


DEPARTMENT OF TRANSPORTATION
BALTIMORE CITY

# ST. PAUL AND CALVERT STREETS TWO WAY STUDY

## Existing Conditions Analysis

January 2016

Prepared by:

**Sabra, Wang & Associates, Inc.**

7055 Samuel Morse Dr., Ste. 100, Columbia, MD 21046

443-741-3500 | sabra-wang.com

**Table of Contents**

## List of Tables

## List of Figures

## Appendices



**Note:**

**This report addresses the analysis of the existing conditions to along the study corridor. A separate report titled *Two-Way Operational Analysis*, addresses the analysis of two-way flow along the corridor.**

# Glossary

**ADA =** Americans with Disabilities Act

**Arterial** = A signalized street that primarily serves through traffic and that secondarily provides access to abutting properties, with signal spacing of 2.0 miles or less.

**Background Conditions =** Conditions affecting the performance of the transportation network not directly related to the subject development over a designated time period, such as growth in existing traffic volumes, other planned, approved or current developments in the study area, and planned improvements to the transportation network

**Capacity** = The maximum sustainable flow rate at which vehicles or persons reasonably can be expected to traverse a point or uniform segment of a roadway during a specified time period under given roadway, geometric, traffic, environmental, and control conditions, usually expressed as vehicles per hour.

**Collector** = A roadway with no control of access linking residential communities with the arterial system

**Cycle Length** = The time period required for one complete sequence of traffic signal indications ( green time + yellow time + red time)

**Delay** = The additional time experienced by a roadway user, typically motorists as a result of constrained movements and deviation from ideal or free flow travel speeds

**Highway Capacity Manual =** A publication of the National Academy of Sciences Transportation Research Board that provides a collection of the state-of-the-art techniques for estimating the capacity and determining the level of service for transportation facilities, first published in the 1950's and most recently published in 2000.

**Level of Service** = A qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed, travel time, freedom to maneuver, traffic interruption, comfort and convenience.

**Minor Arterial** = In an urban setting, minor arterials interconnect and augment the higher class arterial system serving trip of moderate length, provides intra-community continuity, and may carry local bus routes.

**Multi-modal** = A transportation facility for different types of users, modes or vehicles.

**Offset** = the difference in seconds between the start of green time from a specified datum in a coordinated system of signalized intersections

**Origin-Destination Study** = Conducted to provide a detailed picture of trip patterns (where drivers are coming from and going to) and travel choices (either by mode or route taken) for the study area.

**Peak Hour** = The one-hour period of greatest utilization of a transportation facility; weekdays normally have two peaks, one in the morning and one in the afternoon

**Primary Arterial** =Also referred to as a principal arterial. In urban settings they serve major activity centers, carry high proportions of total urban travel, and longest trip demands. Additionally, they serve demand for intra-area travel between central business district and outlying residential areas

**Trip/ Trip End** = A single or one-direction movement by any mode of travel with the origin or destination (exiting or entering) inside the study development.

**Total Trips** = The total of all trips entering plus all trips exiting a site during a designated time.

**Travel Time =** the average speed of a traffic stream computed as the length of the highway segment divided by the average travel time of the vehicles traversing the segment

# I. Introduction

## A. Purpose

In response to community requests, the Baltimore City Department of Transportation is carrying out a study of the St. Paul and Calvert Streets corridor from Fayette Street to E. University Parkway. The purpose is to investigate the impact of converting both streets from one-way traffic operations to two-way traffic operations. This report presents existing conditions in the study area. This includes a description of:

- The eight study area neighborhoods: Charles Village, Old Goucher, Charles North, Barclay, Greenmount West, Mid-Town Belvedere, Mount Vernon and Downtown.
- Key characteristics of the study area roadways including functional classifications and cross sections along each individual block of St. Paul and Calvert Streets.
- Existing traffic conditions and operations, including peak hour traffic, intersection level-of-service and traffic signal operations.
- On-street parking regulations, supply and utilization along St. Paul and Calvert Streets during the mid-day and evening periods.
- Pedestrian and vehicular traffic safety based on detailed crash data at 65 intersections along St. Paul and Calvert Streets.
- Transit operations within the study area including transit route density, bus frequency, and bus stop ridership for the six distinctive operators. (Baltimore City, John Hopkins University/JHMI, Collegetown, University of Maryland Baltimore, and University of Baltimore Shuttle Services and Maryland Transit Administration [MTA].)
- Origin-Destination survey of vehicles traveling on St. Paul and Calvert Street.
- Public opinion survey conducted and public outreach effort.
- Case studies of notable one-way to two-way urban conversions.

### B. Study Area

As shown in Figure 2, the study area is bounded on the south by Fayette Street, on the north by E University Parkway, on the west by Charles Street, and on the east by the Jones Falls Expressway (I-83) and Guilford Avenue. It is divided into a northern and southern segment, with E 20th St serving as the dividing line in all maps and tables. In this report, the study area includes the following:

- The length of the study area is approximately 3 miles.
- There are 71 study intersections within the study area along St. Paul and Calvert Streets; 61 of which are signalized.
- The study area passes through eight neighborhoods: Charles Village, Old Goucher, Charles North, Barclay, Greenmount West, Mid-Town Belvedere, Mount Vernon and Downtown.
- The study area road system consists of four (4) major north-south arterial roads and I-83, and numerous east-west local roads and arterials.
- St. Paul and Calvert Streets are primary arterials. Both extend the entire length of the study area from Fayette Street to E University Parkway and operate as a one-way pair.
- The Maryland Transit Administration (MTA) provides local, Quick Bus, Express Bus and Commuter Bus services on 30 routes in the study area, with a combined 110 peak hour buses. These routes operate along Charles, St. Paul, and Calvert Streets, Guilford Avenue, and 13 east-west streets.
- In addition to services provided by the MTA, the City of Baltimore and four educational institutions provide eleven (11) distinct bus services along the corridor. Most operate along a portion of Charles Street, about half (6) operate along a portion of St. Paul Street, and only one operates along Calvert Street.

### C. Historical Perspective on Traffic Flow Along the Study Corridor

During the early days of the automobile era, the St. Paul and Calvert Street corridor was configured as a two-way roadway, as the photograph of St. Paul Street by Penn Station circa 1929 illustrates[1]. The roadway geometry included a full-time curb parking lane and single vehicle driving lane shared with a streetcar lane in each direction.

Over 60 years ago, traffic operations on the roadway were changed to address increasing traffic volumes and create a one-way couplet that remains to this day, providing two full time parking lanes and two full time driving lanes. Note that streetcar service was eliminated around the time of the conversion.


**St. Paul Street at Penn Station, Looking North, circa 1929.**

[1] Photo source:
https://s-media-cache-ak0.pinimg.com/originals/70/a9/8e/70a98e924ee19b2e7f0ea1549a62552f.jpg
Retrieved January 2016


**Figure 1: Study Area**

## II. Neighborhoods

As shown on Figure 3, the study area includes portions of eight neighborhoods:

1. Barclay
2. Charles North
3. Charles Village
4. Downtown
5. Greenmount West
6. Mid-Town Belvedere
7. Mount Vernon
8. Old Goucher

The maps in Appendix C present data on the following seven demographic characteristics for neighborhoods in central and northern Baltimore:

- Auto Ownership
- Average Household Income
- College Degree Attainment
- Employment Density
- Household Density
- Median Property Value
- Population Density

Although the area encompassed by each of these neighborhoods extends beyond the study area boundaries, Table 1 Neighborhood Demographics presents a summary of the seven demographic characteristics *only for the portion of each neighborhood* within the study area boundaries. Highlights of this data show the following:

- Auto ownership ranges vary from neighborhood to neighborhood, with Downtown and Greenmount West showing the highest ownership per household (1.2-1.6). Both Charles Village and Charles North show the largest range in ownership, with 0.0-1.21 vehicles in Charles Villages and 0.0-1.6 in Charles North.
- In the study area, there is on average 1 vehicle per household.
- Average household income is $30,001 to $50,000 for 6 of the 8 neighborhoods, except for Charles Village and Downtown, with an average income of $30,000-$70,000 per household.
- Employment density is highest in Midtown Belvedere, Mount Vernon and Downtown neighborhoods, with major institutions providing employment centers including Johns Hopkins University and Union Memorial Hospital at the northern end, and Mercy Hospital at the southern end.

- Median property values are $200,001 to $275,000 for six of the eight neighborhoods. For the two remaining neighborhoods, Barclay and Old Goucher, property values are lower ($57,000- $100,000) or higher ($275,000+) than the median range, respectively.
- Population density varies widely among the eight study area neighborhoods. The three neighborhoods with the highest population densities are Charles Village, Mid-Town Belvedere and Mount Vernon, while the two lowest population densities were found in Charles North and Downtown.

**Table 1 Neighborhood Demographics**

| | Charles Village | Old Goucher | Charles North | Barclay | Greenmount West | Mid-Town Belvedere | Mount Vernon | Downtown |
|---|---|---|---|---|---|---|---|---|
| **Auto Ownership Vehicles/Household**** | 0.0-1.21 | 0.81-1.2 | 0.0-1.6 | 0.5-1.6 | 1.2-1.6 | 0.81-1.2 | 0.51-1.2 | 1.21-1.6 |
| **Average Household Income***** | $30,001-$75,000 | $30,001-$50,000 | $30,001-$50,000 | $30,001-$50,000 | $30,001-$50,000 | $30,001-$50,000 | $30,001-$50,000 | $30,001-$75,000 |
| **College Graduates Coll Educ/Tot Pop***** | 0.26-0.6+ | 0.26-0.4 | 0.26-0.4 | 0.15-0.25 | 0.26-0.4 | 0.6+ | 0.6+ | 0.6+ |
| **Employment Density Employment/Acre**** | 2.1-31.2 | 14.21-31.2 | 2.1-31.2 | 0.0-14.2 | 2.1-14.2 | 31.3-81.2 | 31.3-81.2 | 171.7+ |
| **Household Density Households/Acre**** | 4.8-24.7+ | 4.8-9.3 | 4.8-14.9 | 9.4-14.9 | 4.8-9.3 | 9.4-24.7+ | 15.0-24.7+ | 0.0-4.7 |
| **Median Property Value***** | $200,001-$275,000+ | $275,000+ | $200,001-$275,000+ | $57,000-$100,000 | $200,001-$275,000 | $200,001-$275,000 | $200,001-$275,000 | $200,001-$275,000 |
| **Population Density Pop/Acre**** | 16-80+ | 16-25 | 0.5-40 | 16-25 | 16-25 | 16-80 | 26-80 | 0.5-15 |

* For portion of each neighborhood between Charles Street and Guilford Avenue
**Source: 2010 EPA Smart Location Data Base
***Source: U.S. Census Bureau, 2008-2012 American Community Survey

