	1.05			
Uniform Delay, d1		9.8						11.0	14.0			
Progression Factor		0.72						1.00	1.00			
Incremental Delay, d2		0.5						1.1	33.9			
Delay (s)		7.5						12.1	47.9			
Level of Service		A						B	D			
Approach Delay (s)		7.5			0.0			35.9		0.0		
Approach LOS		A			A			D		A		
Intersection Summary												
HCM Average Control Delay		29.7						HCM Level of Service		C		
HCM Volume to Capacity ratio		0.73										
Actuated Cycle Length (s)		45.0						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		73.7%						ICU Level of Service		D		
Analysis Period (min)		15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: 6th & Broadway

Cumulative (2035) Plus Project

Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	325	225	730	83	300	0	0	658	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3539	1583	1770	3539			5024	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3539	1583	1770	3539			5024	
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
Adj. Flow (vph)	0	0	0	353	245	793	90	326	0	0	715	62
RTOR Reduction (vph)	0	0	0	0	0	270	0	0	0	0	12	0
Lane Group Flow (vph)	0	0	0	353	245	523	90	326	0	0	765	0
Turn Type				Perm		Perm		Prot				
Protected Phases					2		7	4			8	
Permitted Phases				2		2						
Actuated Green, G (s)				31.0	31.0	31.0	7.0	36.5			26.0	
Effective Green, g (s)				31.0	31.0	31.0	7.0	36.5			26.0	
Actuated g/C Ratio				0.41	0.41	0.41	0.09	0.49			0.35	
Clearance Time (s)				4.0	4.0	4.0	3.5	3.5			3.5	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				732	1463	654	165	1722			1742	
v/s Ratio Prot					0.07		c0.05	0.09			c0.15	
v/s Ratio Perm				0.20		c0.33						
v/c Ratio				0.48	0.17	0.80	0.55	0.19			0.44	
Uniform Delay, d1				16.1	13.9	19.3	32.5	10.9			18.9	
Progression Factor				1.00	1.00	1.00	1.48	0.51			1.00	
Incremental Delay, d2				2.3	0.2	9.9	1.9	0.2			0.8	
Delay (s)				18.4	14.1	29.2	49.9	5.8			19.7	
Level of Service				B	B	C	D	A			B	
Approach Delay (s)	0.0				23.8			15.3			19.7	
Approach LOS	A				C			B			B	
Intersection Summary												
HCM Average Control Delay	21.2			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.63											
Actuated Cycle Length (s)	75.0			Sum of lost time (s)				11.0				
Intersection Capacity Utilization	60.2%			ICU Level of Service				B				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Broadway & 5th

Cumulative (2035) Plus Project

Weekend Peak Hour of Generator

Movement	SEL2	SEL	SET	SER	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	31	806	207	136	283	233	62	331	189	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	3.5	3.5	3.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.85	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00
Satd. Flow (prot)	1610	3280	1583	3539	1583	1770	1770	1770	1863	1863
Flt Permitted	0.95	0.97	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00
Satd. Flow (perm)	1610	3280	1583	3539	1583	1770	1770	1770	1863	1863
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	33	857	220	145	301	248	66	352	201	310
RTOR Reduction (vph)	0	0	0	57	0	13	0	0	0	0
Lane Group Flow (vph)	0	444	666	88	301	301	0	352	201	310
Turn Type	Perm	Perm		Perm		Perm		Prot	Prot	
Protected Phases			6		4			3	3	8
Permitted Phases	6	6		6		4				
Actuated Green, G (s)	22.5	22.5	22.5	22.9	22.9		16.1	16.1	42.5	
Effective Green, g (s)	22.5	22.5	22.5	22.9	22.9		16.1	16.1	42.5	
Actuated g/C Ratio	0.30	0.30	0.30	0.31	0.31		0.21	0.21	0.57	
Clearance Time (s)	5.5	5.5	5.5	3.5	3.5		4.5	4.5	4.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)	483	984	475	1081	483		380	380	1056	
v/s Ratio Prot				0.09			c0.20	0.11	0.17	
v/s Ratio Perm	c0.28	0.20	0.06		c0.19					
v/c Ratio	0.92	0.88	0.19	0.28	0.62		0.93	0.53	0.29	
Uniform Delay, d1	25.4	23.1	19.5	19.8	22.4		28.9	26.1	8.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.36	1.38	0.80	
Incremental Delay, d2	25.1	3.7	0.9	0.6	6.0		26.0	0.6	0.6	
Delay (s)	50.5	26.8	20.3	20.4	28.3		65.3	36.6	7.4	
Level of Service	D	C	C	C	C		E	D	A	
Approach Delay (s)		34.4		24.5					37.8	
Approach LOS		C		C					D	
Intersection Summary										
HCM Average Control Delay	33.3				HCM Level of Service			C		
HCM Volume to Capacity ratio	0.81									
Actuated Cycle Length (s)	75.0				Sum of lost time (s)			13.5		
Intersection Capacity Utilization	70.6%				ICU Level of Service			C		
Analysis Period (min)	15									
dl Defacto Left Lane. Recode with 1 though lane as a left lane.										
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