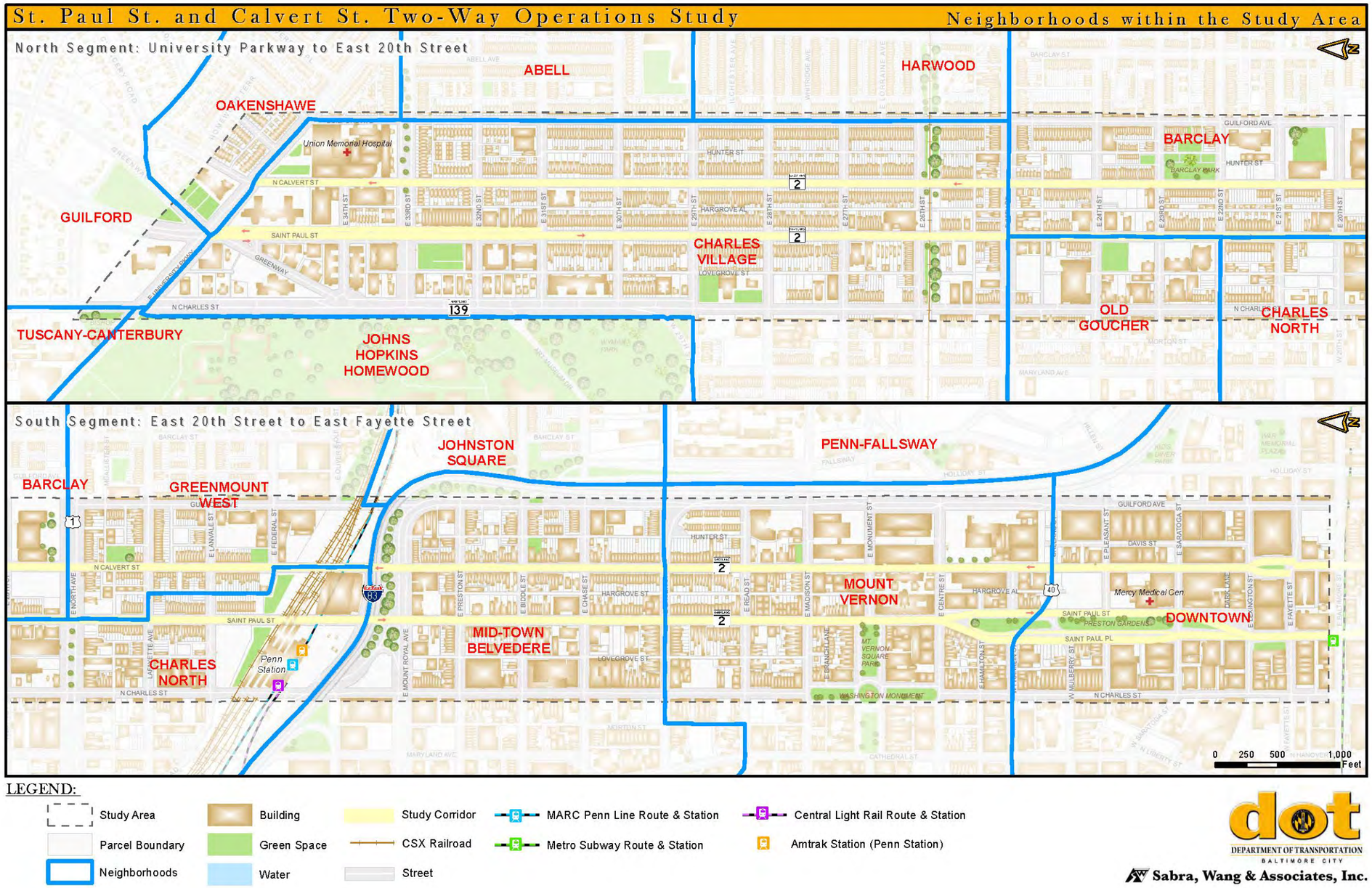



**Figure 3: Study Area Neighborhoods**

### A. Neighborhood Descriptions

The following is a brief description of each neighborhood, citing notable features that are found both within and outside of the study area.

## *Charles Village*

Charles Village in a strict sense consists of the area immediately to the east and south of the Johns Hopkins University Homewood Campus. However, smaller neighborhoods to the east of this area — including Abell and Harwood, are considered by residents and other Baltimoreans to be part of *Greater Charles Village.* The Charles Village Community Benefits District (CVCBD) covers a hundred-block area generally bounded by 33rd Street to the north, Greenmount Avenue to the east, 25th Street (east of Guilford) and 20th Street (west of Guilford) to the south, and Johns Hopkins and Howard Street to the west.

Charles Village has an abundance of well-known cultural and educational resources, being the home to the Johns Hopkins University, Union Memorial Hospital, and the Baltimore Museum of Art. The northern end of St. Paul Street, around the corner from Johns Hopkins University, has evolved into a student-orientated retail strip.

On the National Register of Historic Places since 1983, Charles Village is a distinctive, well defined area. Charles Village is an overwhelmingly residential district and is primarily made up of circa 1895-1915 row houses built along a strict grid pattern.

The Charles Village area is unique since it combines an urban grid street pattern and rowhouse character with suburban like landscaped front yards and park like boulevards, the result of early community planning efforts.

## *Old Goucher*

The Old Goucher neighborhood, a national historic district, is primarily made up of the buildings of Old Goucher College. It is an approximate 18-block area in the middle of Baltimore that developed in the late 19th and 20th centuries. It is characterized generally by two- and three-story brick row houses constructed mostly in the 19th century and several large-scale institutional and commercial buildings dating from both centuries.

Stylistically, the area is characterized primarily by Italianate, Romanesque, Colonial Revival, and Art Deco influences. The district includes a series of large scale, multiple

story brick and stone structures built for the Women's College of Baltimore, present-day Goucher College. It was added to the National Register of Historic Places in 1978.

The principal streets run north and south with 25th Street at the tip going east and west. North Charles Street, the City's major axis street, travels the middle of the district. The buildings to the east of Charles Street generally stand at the lot lines by the sidewalks. On Charles Street and west, the buildings have deep setbacks. The southeast corner is characterized by four large-scale stone churches (Lovely Lane U.M. Church, St. Michael and All Angels Episcopal Church, St. Mark's Lutheran Church, and the Seventh Baptist Church) along St. Paul Street.

### *Charles North*

The Charles North neighborhood offers an eclectic mix of arts and entertainment venues as well as historic buildings and architecturally impressive houses. Located directly north of Penn Station, the area has been transformed into one of the most hip locations in the city with the Station North Arts and Entertainment District drawing artists, music lovers and young professionals into the heart of Baltimore.

Adding to Charles North's central location is the scenic Jones Falls River corridor just to the south as well as the Maryland Institute College of Art and the University of Baltimore. Coupled with the neighborhood's present success, Charles North continues to experience rapid growth and expansion with an exciting array of residential and commercial development planned in the next 10 to 20 years.

### *Barclay*

Barclay lies north of Greenmount West, south of Charles Village, west of East Baltimore Midway, and east of Charles North. Its boundaries are North Avenue, Greenmount Avenue, Saint Paul and 25th Streets.

It has experienced severe economic decline, housing abandonment, and crime. In 2010, the Housing Authority of Baltimore began Phase I of a redevelopment project to replace vacant and blighted houses in Barclay. Development rights for more than 100 units of city-owned property were assigned to Telesis Corporation as part of the project. Previous efforts to improve the neighborhood on a smaller scale involved two historic buildings converted into about 80 apartments in 2009. Phase II of the redevelopment of properties

in Barclay began in the summer of 2013 with state and city grants from the Strategic Demolition and Smart Growth Impact Fund.

### *Greenmount West*

Greenmount West is the residential section of Baltimore's Station North Arts and Entertainment District. Located adjacent to Penn Station and Charles Street, this rapidly revitalizing neighborhood is quickly becoming home to many young artists and commuters. Greenmount West contains artist housing, renovated rowhomes, and ample green space. Commercial district revitalization continues to gain momentum along North Avenue with the addition of numerous new restaurants, theaters, galleries, music venues, and artist studio space.

The neighborhood is home to the Baltimore Montessori Public Charter School which opened in September 2008. Greenmount West grew in the 1880's and 90's as a suburb to downtown Baltimore. The area changed greatly during World War II as the large houses were made into apartments.

Greenmount West, along with Charles North, is one of two neighborhoods that comprise the North Central Historic District, a district listed on the National Park Service's National Register of Historic Places. It is the first area in the city to receive the state designation as an arts and entertainment district.

The Station North Arts and Entertainment District contains a diverse collection of artist live-work spaces, galleries, rowhomes and businesses – in close proximity to Penn Station and Mount Vernon.

### *Mid-Town Belvedere*

Mid-Town Belvedere, named for the geographic location and the famous Belvedere hotel, is an historic part of the city. Home to mostly renters, it is very popular among students from the University of Baltimore, the Peabody, and those who count on Penn Station for commuting. Most of the grandiose brownstones have been converted into multi-unit apartments. Culture and entertainment are prevalent in Midtown-Belvedere with the neighborhood being home to the Lyric Opera House, The Meyerhoff Symphony Hall, and the Baltimore Theatre Project. There are many night clubs, bars, and chain and locally-owned restaurants.

### *Mount Vernon*

Mount Vernon, designated a National Landmark Historic District and a city Cultural District, it is one of the city's oldest neighborhoods and originally was home to the city's most wealthy and fashionable families. The name derives from the Mount Vernon home of George Washington; the original Washington Monument, a massive pillar commenced in 1815 to commemorate the first president of the United States, is the defining feature of the neighborhood.

The Baltimore City Planning Commission defines the neighborhood as being bound by Eager Street to the north, The Jones Falls Expressway (JFX) to the east, Franklin Street to the south, and Eutaw Street to the west. The Commission also considers the northern section to be the *Mid-Town Belvedere* neighborhood after the Belvidere estate of John Eager Howard, the Revolutionary War patriot.

Although mainly residential, Mount Vernon-Belvedere is home to a mix of institutions, including the Peabody Conservatory of the Johns Hopkins University, Walters Art Museum, University of Baltimore, Maryland Historical Society, Contemporary Museum, Maryland Institute College of Art, Joseph Meyerhoff Symphony Hall, Baltimore School for the Arts, Lyric Opera House, Center Stage, Enoch Pratt Free Library Central Branch, Spotlighters Theatre, and the Eubie Blake National Jazz Institute.

In the decades after World War II, the neighborhood has also become home to many professional service providers.

### *Downtown*

Downtown Baltimore is the central business district of Baltimore, bounded by Martin Luther King, Jr. Boulevard to the west, President Street to the east, Lombard St on the south, and Franklin St on the north. It is the focal point of business in the Baltimore metropolitan area with over 100,000 employees. It has also increasingly become a heavily populated neighborhood with over 37,000 residents and new condominiums and apartment homes being built steadily.

City Centre is the historic financial district in Baltimore that has increasingly shifted eastward. Hundreds of businesses are found here, and it remains the center of life in Baltimore. City Centre is also home to the majority of Baltimore's skyscrapers, including

the massive Charles Centre district, as well as most of the planned, proposed and/or approved skyscrapers in Baltimore City. It includes the historic Charles Street corridor.

Downtown Baltimore also contains Camden Yards, which includes the home of the Baltimore Orioles, Oriole Park at Camden Yards, and M&T Bank Stadium, home of the Baltimore Ravens.

# III. Roadway Characteristics

## A. Functional Classification

The roadway system in the study area is shown in Figure 4. Interstates are shown in yellow and black, Minor Arterials in red, and Primary Arterials in green. The system consists of an interstate highway, four (4) major north-south arterial roads, and numerous east-west local roads and arterials.

The five (5) major roadways through the study include:

- I-83 Jones Falls Expressway
- Guildford Avenue
- St. Paul Street
- Calvert Street
- Charles Street

The study area is crossed by nine (9) east-west primary arterials:

- Mulberry, Franklin and Orleans Streets which together are US Route 40
- Centre Street operating one-way, eastbound
- Madison Street operating one-way, westbound
- Chase Street operating two-way
- Biddle Street operating one-way, eastbound
- North Avenue operating two-way
- 28th Street operating one-way, eastbound
- 29th Street operating one-way, westbound
- E University Parkway, the northern boundary, operating two-way

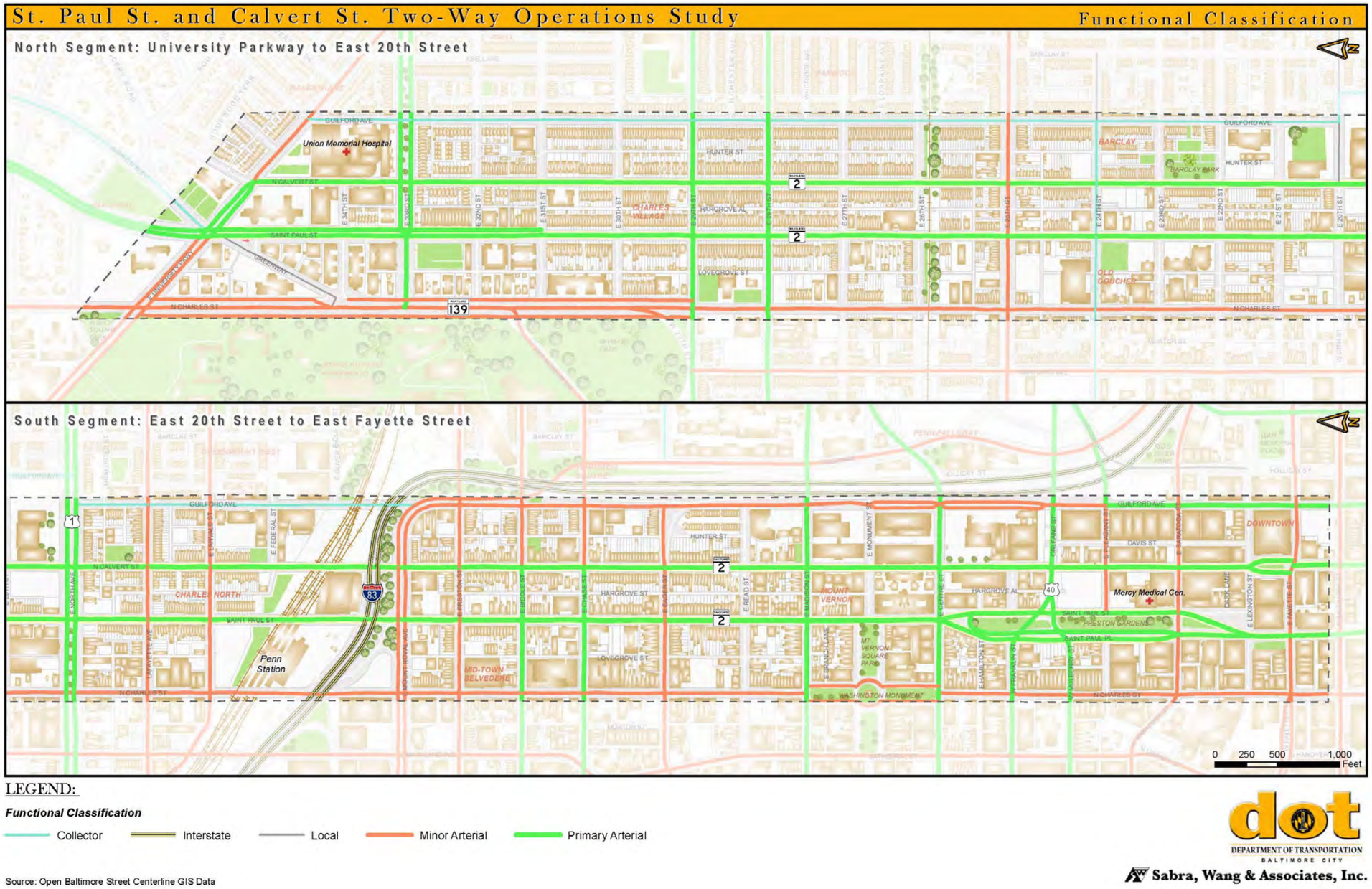



**Figure 4: Street Functional Classification**

***I-83*** is the only interstate highway in the study area. I-83 crosses east-west through the study area above Mt. Royal Avenue, and then continues southward, parallel to, and east of, Guilford Avenue along the east study area boundary into downtown Baltimore. I-83 is generally 3 lanes southbound and 2 lanes northbound through the study area. An interchange with I-83 is located in the southern portion of the study.

- I-83 southbound off ramp exits on to Guilford Avenue between Eager and Read Street.
- I-83 southbound on-ramp is accessed from Eager Street at Calvert Street.
- I-83 northbound off-ramp exits on to Falls Way at Chase Street.
- I-83 northbound on-ramp is accessed from Falls Way at Madison Street.

***Charles Street***, forming the west study area boundary, is a minor arterial. It extends the entire length of the study area from Fayette Street to E University Parkway. Charles Street has two travel lanes and operates one-way northbound through the downtown to 29th Street, and two-way to E. University Parkway. From 29th to E University Parkway, Charles splits into three segments, one running southbound on the west side of the main Charles artery, and a small northbound service-type leg to the east of the main road.

***Guilford Avenue*** is a primary arterial from Fayette Street to Pleasant Street, and a minor arterial from Pleasant Street to E. University Parkway. Guilford operates two-way in the northern half of the study area from University Parkway down to Preston Street, at which time it becomes one-way with southbound flow.

***St. Paul and Calvert Streets*** are primary arterials. Both extend the entire length of the study area from Fayette Street to E University Parkway. St. Paul and Calvert Streets operate as a one way pair, with St. Paul Street operating one-way southbound for most of its length, and Calvert Street operating one-way northbound for its entire length.

The lane operation along St. Paul and Calvert Streets is shown in Figure 5 and Figure 6.

In the north segment, St. Paul Street generally has two travel and two parking lanes. It operates with three travel lanes and one parking lane between 29$^{th}$ and 31$^{st}$ Streets. In the south segment, there is extensive variation in lane use. Travel lanes vary from two to four

lanes, parking lanes are generally one to two lanes, and in some locations there is no parking.

Calvert Street, in the north segment, has two travel lanes and two parking lanes. Between 33rd and 34th Streets there is only one parking lane. In the south segment, from Lafayette Avenue to Centre Street, Calvert Street has two travel and two parking lanes. From Centre Street to Fayette Street, lane operation varies from three to four travel lanes and zero to one parking lanes.

*Maryland Avenue and Greenmount Avenue are additional routes that share the north-south traffic volume and carry traffic into Downtown, but are not within the defined study area.*

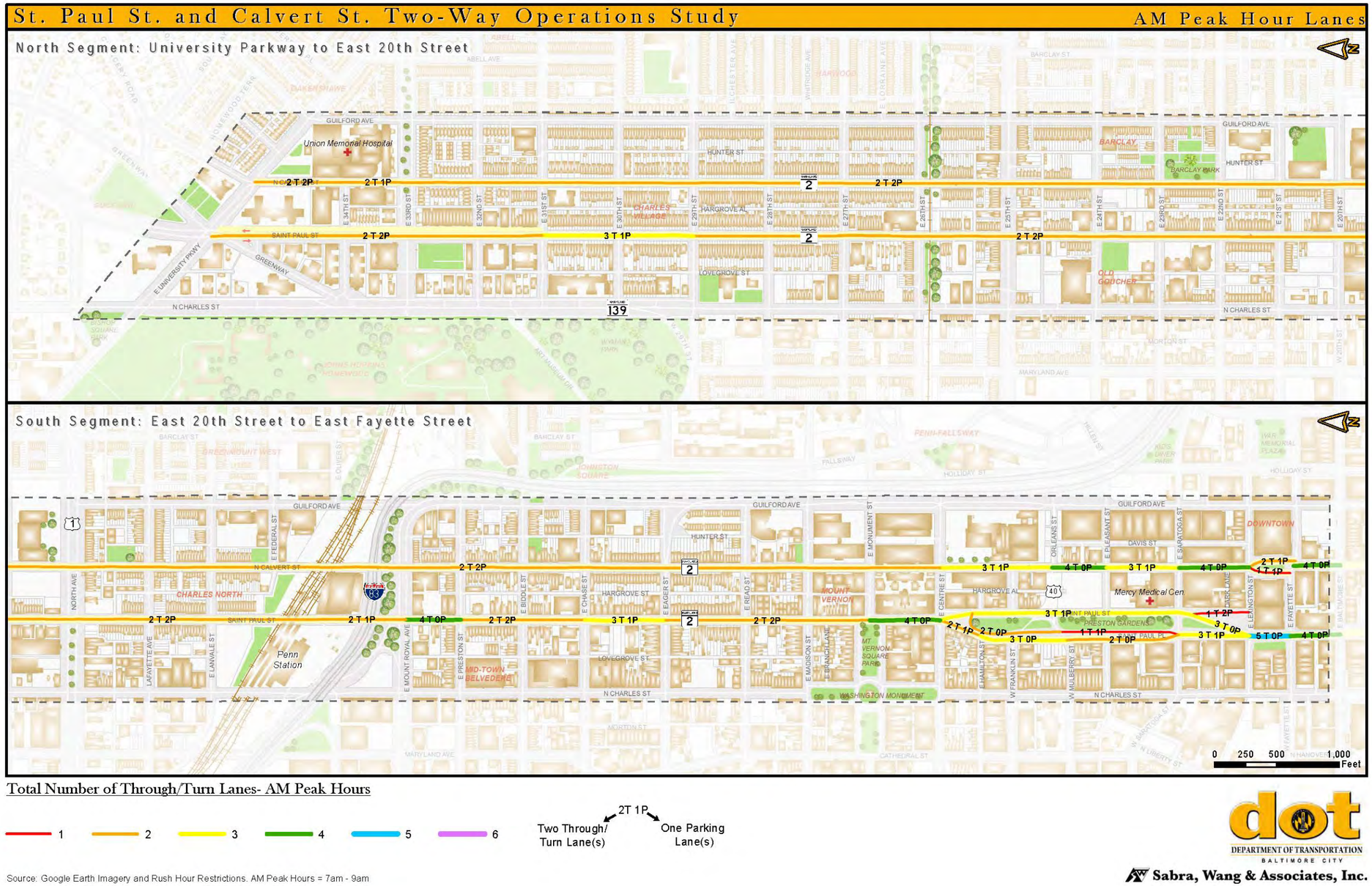



**Figure 5: St. Paul and Calvert St Travel and Parking Lanes, AM Peak Hour**

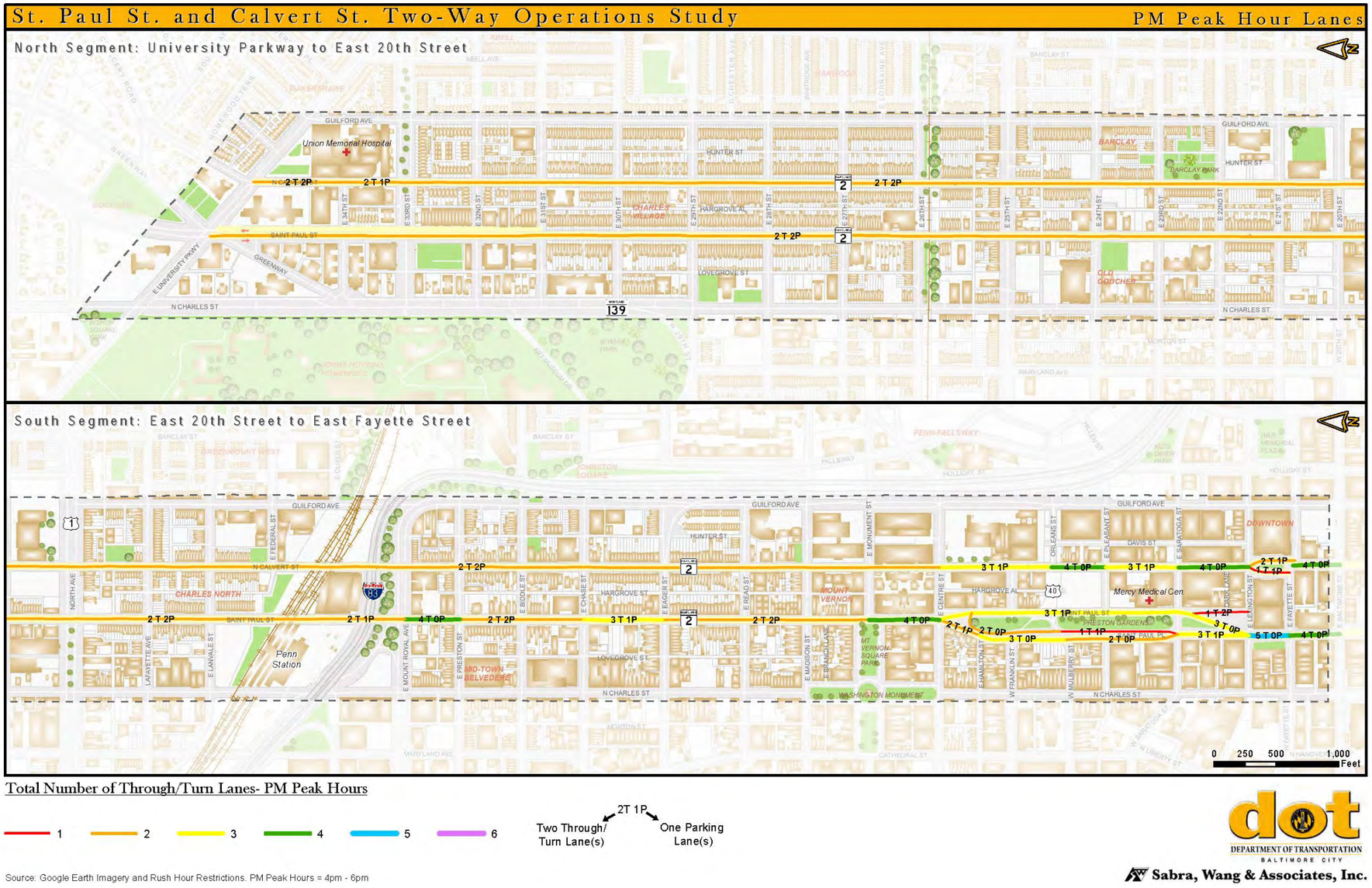



**Figure 6: St. Paul and Calvert St Travel and Parking Lanes, PM Peak Hour**

## B. Roadway Geometry

The roadway widths of each street segment from Fayette Street to E. University Parkway are shown in Table 2: Roadway Widths (Feet) by Street Segment. The overall width of St. Paul Street ranges from 37 to 52 feet. The overall width of Calvert Street ranges from 34 to 103 feet.