6: 6th & Jackson

Cumulative (2035) Plus Project

Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	12	396	62	375	359	0	0	258	1605
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2300
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	4.0
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1770	1863	1583		1816			1863	1917
Flt Permitted				0.95	1.00	1.00		0.70			1.00	1.00
Satd. Flow (perm)				1770	1863	1583		1309			1863	1917
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	13	417	65	395	378	0	0	272	1689
RTOR Reduction (vph)	0	0	0	0	0	41	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	13	417	24	0	773	0	0	272	1689
Turn Type				Perm		Perm	Perm					Free
Protected Phases					2			4				8
Permitted Phases				2		2	4					Free
Actuated Green, G (s)				16.5	16.5	16.5		17.5			17.5	45.0
Effective Green, g (s)				16.5	16.5	16.5		17.5			17.5	45.0
Actuated g/C Ratio				0.37	0.37	0.37		0.39			0.39	1.00
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	
Lane Grp Cap (vph)				649	683	580		509			725	1917
v/s Ratio Prot					0.22						0.15	
v/s Ratio Perm				0.01		0.02		c0.59			c0.88	
v/c Ratio				0.02	0.61	0.04		1.52			0.38	0.88
Uniform Delay, d1				9.1	11.6	9.2		13.8			9.8	0.0
Progression Factor				1.00	1.00	1.00		1.24			1.00	1.00
Incremental Delay, d2				0.1	4.0	0.1		242.6			1.5	6.2
Delay (s)				9.1	15.7	9.3		259.7			11.3	6.2
Level of Service				A	B	A		F			B	A
Approach Delay (s)	0.0				14.7			259.7			6.9	
Approach LOS	A				B			F			A	
Intersection Summary												
HCM Average Control Delay	68.6				HCM Level of Service			E				
HCM Volume to Capacity ratio	1.16											
Actuated Cycle Length (s)	45.0				Sum of lost time (s)			5.5				
Intersection Capacity Utilization	88.8%				ICU Level of Service			E				
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

7: 5th & Jackson

Cumulative (2035) Plus Project

Weekend Peak Hour of Generator

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	263	410	348	0	0	0	0	286	35	101	97	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5					4.5			4.5	
Lane Util. Factor		0.95	1.00					1.00			1.00	
Fr _t		1.00	0.85					0.99			1.00	
Flt Protected		0.98	1.00					1.00			0.98	
Satd. Flow (prot)		3471	1583					1835			1816	
Flt Permitted		0.98	1.00					1.00			0.72	
Satd. Flow (perm)		3471	1583					1835			1343	
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.92
Adj. Flow (vph)	283	441	374	0	0	0	0	308	38	109	104	0
RTOR Reduction (vph)	0	0	270	0	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	724	104	0	0	0	0	336	0	0	213	0
Turn Type	Perm		Perm							Perm		
Protected Phases		6						4			8	
Permitted Phases	6		6							8		
Actuated Green, G (s)	12.5	12.5						23.5			23.5	
Effective Green, g (s)	12.5	12.5						23.5			23.5	
Actuated g/C Ratio	0.28	0.28						0.52			0.52	
Clearance Time (s)	4.5	4.5						4.5			4.5	
Lane Grp Cap (vph)	964	440						958			701	
v/s Ratio Prot								c0.18				
v/s Ratio Perm	0.21	0.07								0.16		
v/c Ratio	0.75	0.24						0.35			0.30	
Uniform Delay, d1	14.8	12.6						6.3			6.1	
Progression Factor	1.00	1.00						1.00			1.39	
Incremental Delay, d2	5.4	1.3						1.0			1.1	
Delay (s)	20.2	13.8						7.3			9.6	
Level of Service	C	B						A			A	
Approach Delay (s)	18.0			0.0				7.3			9.6	
Approach LOS	B			A				A			A	
Intersection Summary												
HCM Average Control Delay	14.7			HCM Level of Service				B				
HCM Volume to Capacity ratio	0.49											
Actuated Cycle Length (s)	45.0			Sum of lost time (s)				9.0				
Intersection Capacity Utilization	69.4%			ICU Level of Service				C				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Willie Stargell & Webster

Cumulative (2035) Plus Project

Weekend Peak Hour of Generator



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑↑	↑↑
Volume (vph)	487	193	94	944	1029	534
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.91	0.88
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	5085	2787
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	5085	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	513	203	99	994	1083	562
RTOR Reduction (vph)	0	142	0	0	0	388
Lane Group Flow (vph)	513	61	99	994	1083	174
Turn Type		Perm	Prot		Perm	
Protected Phases	4		5	2	6	
Permitted Phases		4			6	
Actuated Green, G (s)	15.0	15.0	6.1	25.6	15.5	15.5
Effective Green, g (s)	15.0	15.0	6.1	25.6	15.5	15.5
Actuated g/C Ratio	0.30	0.30	0.12	0.51	0.31	0.31
Clearance Time (s)	4.5	4.5	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1028	474	216	1808	1573	862
v/s Ratio Prot	c0.15		0.06	c0.28	c0.21	
v/s Ratio Perm		0.04			0.06	
v/c Ratio	0.50	0.13	0.46	0.55	0.69	0.20
Uniform Delay, d1	14.5	12.8	20.5	8.3	15.2	12.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	6.9	1.2	1.3	0.1
Delay (s)	14.8	12.9	27.3	9.5	16.5	12.9
Level of Service	B	B	C	A	B	B
Approach Delay (s)	14.3			11.2	15.2	
Approach LOS	B			B	B	

Intersection Summary

HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	50.1	Sum of lost time (s)	14.5
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

9: W Midway & Main

Cumulative (2035) Plus Project

Weekend Peak Hour of Generator



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	205	155	33	219	101	140	189	29	86	177	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		3.5				3.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		0.95				0.95	
Fr _t	1.00	0.85		1.00	0.85		0.99				0.98	
Flt Protected	0.99	1.00		0.99	1.00		0.98				0.99	
Satd. Flow (prot)	1842	1583		1851	1583		3429				3409	
Flt Permitted	0.85	1.00		0.92	1.00		0.69				0.75	
Satd. Flow (perm)	1586	1583		1712	1583		2425				2578	
Peak-hour factor, PHF	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Adj. Flow (vph)	88	297	225	48	317	146	203	274	42	125	257	71
RTOR Reduction (vph)	0	0	134	0	0	87	0	17	0	0	39	0
Lane Group Flow (vph)	0	385	91	0	365	59	0	502	0	0	414	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	12.8	12.8		12.8	12.8		11.9				11.9	
Effective Green, g (s)	12.8	12.8		12.8	12.8		11.9				11.9	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.38				0.38	
Clearance Time (s)	3.5	3.5		3.5	3.5		3.5				3.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0				3.0	
Lane Grp Cap (vph)	640	639		691	639		910				968	
v/s Ratio Prot												
v/s Ratio Perm	c0.24	0.06		0.21	0.04		c0.21				0.16	
v/c Ratio	0.60	0.14		0.53	0.09		0.55				0.43	
Uniform Delay, d1	7.4	6.0		7.2	5.9		7.8				7.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00				1.00	
Incremental Delay, d2	1.6	0.1		0.7	0.1		0.7				0.3	
Delay (s)	9.0	6.1		7.9	5.9		8.5				7.7	
Level of Service	A	A		A	A		A				A	
Approach Delay (s)	7.9			7.3			8.5				7.7	
Approach LOS	A			A			A				A	
Intersection Summary												
HCM Average Control Delay	7.9			HCM Level of Service			A					
HCM Volume to Capacity ratio	0.58											
Actuated Cycle Length (s)	31.7			Sum of lost time (s)			7.0					
Intersection Capacity Utilization	60.0%			ICU Level of Service			B					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Atlantic & Main