**Table 2: Roadway Widths (Feet) by Street Segment**

| Segment | St. Paul St. | Calvert St. | Segment | St. Paul Service Rd. | St. Paul St. | Calvert St. |
|---|---|---|---|---|---|---|
| Lanvale to E Federal | N/A | 36 | E Univ Pkwy to 34th | 19 | 42.5 | 36 |
| Lanvale to Mt Royal | 48 | N/A | 34th to 33rd | 19 | 43 | 34 |
| E Federal to Mt Royal | N/A | 36 | 33rd to 32nd | 18 | 44 | 34 |
| Mt Royal to E Preston | 48 | 36 | 32nd to 31st | 18 | 44 | 36 |
| E Preston to Biddle | 37 | 36 | 31st to 30th | | 40 | 36 |
| Biddle to Chase | 37 | 36 | 30th to 29th | | 40 | 36 |
| Chase to Eager | 37 | 36 | 29th to 28th | | 40 | 36 |
| Eager to Read | 37 | 36 | 28th to 27th | | 40 | 36 |
| Read to Madison | 37 | 36 | 27th to 26th | | 40 | 36 |
| Madison to Monument | 37 | 36 | 26th to 25th | | 40 | 36 |
| Monument to Centre | 45.5 | 36 | 25th to 24th | | 40 | 36 |
| Centre to Hamilton | 45.5 | N/A | 24th to 23rd | | 40 | 36 |
| Centre to Orleans | N/A | 36 | 23rd to 22nd | | 40 | 36 |
| Hamilton to Franklin | 45.5 | N/A | 22nd to 21st | | 40 | 36 |
| Franklin to Pleasant | 45.5 | N/A | 21st to 20th | | 40 | 36 |
| Orleans to Pleasant | N/A | 36 | 20th to North Ave | | 40 | 36 |
| Pleasant to Saratoga | 45.5 | 36 | North Ave to Lafayette | | 40 | 36 |
| Saratoga to Lexington | 45.5 | 36 | Lafayette to Lanvale | | 40 | 36 |
| Lexington to Fayette | 52 | 103 | | | | |

### C. Pedestrian Infrastructure

Pedestrian infrastructure was assessed and inventoried at the 71 intersections along St. Paul (including St. Paul Place) and Calvert Streets that fall within the study area. Infrastructure assessed included the presence of crosswalk markings, curb ramps for handicapped access at each intersection corner, and the presence of pedestrian signal indications at each intersection.

Table 3 identifies the deficiencies by intersection in each of the three categories. The table shows that there are many non-compliant ramps along the length of both St. Paul and Calvert Streets.

One of the items assessed in Table 3 identifies *partial* crosswalk deficiencies. A partial deficiency is defined as an intersection that does not have marked crosswalk across all legs (sides) of the intersection. The 71 intersections create a total of 284 pedestrian crossings assuming four crossings per intersection. (Although not all intersections within the study area have four legs, the number of intersections less than and greater than four legs roughly balance. Therefore, the assumption of four legs per sections is a reasonable estimate.) There are a total of nine partial crosswalk deficiencies along St. Paul Street and four partial crosswalk deficiencies along Calvert Street. Each deficient intersection has, on average, two legs without a marked crosswalk meaning 26 out of 284 crossing locations are not marked.

Out of the 31 signalized intersections along St. Paul Street, six are missing at least one pedestrian signal across one of the four possible legs. There are five unsignalized[2] intersections that and therefore the pedestrian crossing is uncontrolled as well. These intersections are found at the following cross streets: 34th St, 30th St, 26th St, 22nd St, and Hamilton St.

Out of the 30 signalized intersections along Calvert Street, there is one that is missing at least one pedestrian signal across one of the four possible legs. There are five unsignalized intersections: 30th St, 26th St, 23rd St, Federal St and Franklin St where the pedestrian crossing is uncontrolled.

[2] **Unsignalized** intersections within this corridor are stop sign-controlled on side streets.

**Table 3: Pedestrian Infrastructure Deficiencies**

| | St. Paul St. | | | Calvert St. | | |
|---|---|---|---|---|---|---|
| | Partial Crosswalk | Non-Compliant Ramp | Missing Pedestrian Signal | Partial Crosswalk | Non-Compliant Ramp | Missing Pedestrian Signal |
| **E Univ. Pkwy** | | X | | | X | |
| **34th St.** | X | X | | X | X | |
| **33rd St.** | | | | | X | |
| **32nd St.** | | | | | X | |
| **31st St.** | | X | | | X | |
| **30th St.** | X | X | | X | X | |
| **29th St.** | | X | | | X | |
| **28th St.** | | X | | | X | |
| **27th St.** | | X | X | | X | |
| **26th St.** | X | X | | | X | |
| **25th St.** | | X | | | X | |
| **24th St.** | | X | X | X | X | |
| **23rd St.** | | X | X | X | | X |
| **22nd St.** | | X | X | | X | |
| **21st St.** | | X | X | | X | |
| **20th St.** | X | | | | X | |
| **E North Ave.** | | X | | | X | |
| **E Lafayette Ave.** | | | X | | X | |
| **Lanvale Ave.** | | | | | X | |
| **E Federal St.** | | | | | X | |
| **Mt Royal Ave.** | | X | | | X | |
| **E Preston St.** | | | | | | |
| **Biddle St.** | | | | | | |
| **Chase St.** | | X | | | X | |
| **Eager St.** | | X | | | X | |
| **Read St.** | | X | | | X | |
| **Madison St.** | | X | | | X | |
| **Monument St.** | X | X | | | X | |
| **Centre St.** | X | X | | | X | |
| **Hamilton St.** | | | | | | |
| **Franklin St.** | X* | X | | | | |
| **Orleans St.** | X* | X* | | | | |
| **Mulberry St.** | X | X | | | | |
| **Pleasant St.** | | X | | | X | |
| **Saratoga St.** | | X | | | | |
| **Lexington St.** | | | | | | |
| *Totals* | *9* | *26* | *6* | *4* | *27* | *1* |

*On St. Paul Place

# IV. Traffic Data and Operations

## A. Existing Daily Traffic Volumes

Existing traffic volumes have been documented using the most recently published Maryland State Highway Administration's Average Annual Daily Traffic (AADT) data. Table 4: Existing Average Annual Daily Traffic (AADT) 2013 shows the distribution of north-south traffic along the five major roadways in the study area.

AADT is reported in ranges of daily traffic. As seen in Table 4, for example, the existing AADT *range* for the study area's south segment for Charles Street is 9,925 to 11,670 vehicles daily. The *average* for Charles Street was calculated as 11,545 vehicles daily.

### *South Segment (south of I-83 exit)*

In the south segment, the study area roadways include the four arterials (Charles Street, St. Paul Street, Calvert Street, and Guilford Avenue) and I-83. The total average daily traffic on these five major roadways is about 150,490. Of this amount, St. Paul Street carries an average of 14,220 vehicles, and Calvert Street carries an average of 9,720 vehicles, for a total of over 23,900 vehicles daily. In the south segment, St. Paul and Calvert Streets carry 15% of the total 150, 490 north/south daily traffic.

Excluding the volume on I-83, the total average AADT *on the four arterials* equals 39,930 vehicles. Of this total, St. Paul and Calvert Streets account for 23,940 vehicles, which represent about 60% of the total north/south daily traffic in the study area on the local arterials.

### *North Segment (north of I-83 exit)*

In the north segment, the study area roadways include only the four arterials. As seen in Table 4, the total average daily traffic on these four arterials is 31,205.

Of the latter amount, St. Paul Street carries an average of 12,720 vehicles, and Calvert Street carries an average of 7,000 vehicles, for a total of 19,720 vehicles daily. St. Paul and Calvert Streets represent 63%, a significant majority, of the total north/south daily traffic being carried in the north segment.

**Table 4: Existing Average Annual Daily Traffic (AADT) 2013**

| South Segment | | | | | | |
|---|---|---|---|---|---|---|
| | **Charles Street** | **St. Paul Street** | **Calvert Street** | **Guilford Avenue** | **I-83** | ***Totals*** |
| **AADT Range** | 9,925 to 11,670 | 12,720 to 14,550 | 9,720 | 3,550 to 5,250 | 110,560 | - |
| **Average AADT** | 11,545 | 14,220 | 9,720 | 4,445 | 110,560 | *150,490* |
| **Percent** | 8% | 9% | 6% | 3% | 73% | *100%* |

| North Segment | | | | | | |
|---|---|---|---|---|---|---|
| | **Charles Street** | **St. Paul Street** | **Calvert Street** | **Guilford Avenue** | **I-83** | ***Totals*** |
| **AADT Range** | 9,925 | 12,720 | 6,840 to 7,320 | 1,560 | N/A | - |
| **Average AADT** | 9,925 | 12,720 | 7,000 | 1,560 | N/A | *31,205* |
| **Percent** | 32% | 41% | 22% | 5% | N/A | *100%* |

### B. Intersection Traffic Volumes

Intersection traffic counts including vehicle, pedestrian, and bicycle volumes were collected at 35 locations throughout the study area in September, 2015 when all City government, public schools, and universities were open and in session as well as after the full completion of the north Charles Street streetscape project. Traffic counts were conducted during the morning (7:00 to 9:00 AM), midday (11:00 AM to 1:00 PM) and evening (3:30 to 6:30 PM) peak hours and included all vehicle types (cars, trucks, buses) as well as pedestrians and bicycles. Additional historical intersection traffic count data was compiled from the recent city-wide signal timing optimization project for the remaining study intersections.

#### *Vehicle Volume*

Block by block per lane vehicle volumes are shown in Figure 7 and Figure 8 for morning and evening peak periods. Based on a typical urban signalized arterial lane carrying capacity of 500 to 750 vehicles per lane per hour of green signal time, there are several blocks of St. Paul Street in the morning peak period in Charles Village and Mid-Town neighborhoods and several blocks of Calvert Street in the evening in the Mid-Town segment that are approaching capacity.

#### *Pedestrian Volume*

The intersection pedestrian volumes are shown in Figure 9 and Figure 10 for midday and evening peak periods, as these are the peak periods where pedestrian volume is traditionally the highest. Within in the midday peak hour, pedestrian activity varies along the corridor. The highest volumes are found along 33rd Street and E Saratoga Street, although significant pedestrian activity can be found at Calvert Street and Madison Street. The highest evening peak hour pedestrian volumes observed were along 33rd Street as well as at intersections south of Lexington Street, with counts above 500 pedestrians within the peak. Many intersections found between these areas of greater activity had between 100 and 250 pedestrian crossings.

Detailed intersection turning movement count diagrams and count reports are included in Appendix A.