Cumulative (2035) Plus Project

Weekend Peak Hour of Generator

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	251	201	93	356	167	215	359	77	152	361	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		5.0
Lane Util. Factor	0.95	1.00		0.95	1.00	1.00	0.95		0.91	0.91		
Fr _t	1.00	0.85		1.00	0.85	1.00	0.97		1.00	0.98		
Flt Protected	1.00	1.00		0.99	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	3523	1583		3503	1583	1770	3446		1610	3318		
Flt Permitted	0.87	1.00		0.76	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (perm)	3091	1583		2691	1583	1770	3446		1610	3318		
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	33	318	254	118	451	211	272	454	97	192	457	72
RTOR Reduction (vph)	0	0	180	0	0	150	0	24	0	0	14	0
Lane Group Flow (vph)	0	351	74	0	569	61	272	527	0	173	534	0
Turn Type	Perm		Perm	Perm		Perm	Split		Split			
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	19.9	19.9		19.9	19.9	18.0	18.0		16.6	16.6		
Effective Green, g (s)	19.9	19.9		19.9	19.9	18.0	18.0		16.6	16.6		
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.26	0.26		0.24	0.24		
Clearance Time (s)	4.0	4.0		4.0	4.0	5.0	5.0		5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	898	460		782	460	465	906		390	804		
v/s Ratio Prot						c0.15	0.15		0.11	c0.16		
v/s Ratio Perm	0.11	0.05		c0.21	0.04							
v/c Ratio	0.39	0.16		0.73	0.13	0.58	0.58		0.44	0.66		
Uniform Delay, d1	19.4	18.1		21.9	17.9	22.0	22.0		22.0	23.4		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.3	0.2		3.4	0.1	1.9	1.0		0.8	2.1		
Delay (s)	19.7	18.2		25.3	18.1	23.9	22.9		22.8	25.5		
Level of Service	B	B		C	B	C	C		C	C		
Approach Delay (s)	19.1			23.3			23.2			24.9		
Approach LOS	B			C			C			C		
Intersection Summary												
HCM Average Control Delay	22.8			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.66											
Actuated Cycle Length (s)	68.5			Sum of lost time (s)			14.0					
Intersection Capacity Utilization	58.4%			ICU Level of Service			B					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

Cumulative (2035) Plus Project

Weekend Peak Hour of Generator

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑		↑↑	↑↑		↑	↑↑	↑
Volume (vph)	260	254	89	101	397	127	135	758	120	242	712	393
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Fr _t	1.00	1.00	0.85	1.00	0.96		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3411		1770	3467		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3411		1770	3467		1770	3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	271	265	93	105	414	132	141	790	125	252	742	409
RTOR Reduction (vph)	0	0	72	0	33	0	0	11	0	0	0	140
Lane Group Flow (vph)	271	265	21	105	513	0	141	904	0	252	742	269
Turn Type	Prot		Perm	Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	8.1	19.3	19.3	8.1	19.3		11.9	26.2		16.2	30.5	38.6
Effective Green, g (s)	8.1	19.3	19.3	8.1	19.3		11.9	26.2		16.2	30.5	38.6
Actuated g/C Ratio	0.09	0.22	0.22	0.09	0.22		0.14	0.30		0.19	0.35	0.44
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0
Lane Grp Cap (vph)	320	787	352	165	758		243	1046		330	1244	777
v/s Ratio Prot	c0.08	0.07		0.06	c0.15		0.08	c0.26		c0.14	0.21	0.03
v/s Ratio Perm			0.01									0.14
v/c Ratio	0.85	0.34	0.06	0.64	0.68		0.58	0.86		0.76	0.60	0.35
Uniform Delay, d1	38.7	28.4	26.6	37.9	30.9		35.1	28.6		33.5	23.1	15.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.3	0.1	0.0	7.8	1.9		3.5	7.3		10.0	0.5	0.3
Delay (s)	57.0	28.5	26.6	45.7	32.8		38.6	35.9		43.5	23.6	16.1
Level of Service	E	C	C	D	C		D	D		D	C	B
Approach Delay (s)		40.5			34.9			36.3			25.0	
Approach LOS		D			C			D			C	
Intersection Summary												
HCM Average Control Delay		32.5										C
HCM Volume to Capacity ratio		0.79										
Actuated Cycle Length (s)		86.8										17.0
Intersection Capacity Utilization		74.8%										D
Analysis Period (min)		15										
c Critical Lane Group												