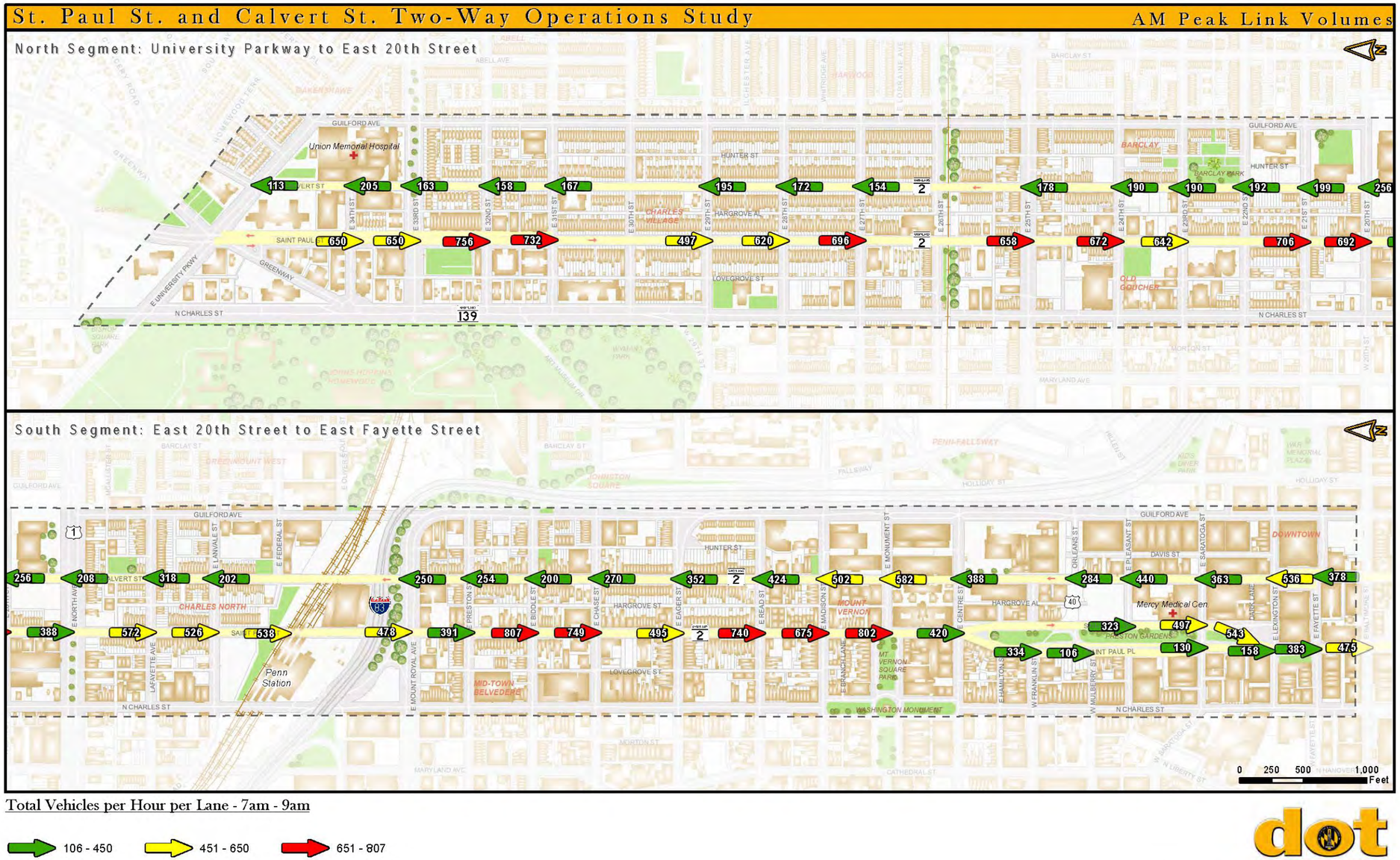



**Figure 7: Block by Block Vehicle Volumes per Lane – AM Peak Hour**

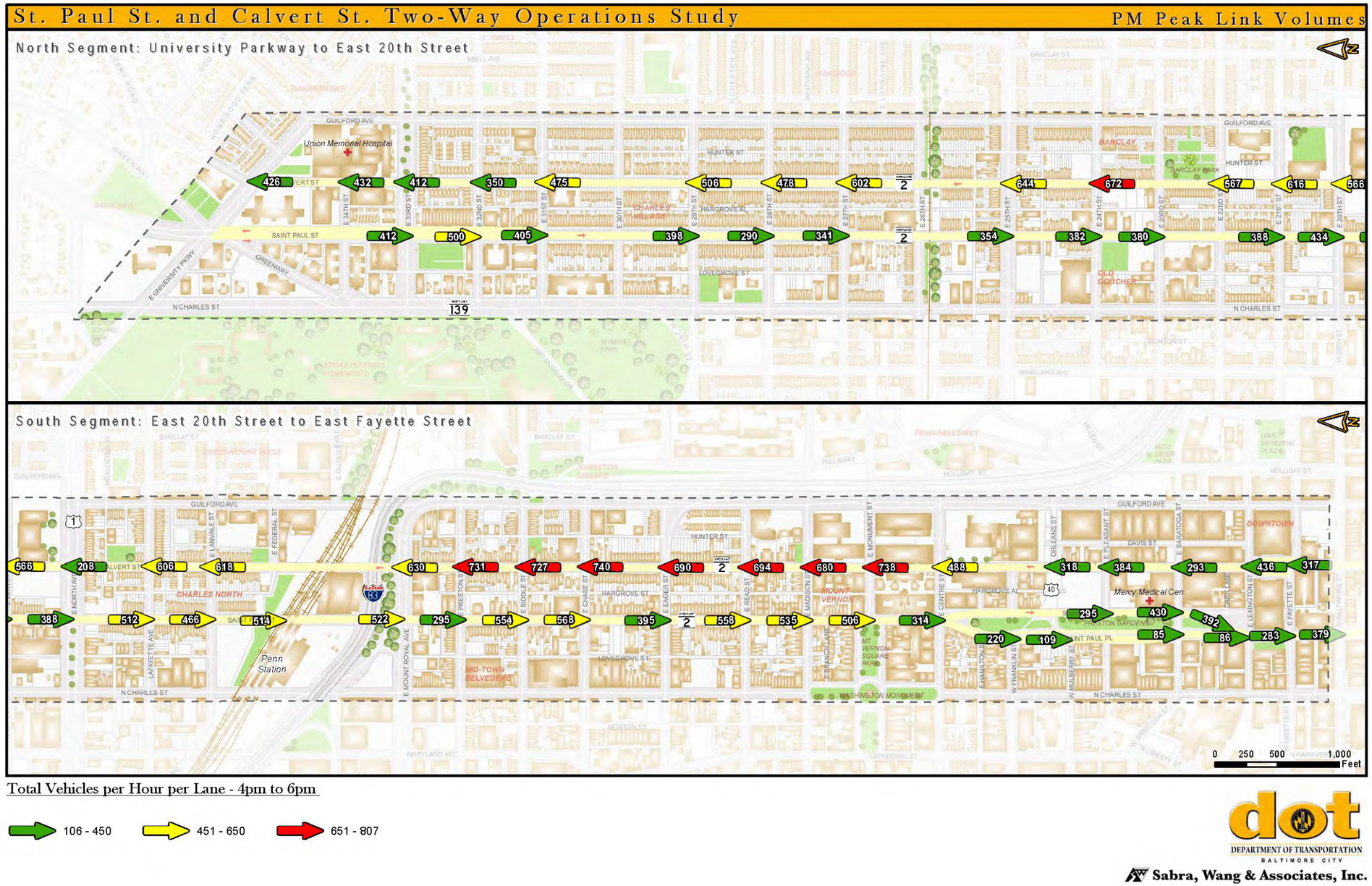
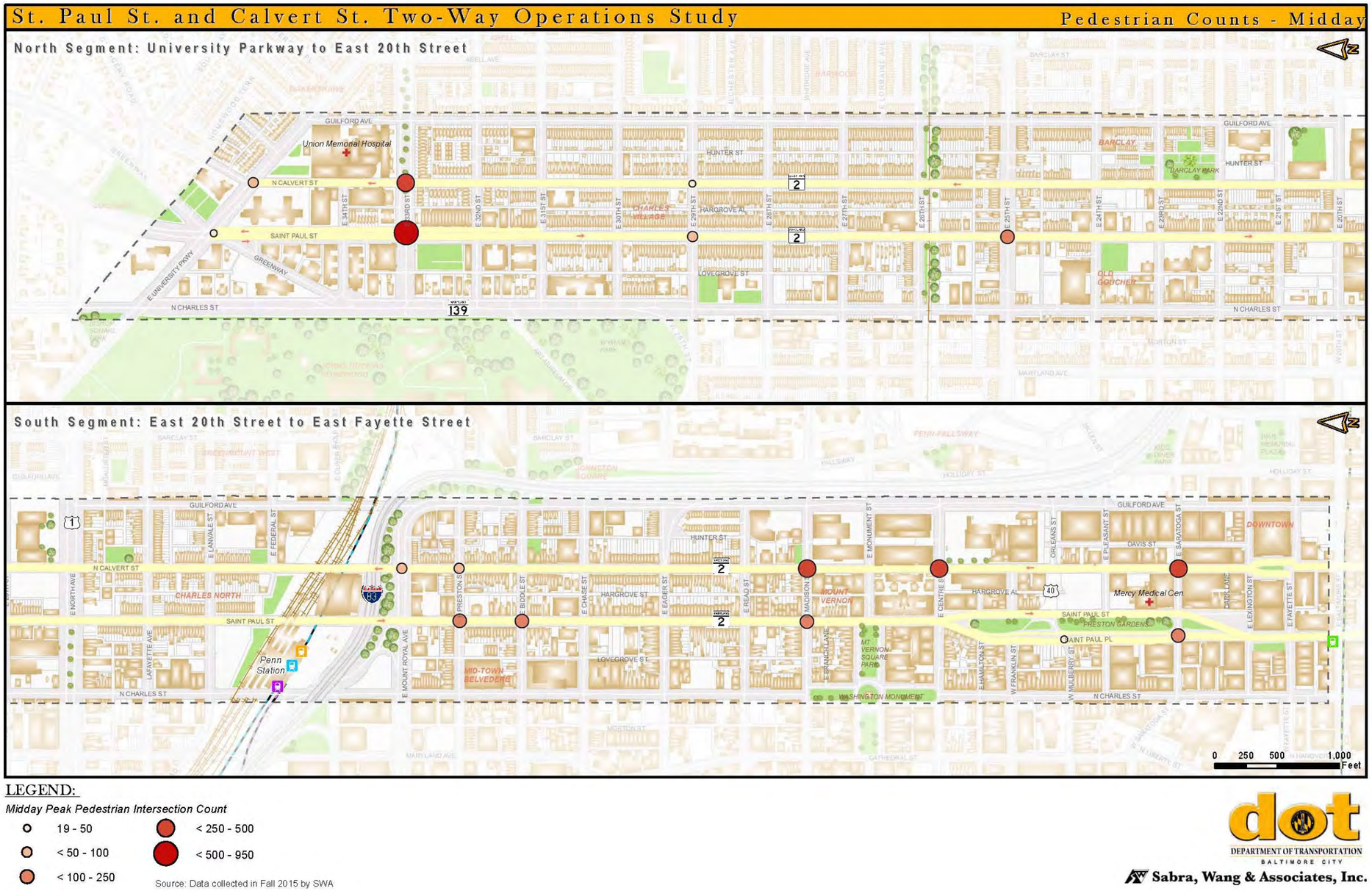



**Figure 8: Block by Block Vehicle Volumes per Lane – PM Peak Hour**




LEGEND:

*Midday Peak Pedestrian Intersection Count*

- 19 - 50
- < 50 - 100
- < 100 - 250
- < 250 - 500
- < 500 - 950

Source: Data collected in Fall 2015 by SWA

DEPARTMENT OF TRANSPORTATION BALTIMORE CITY

Sabra, Wang & Associates, Inc.