Mitigation - 2035 plus Alternative 1 & 2 Project Conditions

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

Mitigation -Cumulative (2035) Plus Project

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑		↑	↑↑		↑	↑↑	↑
Volume (vph)	342	270	90	37	357	120	133	1095	91	114	525	386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Fr _t	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3406		1770	3498		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3406		1770	3498		1770	3539	1583
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	438	346	115	47	458	154	171	1404	117	146	673	495
RTOR Reduction (vph)	0	0	67	0	24	0	0	5	0	0	0	72
Lane Group Flow (vph)	438	346	48	47	588	0	171	1516	0	146	673	423
Turn Type	Prot		Perm	Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	18.0	39.4	39.4	6.8	28.2		17.4	58.2		12.0	52.8	70.8
Effective Green, g (s)	18.0	39.4	39.4	6.8	28.2		17.4	58.2		12.0	52.8	70.8
Actuated g/C Ratio	0.13	0.30	0.30	0.05	0.21		0.13	0.44		0.09	0.40	0.53
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0
Lane Grp Cap (vph)	463	1045	468	90	720		231	1526		159	1401	888
v/s Ratio Prot	c0.13	0.10		0.03	c0.17		c0.10	c0.43		c0.08	0.19	0.06
v/s Ratio Perm			0.03									0.20
v/c Ratio	0.95	0.33	0.10	0.52	0.82		0.74	0.99		0.92	0.48	0.48
Uniform Delay, d1	57.2	36.7	34.2	61.7	50.1		55.8	37.4		60.2	30.1	19.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	28.4	0.1	0.0	5.4	6.7		12.0	21.4		47.5	0.1	0.4
Delay (s)	85.6	36.8	34.2	67.1	56.9		67.8	58.8		107.7	30.2	20.1
Level of Service	F	D	C	E	E		E	E		F	C	C
Approach Delay (s)		60.2			57.6			59.7			35.0	
Approach LOS		E			E			E			C	

Intersection Summary

HCM Average Control Delay	52.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	133.4	Sum of lost time (s)	13.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: 7th & Harrison

Mitigation - Cumulative (2035) Plus Project
8/7/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	320	773	0	0	0	0	0	857	1962	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	2500	1900	1900	1900
Total Lost time (s)		5.0						5.0	5.0			
Lane Util. Factor		0.91						0.91	*1.00			
Fr _t		1.00						1.00	1.00			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5012						5085	4902			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5012						5085	4902			
Peak-hour factor, PHF	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	352	849	0	0	0	0	0	942	2156	0	0	0
RTOR Reduction (vph)	0	39	0	0	0	0	0	0	84	0	0	0
Lane Group Flow (vph)	0	1162	0	0	0	0	0	942	2072	0	0	0
Turn Type	Perm								Perm			
Protected Phases		6							4			
Permitted Phases	6									4		
Actuated Green, G (s)		34.0						36.0	36.0			
Effective Green, g (s)		34.0						36.0	36.0			
Actuated g/C Ratio		0.42						0.45	0.45			
Clearance Time (s)		5.0						5.0	5.0			
Lane Grp Cap (vph)		2130						2288	2206			
v/s Ratio Prot								0.19				
v/s Ratio Perm		0.23							c0.42			
v/c Ratio		0.55						0.41	0.94			
Uniform Delay, d1		17.2						14.9	21.0			
Progression Factor		0.91						1.00	1.00			
Incremental Delay, d2		0.6						0.5	9.4			
Delay (s)		16.2						15.4	30.4			
Level of Service		B						B	C			
Approach Delay (s)		16.2			0.0			25.8		0.0		
Approach LOS		B			A			C		A		
Intersection Summary												
HCM Average Control Delay		23.1						HCM Level of Service		C		
HCM Volume to Capacity ratio		0.75										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		88.8%						ICU Level of Service		E		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Atlantic & Webster