**Figure 9: Intersection Pedestrian Volumes – Midday Peak Hour**

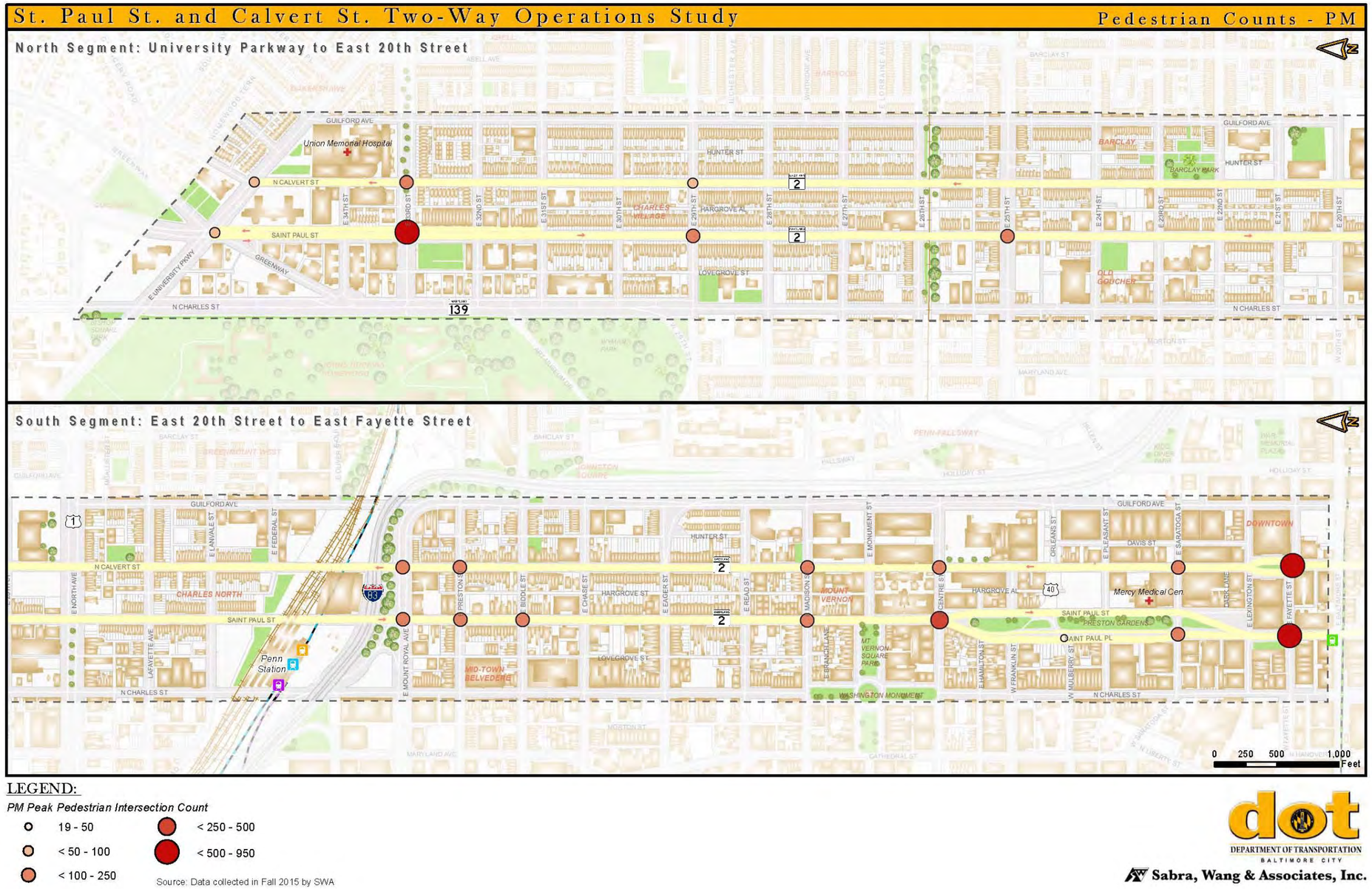



**Figure 10: Intersection Pedestrian Volumes – PM Peak Hour**

### C. Intersection Level of Service

Intersection capacity analyses were performed using the Highway Capacity Manual (HCM) methodology for all signalized intersections (61) in the study area. The performance measure of effectiveness used was the Level of Service (LOS).

LOS is a qualitative measure describing operational conditions within a traffic stream based on the amount of delay experienced at an intersection. LOS ranges from A to F, where LOS A represents optimal conditions, and LOS F represents saturated or failing conditions.

Table 5 shows the letter grades and their corresponding delay values for different Levels of Service.

**Table 5: Intersection Level of Service Delay Ranges**

| Signalized Intersections | |
|---|---|
| Level of Service | Delay Range (sec) |
| A | ≤10 |
| B | >10 and ≤20 |
| C | >20 and ≤35 |
| D | >35 and ≤55 |
| E | >55 and ≤80 |
| F | >80 |

The capacity analysis was used to identify existing traffic operational deficiencies along St. Paul and Calvert Streets. Capacity analysis worksheets are including in Appendix B and the overall intersection level of service results for each intersection are shown in Of the 61 signalized intersections, 55 are operating at an acceptable LOS of C or better in both the morning and evening peak hours. Two intersections, St. Paul at 33rd Street and St. Paul at North Avenue are operating at a level of service E (failing) in the morning peak hour

**Table 6: Intersection Level of Service - Overall**

| St. Paul St. | | |
|---|---|---|
| Intersection | Existing AM \| PM | |
| St. Paul St. at University Pkwy | D | D |
| St. Paul St. at E 33rd St. | E | C |
| St. Paul St. at E 32nd St. | A | B |
| St. Paul St. at E 31st St. | A | A |
| St. Paul St. at E 29th St. | B | B |
| St. Paul St. at E 28th St. | A | A |
| St. Paul St. at E 27th St. | A | A |
| St. Paul St. at E 25th St. | B | B |
| St. Paul St. at E 24th St. | A | A |
| St. Paul St. at E 23rd St. | A | A |
| St. Paul St. at E 21st St. | A | B |
| St. Paul St. at E 20th St. | A | A |
| St. Paul St. at North Ave. | E | C |
| St. Paul St. at E Lafayette Ave. | B | B |
| St. Paul St. at E Lanvale Ave. | A | A |
| St. Paul St. at E Mount Royal Ave. | B | A |
| St. Paul St. at E Preston St. | A | A |
| St. Paul St. at E Biddle St. | A | B |
| St. Paul St. at E Chase St. | A | A |
| St. Paul St. at E Eager St. | A | A |
| St. Paul St. at E Read St. | A | A |
| St. Paul St. at E Madison St. | A | A |
| St. Paul St. at E Monument St. | D | A |
| St. Paul St. at E Centre St. | A | A |
| Upper St. Paul St. at E Franklin St. | C | C |
| Upper St. Paul St. at E Mulberry St. | A | B |
| Lower St. Paul St. at E Pleasant St. | B | B |
| Upper St. Paul St. at E Saratoga St. | A | C |
| Lower St. Paul St. at E Saratoga St. | B | C |
| St. Paul St. at E Lexington St. | D | B |
| St. Paul St. at E Fayette St. | A | A |

| Calvert St. | | |
|---|---|---|
| Intersection | Existing AM \| PM | |
| Calvert St. at University Pkwy | C | D |
| Calvert St. at E 34th St. | A | A |
| Calvert St. at E 33rd St. | B | C |
| Calvert St. at E 32nd St. | A | A |
| Calvert St. at E 31st St. | A | A |
| Calvert St. at E 29th St. | B | A |
| Calvert St. at E 28th St. | A | B |
| Calvert St. at E 27th St. | A | A |
| Calvert St. at E 25th St. | C | C |
| Calvert St. at E 24th St. | A | A |
| Calvert St. at E 22nd St. | A | A |
| Calvert St. at E 21st St. | A | A |
| Calvert St. at E 20th St. | B | B |
| Calvert St. at North Ave. | C | D |
| Calvert St. at E Lafayette Ave. | A | A |
| Calvert St. at E Lanvale Ave. | A | A |
| Calvert St. at E Mount Royal Ave. | B | B |
| Calvert St. at E Preston St. | A | A |
| Calvert St. at E Biddle St. | A | A |
| Calvert St. at E Chase St. | A | A |
| Calvert St. at E Eager St. | A | A |
| Calvert St. at E Read St. | A | A |
| Calvert St. at E Madison St. | A | A |
| Calvert St. at E Monument St. | A | A |
| Calvert St. at E Centre St. | B | B |
| Calvert St. at Bath St. | A | A |
| Calvert St. at E Pleasant St. | A | A |
| Calvert St. at E Saratoga St. | C | B |
| Calvert St. at E Lexington St. | A | B |
| Calvert St. at E Fayette St. | B | B |

### D. Traffic Signal Operations

The existing traffic signals operate in a coordinated pre-timed system throughout the study area. The signal system operates in two zones – the *Downtown Zone* (south of North Avenue) and the *North Baltimore zone* (north of North Avenue).

The north zone runs a 110 second cycle length[3] in the peak morning and evening rush hours, and a 90-second cycle length during off-peak midday, evening and weekend hours. The downtown zone runs a 90-second cycle length in the peak morning and evening rush hours north of Centre Street, and a 110-second cycle length from Centre Street south to the Harbor. The off-peak cycle lengths are 60 seconds and 90 seconds, north and south of Centre Street, respectively. A review of the cycle lengths in the study area was conducted within the past five years and overall cycle lengths were reduced as a result.

[3] **Cycle Length** = The time period required for one complete sequence of traffic signal indications (green time + yellow time + red time)

# V. On-Street Parking

## A. Regulations and Supply

Within the study area, along St. Paul and Calvert Streets, on-street parking regulations include the following categories:

- Taxi Stand
- Handicapped Parking
- No Parking/No Stopping
- Other Permit Reserved
- Pay to Park (Metered)
- Pedestrian Loading Zone
- Residential Permit
- Truck Loading Zone
- Unrestricted
- Zip Cars

The following are descriptions of several of these parking categories:

***No Parking (Driveway Posting)*:** designed to permit a vehicle to enter and exit to an off-street facility for sight distance. Safety signs are installed on both sides of the driveway.

***No Parking*** *or* ***No Stopping*:** a temporary parking management measure, except when traffic movement is involved.

***No Stopping:*** when associated with meter installations, at the end of the street to maintain sight distances for turning vehicles.

***Passenger Loading Zone*:** reserved for the exclusive purpose of expeditiously taking on or discharging of passengers within the limited time required. This restriction does not allow for continuous parking.

***Reserved Handicap Parking*:** designated spaces for any vehicle that displays special registration plates for disabled persons or disabled persons parking permit. This area is open to the use of the general public (designated at medical center, nursing homes, and other public facilities).

***Truck Loading Zone*:** purpose is to assist businesses with their shipping and receiving needs with special time limitation. It is not intended to permit continuous parking for service vehicles.

The ***Residential Parking Permit*** (RPP) Program was begun in 1979 in an effort to address the specific needs of residents in city neighborhoods where the demand for on-street parking was considered to be greatest. Participating neighborhoods elect to do so

through application by petition to the City of Baltimore through the Parking Authority of Baltimore City.

Since its inception, the RPP Program has grown to include 46 designated RPP areas, each designated with its own specific number or letter. Parking in each of these 46 areas is restricted to some degree to provide preferential parking privileges only to those residents and their guests who display valid Residential Parking Permits and Visitors Passes on their automobiles. These permits and passes are issued and valid for a one-year period from the designated annual renewal date for each specific RPP Area. Residents must re-apply every year.

In addition to the standard categories, Baltimore authorizes permits for a variety of special purposes. These are referred to in this report as *Other Permit Reserved*. Some of the permits under this category are for the Sheriff, City DOT vehicles, handicapped ramps, food vendors and Correctional Transportation.

### B. Inventory by Regulation

Data was collected and analyzed on curbside parking spaces along St. Paul and Calvert Streets by (1) type of curbside regulation, (2) location within each neighborhood, and (3) curbside space utilization. The following sections present the findings for each of these analyses.

On-street parking spaces within the study area along St. Paul and Calvert Streets were inventoried and categorized by the following:

- Handicapped Parking
- Other Permit Reserved
- Pay to Park
- Pedestrian Loading Zone
- Residential Permit
- Truck Loading Zone
- Unrestricted

The summary of this inventory is shown in Table 7: Number of On-Street Parking Spaces by Regulation. Some of the key observations from this table are:

- There are a total of 1,760 curbside parking spaces in the corridor, with nearly equal amounts along St. Paul and Calvert Streets.
- Residential permits, totaling 591 spaces, represent one-third of the spaces.
- Unrestricted spaces, totaling 601 spaces, represent one-third of the spaces.

- Pay to park spaces, totaling 439 spaces, represents one-quarter of the spaces.
- The other four parking space categories combined (Other Permit Reserved, Handicapped Parking, Truck Loading Zone and Pedestrian Loading Zone) represent about 7% of all spaces.
- Geographically, on streets spaces are pre-dominantly
    - Pay-to-park or residential permit required between University and 29th Street,
    - Unrestricted between 29th Street and 21St Street,
    - Residential permit required between 21st and Monument Street, and
    - Pay-to-park or no on-street parking permitted between Monument Street and Fayette Street.

**Table 7: Number of On-Street Parking Spaces by Regulation**

| Parking Regulation | St. Paul St | Calvert St | Totals |
|---|---|---|---|
| **Residential Permit** | 218 | 373 | 591 |
| **Unrestricted** | 217 | 384 | 601 |
| **Pay to Park** | 334 | 105 | 439 |
| **Other Permit Reserved** | 46 | 7 | 53 |
| **Pedestrian Loading Zone** | 25 | 16 | 41 |
| **Truck Loading Zone** | 19 | 16 | 35 |
| *Totals* | *859* | *901* | *1,760* |

### C. Inventory by Neighborhood

As reflected above in the discussion of curbside spaces by regulation, there are a total of 1,760 spaces in the study area along both sides of St. Paul and Calvert Streets. The study area crosses portions of eight (8) neighborhoods. Table 8: Number of On-Street Parking Spaces by Neighborhood, shows the number of spaces in each of the eight neighborhoods. Please refer to Figure 11: On-Street Parking Regulations and Number of Spaces for additional information.

Some observations from this table are:

- Charles Village, with 672 spaces, has the highest number of spaces -- 38% -- in the study area.

- Goucher, with 34 spaces, has the lowest number of spaces -- 2% – in the study area.
- Downtown, with 107 spaces, has only 6% of the neighborhood spaces.

With a very even distribution of curbside spaces on both sides of St. Paul and Calvert Streets throughout the study area, the number of spaces in each neighborhood is mainly reflective of the length of each neighborhood crossed by the study area boundaries. Review of Figure 3, shows for example that the length of the Charles Village boundary represents about one-third of the study area length.

**Table 8: Number of On-Street Parking Spaces by Neighborhood**

| Neighborhood | Spaces | Percentage |
|---|---|---|
| **Charles Village** | 672 | 38% |
| **Old Goucher** | 34 | 2% |
| **Charles North** | 141 | 8% |
| **Barclay** | 263 | 15% |
| **Greenmount West** | 64 | 4% |
| **Mid-Town Belvedere** | 238 | 14% |
| **Mount Vernon** | 241 | 14% |
| **Downtown** | 107 | 6% |
| *Total* | *1,760* | *100%* |

### D. On-Street Parking Utilization

On-street (curbside) parking space utilization was inventoried along St. Paul and Calvert Streets during the mid-day (11:00 AM – 2:00 PM) and evening (7:00 – 9:00 PM) periods. The results are shown in Figure 12: Weekday Mid-Day On-Street Parking Utilization, and Figure 13: Weekday Evening On-Street Parking Utilization.

Utilization rates were summarized in five categories: 0% - 25%, 25% - 50%, 50% - 75%, 75%+, and no utilization rate. Observations from this data are as follows:

## *St. Paul Street*

Mid-Day:

- Parking space utilization along both sides of St. Paul Street is generally over 75% from E University Parkway to 26th Street.

- Parking space utilization along both sides of St. Paul Street, from 26th Street to Lafayette Street varies greatly, with most street segments less than 50% occupied.
- Parking space utilization along both sides of St. Paul Street, from Mt. Royal Avenue to Monument Street is generally over 75%
- Parking space utilization along both sides of St. Paul Street, in downtown, from Monument Street to Fayette Street is generally less than 25%.

Evening:

- Parking space utilization along both sides of St. Paul Street is generally over 75% for the entire length of the study area, from E University Parkway to Fayette Street

### *Calvert Street*

Mid-Day:

- Parking space utilization along both sides of Calvert Street is greater than 75% for a majority of the block.
- Parking space utilization along both sides of Calvert Street is generally under 25% downtown between Fayette Street and Madison Street.

Evening:

- Parking space utilization along both sides of Calvert Street is generally over 75% between 25th Street and E University Parkway, and between Franklin Street and Lafayette Street.
- Parking space utilization along both sides of Calvert Street is generally under 50% between Lafayette Street and 22nd Street, and between Fayette Street and Franklin Street.

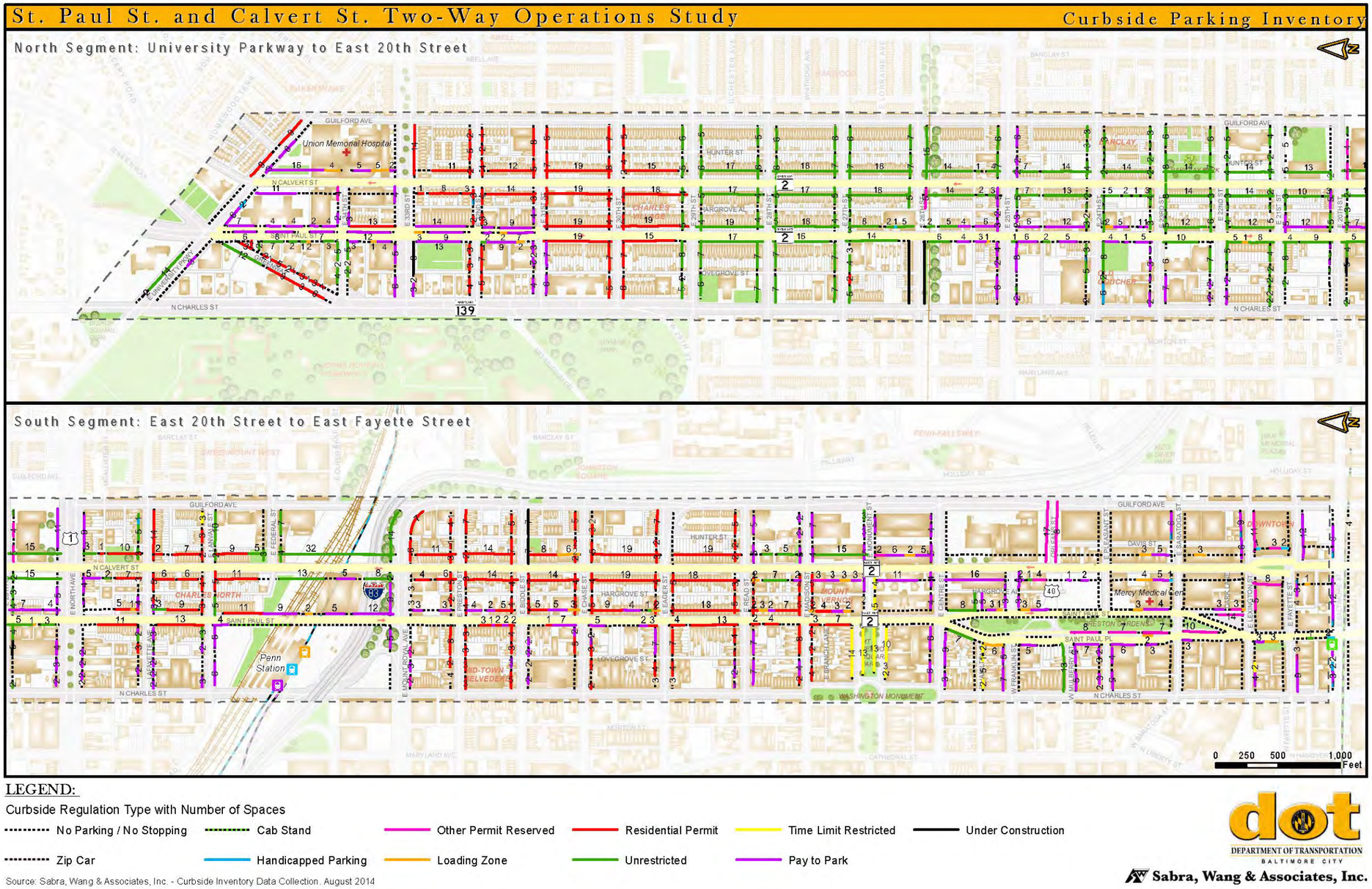
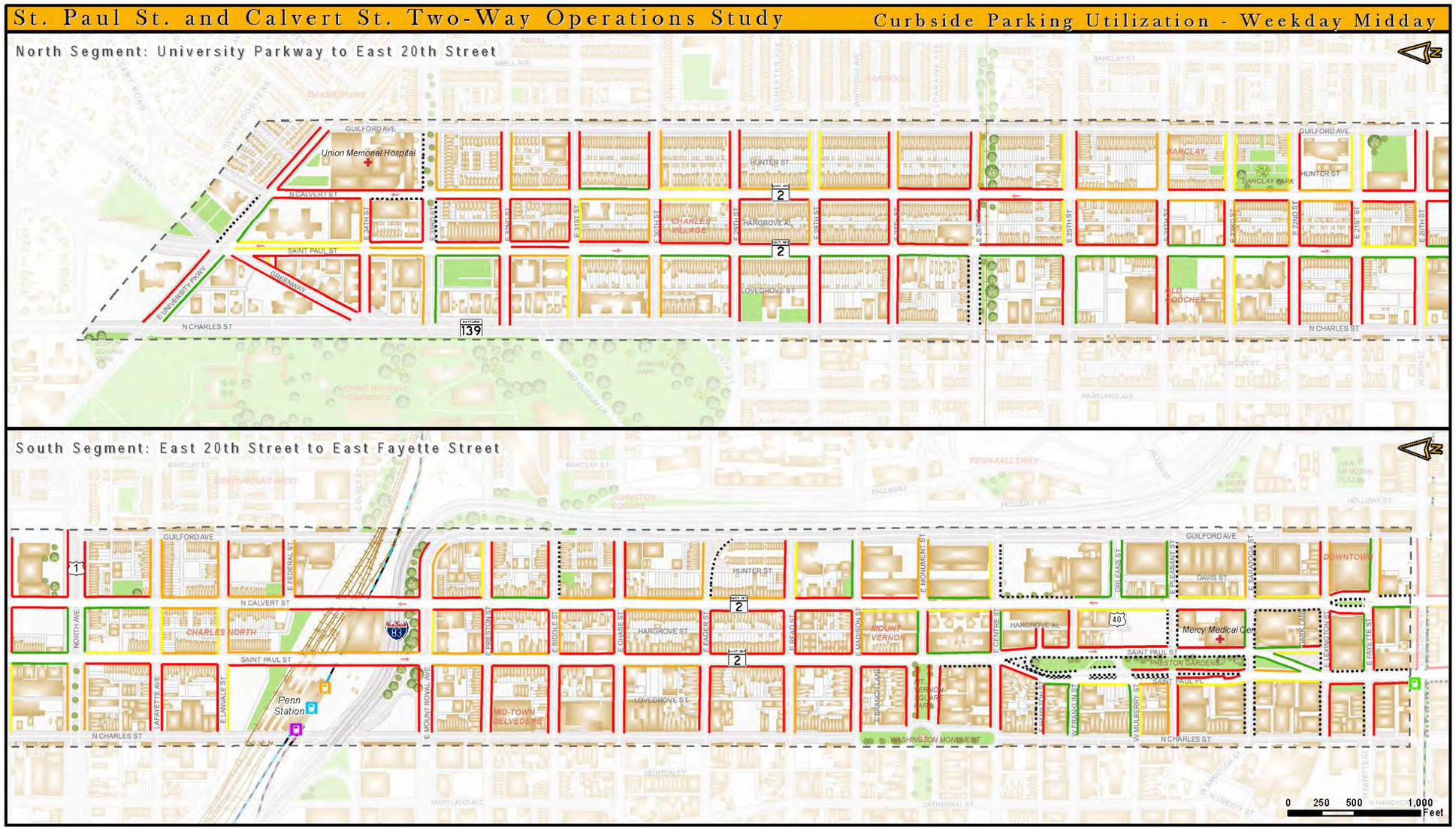



**Figure 11: On-Street Parking Regulations and Number of Spaces**




LEGEND:

Parking Utilization Rate

0% - 25% | 25% - 50% | 50% - 75% | > 75% | No Utilization Rate

Source: Sabra, Wang & Associates, Inc. - Curbside Inventory Data Collection. 11AM - 2PM - April 2015.

DEPARTMENT OF TRANSPORTATION BALTIMORE CITY

Sabra, Wang & Associates, Inc.