Mitigation - Cumulative (2035) Plus Project

8/7/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑		↑↑	↑↑		↑	↑↑	↑
Volume (vph)	241	278	101	181	511	171	157	534	166	427	1006	479
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Fr _t	1.00	1.00	0.85	1.00	0.96		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3406		1770	3413		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3406		1770	3413		1770	3539	1583
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
Adj. Flow (vph)	262	302	110	197	555	186	171	580	180	464	1093	521
RTOR Reduction (vph)	0	0	88	0	33	0	0	26	0	0	0	60
Lane Group Flow (vph)	262	302	22	197	708	0	171	734	0	464	1093	461
Turn Type	Prot		Perm	Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	7.1	19.7	19.7	13.1	25.7		11.1	24.5		24.2	37.6	44.7
Effective Green, g (s)	7.1	19.7	19.7	13.1	25.7		11.1	24.5		24.2	37.6	44.7
Actuated g/C Ratio	0.07	0.20	0.20	0.13	0.26		0.11	0.25		0.25	0.38	0.45
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	2.0	2.0	3.0	2.0		3.0	2.0		3.0	2.0	3.0
Lane Grp Cap (vph)	247	708	317	235	889		199	849		435	1351	783
v/s Ratio Prot	c0.08	0.09		c0.11	c0.21		0.10	0.21		c0.26	c0.31	0.04
v/s Ratio Perm			0.01									0.25
v/c Ratio	1.06	0.43	0.07	0.84	0.80		0.86	0.86		1.07	0.81	0.59
Uniform Delay, d1	45.7	34.5	32.0	41.7	34.0		42.9	35.4		37.1	27.2	20.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	74.2	0.2	0.0	22.2	4.7		28.8	8.8		62.0	3.5	1.1
Delay (s)	119.9	34.6	32.0	63.8	38.7		71.8	44.2		99.2	30.7	21.2
Level of Service	F	C	C	E	D		E	D		F	C	C
Approach Delay (s)	67.3			43.9			49.3			43.6		
Approach LOS		E			D			D			D	

Intersection Summary			
HCM Average Control Delay	48.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	98.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Appendix C

Project Travel Demand

Phase 1 (2017) - Alternative 1 & 2

2016 Weekday and Saturday Vehicle Trip Generation

Land Use	Size	Daily	AM Peak Hour			PM Peak Hour			Saturday Peak Hour of Generator		
			In	Out	Total	In	Out	Total	In	Out	Total
Office	12,500 SF	138	18	2	20	4	15	19	2	2	4
Clinic	250 employees	1,938	221	86	308	126	181	308	9	10	19
Cemetery											
Employees	7 employees	28	7	0	7	0	7	7	0	0	0
Visitors		80	4	4	8	4	4	8	7	7	14
Corteges		180	0	0	0	0	0	0	0	0	0
Deliveries		8	1	1	2	1	1	2	0	0	0
Total		2,372	251	93	345	135	208	344	18	19	37

Source: ITE *Trip Generation*, 8th Edition; AECOM 2012.

Notes:

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Funeral Corteges occur on weekdays between 9 AM and 3 PM and last approximately 30 minutes.

NCA states 6 funeral services a day 5 days a week and funeral corteges average 15 vehicles.

Employees arrive in AM peak hour and leave in PM peak hour.

Deliveries would randomly occur during normal weekday operating hours of 8 AM to 5 PM.

There are 7 employees and assume that each employee makes a mid-day trip.

NCA states that visitors amount to 40 vehicles a weekday and 60 vehicles a weekend day.

Visitors were assumed to arrive and depart the cemetery distributed evenly throughout the cemetery hours of 8 AM to 5 PM.

Hospital is closest land use to medical clinic in ITE and so used hospital data as no data was provided for the AM peak hour for medical clinic.

AM peak hour rate is same as PM peak hour rate for hospital. So used PM peak hour rate for clinic and applied same rate to AM peak hour.

2027 - Alternative 1 & 2

2027 Weekday and Saturday Vehicle Trip Generation

Land Use	Size	Daily	Weekday			AM Peak Hour			PM Peak Hour			Saturday Peak Hour of Generator		
			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Office	12,500 SF	0	0	0	0	0	0	0	0	0	0	0	0	0
Clinic	250 employees	0	0	0	0	0	0	0	0	0	0	0	0	0
Cemetery														
Employees	7 employees	0	0	0	0	0	0	0	0	0	0	0	0	0
Visitors		80	4	4	8	4	4	8	7	7	14			
Corteges		180	0	0	0	0	0	0	0	0	0			
Deliveries		0	0	0	0	0	0	0	0	0	0			
Total		260	4	4	8	4	4	8	7	7	14			

Source: AECOM, 2012.

Notes:

Clinic/office is completely built out already and accounted for in background traffic.

Only new trips for cemetery in 2027 are visitors and corteges as employees and deliveries would remain unchanged and accounted for from the 2017 condition.

Corteges occur in off-peak hours so only accounted for in weekday daily trips.

2035 - Alternative 1 & 2

2035 Weekday and Saturday Trip Generation

Land Use	Variable	Weekday Daily	AM Peak Hour			PM Peak Hour			Saturday Peak Hour of Generator		
			In	Out	Total	In	Out	Total	In	Out	Total
Office	12,500 SF	138	18	2	20	4	15	19	2	2	4
Clinic	250 employees	1,938	221	86	308	126	181	308	9	10	19
Cemetery											
Employees	7 employees	28	7	0	7	0	7	7	0	0	0
Visitors		480	44	44	88	44	44	88	77	77	154
Corteges		1,980	0	0	0	0	0	0	0	0	0
Deliveries		8	1	1	2	1	1	2	0	0	0
Total		4,572	291	133	425	175	248	424	88	89	177

Notes:

Only new trips for cemetery in 2035 for phases 2-11 are visitors and corteges as employees and deliveries would remain unchanged and accounted for from the 2017 condition. Corteges occur in off-peak hours so only accounted for in weekday daily trips.

In 2035 the plus project condition includes traffic from phases 1-11.

Appendix D

Construction Traffic

	Truck	SOV	Total
Maximum Daily (One-Way) Trips in 2015	406	92	498
Maximum Daily (One-Way) Trips in 2016	24	92	116
Maximum Daily (One-Way) Trips in 2026	182	62	212
Total Maximum Daily (One-Way) Trips	406	92	498

Note: See Max Daily Truck Trips and Max Daily SOV Trips for detailed breakdown of by month daily trips

Total Maximum Daily Trips in 2026 reflects maximum concurrent Truck and SOV trips on a daily basis, irrespective of max daily for Truck and SOV separately

Daily Trucks

Daily Personal Vehicles

Construction			2015												2016												2026														
Phase	Subphase	Proposed Action	Duration (Months)	Approximate Start Date	Approximate Completion Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1.1	Outpatient Clinic Building	18	July-15	December-16							10	10	10	10	10	10	10	10	10	30	30	30	30	30	30	62	62													
1	1.2	NCA Cemetery Committal Service Shelters and Support Facilities - Phase 1	6	July-15	December-15							10	10	10	10	30	62																								
1	1.3	Conservation Management Office	12	July-15	June-16							10	10	10	10	10	10	30	30	30	30	30	30	62																	
1	1.4	Access Road/Utilities Infrastructure	6	July-15	December-15							10	10	10	10	10	10																								
1	2.1	NCA Cemetery Committal Service Shelters and Support Facilities - Phase 2	12	January-26	December-26							10	10	10	10	10	10																								