**Figure 12: Weekday Mid-Day On-Street Parking Utilization**

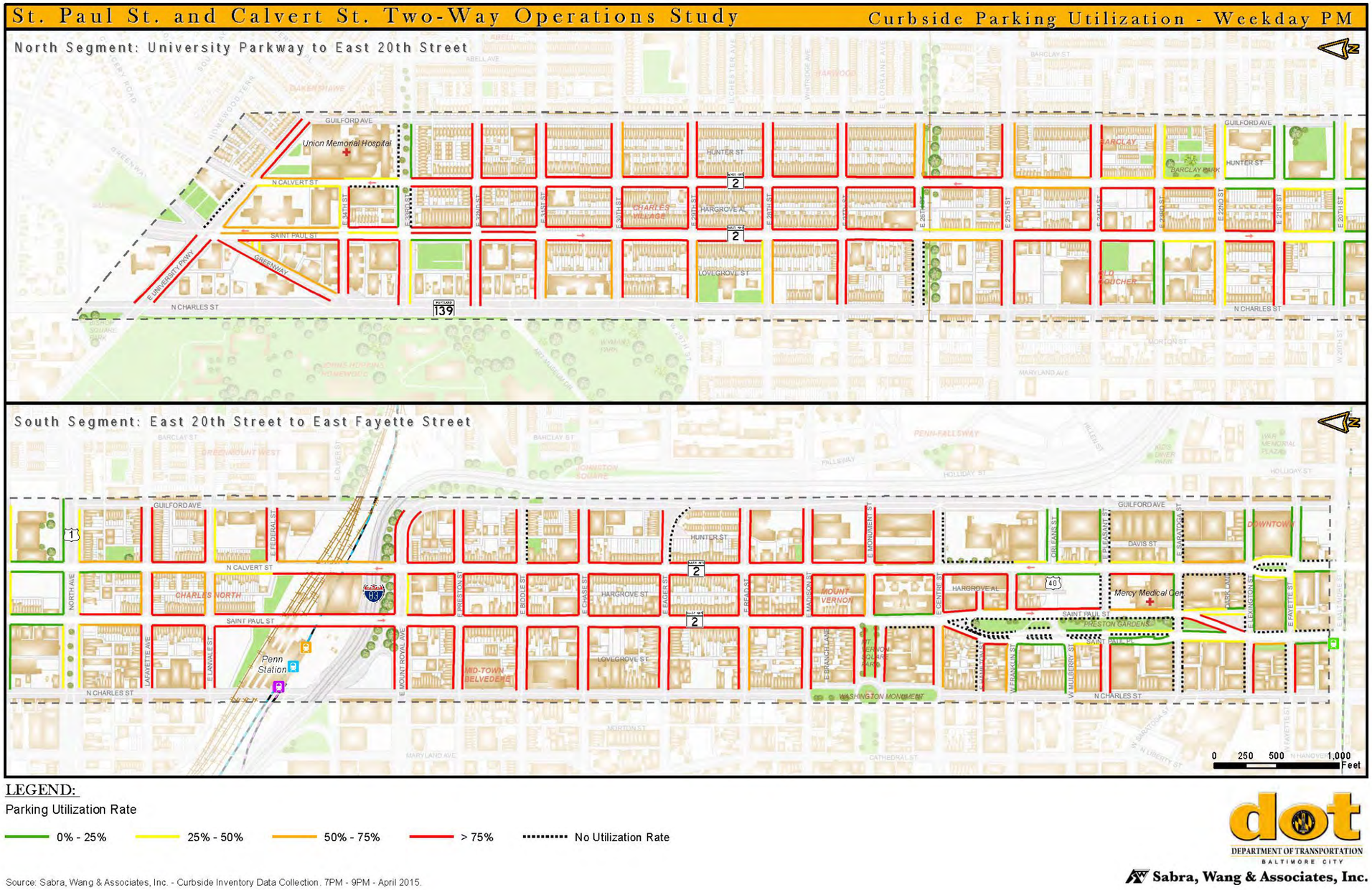



**Figure 13: Weekday Evening On-Street Parking Utilization**

# VI. Traffic Safety

This section presents existing pedestrian, bicycle, and vehicular accident data. Vehicular crash data was analyzed for the five-year period of 2009 to 2013. Pedestrian and bicycle crash data was analyzed for the three-year period of 2009 to 2011.

## A. Vehicle Crash Data

Data on vehicle crashes in the study area along St. Paul and Calvert Streets was analyzed for the five-year period of 2009 to 2013. This data is shown in Figure 15 and summarized in Table 9.

Over this five-year period, there were a total of 767 accidents at the 71 intersections along St. Paul and Calvert Streets. This represents an annual average of 153 accidents in the study area along St. Paul and Calvert Streets.

Intersections at the side streets along St. Paul and Calvert Streets with the highest number of accidents were Fayette, Centre, Madison, Biddle, Preston, and 33rd Streets, and North Avenue. All of these are major east-west arterials that cross St. Paul and Calvert Streets.

Over the entire length of the study area from Fayette Street to E University Parkway, there were a total of 390 accidents along St. Paul Street, and 377 accidents along Calvert Street -- an almost equal number of accidents over their entire lengths[4].

### *St. Paul Street*

- There were 218 accidents in the north segment and 172 accidents in the south segment.
- The highest numbers of accidents in the north segment were at North Avenue, mentioned earlier, and at 21st, 25th, 29th and 33rd Streets.

### *Calvert Street*

- There were 237 accidents in the north segment and 140 accidents in the south segment.

[4] Baltimore City had a total of 33 pedestrian fatalities from 2011-2013 and 2,639 pedestrians were involved in a crashes during the same time frame.

- The highest numbers of accidents in the south segment were found at Fayette, Centre, Madison, Biddle, and Preston Streets.

**Table 9: Vehicle Crashes 2009-2013**

| South Segment | | | North Segment | | |
|---|---|---|---|---|---|
| | St. Paul St. | Calvert St. | | St. Paul St. | Calvert St. |
| **E North Ave.** | 50 | 14 | **E Univ. Pkwy** | 13 | 4 |
| **E Lafayette Ave.** | 8 | 12 | **34th St.** | 9 | 1 |
| **Lanvale Ave.** | 6 | 4 | **33rd St.** | 31 | 39 |
| **E Federal St.** | | 1 | **32nd St.** | 4 | 1 |
| **Mt Royal Ave.** | 0 | 17 | **31st St.** | 2 | 3 |
| **E Preston St.** | 21 | 18 | **30th St.** | 5 | 4 |
| **Biddle St.** | 12 | 24 | **29th St.** | 24 | 15 |
| **Chase St.** | 6 | 6 | **28th St.** | 15 | 14 |
| **Eager St.** | 8 | 9 | **27th St.** | 6 | 3 |
| **Read St.** | | 5 | **26th St.** | 1 | 0 |
| **Madison St.** | 20 | 30 | **25th St.** | 18 | 29 |
| **Monument St.** | 2 | 2 | **24th St.** | 1 | 3 |
| **Centre St.** | 20 | 21 | **23rd St.** | 4 | 8 |
| **Hamilton St.** | | | **22nd St.** | 6 | 1 |
| **Franklin St.** | 12 | | **21st St.** | 26 | 14 |
| **Orleans St.** | 10 | 0 | **20th St.** | 7 | 1 |
| **Mulberry St.** | 10 | | | | |
| **Pleasant St.** | 6 | 17 | | | |
| **Saratoga St.** | 13 | 16 | | | |
| **Lexington St.** | 14 | 9 | | | |
| **Fayette St.** | | 32 | | | |
| *Totals* | *160* | *211* | | *230* | *166* |

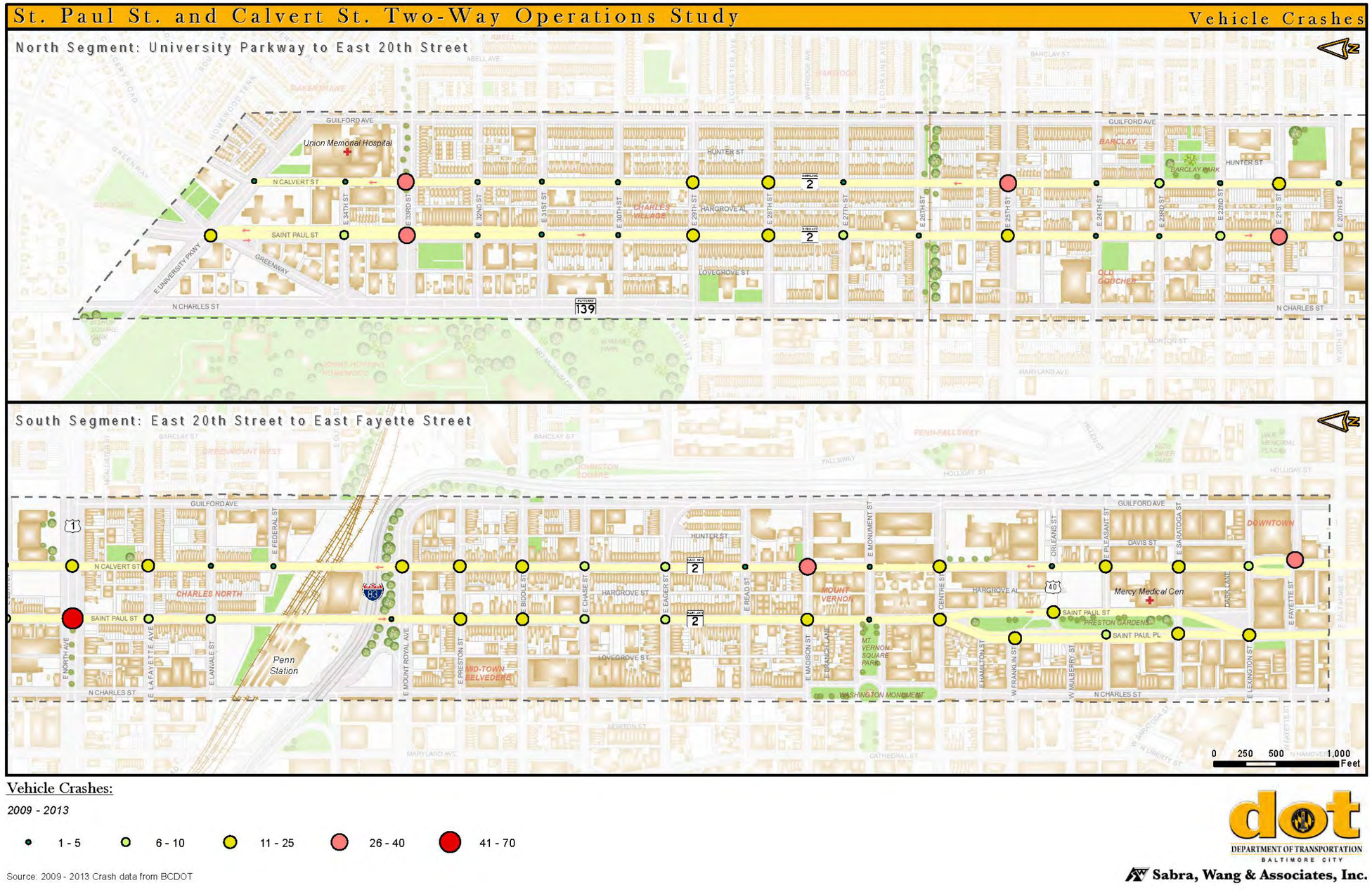



**Figure 14: Vehicle Crash Locations**

### B. Pedestrian and Bicycle Crash Data

Pedestrian and bicycle crash data for the three-year period of 2009 to 2011 is shown in Table 10: Pedestrian and Bicycle Crashes 2009 - 2011 North Segment, and Table 11: Pedestrian and Bicycle Crashes 2009 - 2011 South Segment. All pedestrian and bicycle related crashes are shown in Figure 15.

There were a total of 79 pedestrian and bicycle crashes over the three year period along St. Paul and Calvert Streets from Fayette Street to E. University Parkway. This number of accidents represents a yearly average of 26 accidents at the combined 71 intersections studied along both streets. The single pedestrian fatality occurred at 31st and Calvert Street and was the only crash reported at this intersection.

## *St. Paul Street*

- The highest numbers of pedestrian injuries were at Fayette Street (6), Saratoga Street (5), and North Avenue (5). Together, these three intersections accounted for 42% of the 38 pedestrian injuries along St. Paul Street.
- Of the 37 intersections along St. Paul Street, a little less than half – 18 – had no pedestrian accidents.
- There were a total of 10 bicycle injuries along St. Paul Street.

## *Calvert Street*

- The highest number of pedestrian injuries occurred in the southern segment at Fayette Street (8) and Lexington Avenue (4). Together, these two intersections accounted for 55% of the 22 pedestrian injuries along Calvert Street.
- Four (4) pedestrian injuries occurred in the north segment, from E. University Parkway to 20th St.
- There were a total of 4 bicycle injuries along Calvert Street.

**Table 10: Pedestrian and Bicycle Crashes 2009 - 2011 North Segment**

| North Segment | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | St. Paul St. | | | | Calvert St. | | | |
| | Ped Injury | Ped Fatality | Bike Injury | *Totals* | Ped Injury | Ped Fatality | Bike Injury | *Totals* |
| **E Univ. Pkwy** | | | | *0* | | | | *0* |
| **34th St.** | 2 | | | *2* | | | | *0* |
| **33rd St.** | | | 1 | *1* | 3 | | | *3* |
| **32nd St.** | | | | *0* | | | | *0* |
| **31st St.** | 1 | | | *1* | | 1 | | *1* |
| **30th St.** | | | | *0* | | | | *0* |
| **29th St.** | | | 1 | *1* | | | | *0* |
| **28th St.** | | | 1 | *1* | | | | *0* |
| **27th St.** | | | | *0* | | | | *0* |
| **26th St.** | 1 | | | *1* | | | | *0* |
| **25th St.** | 1 | | 1 | *2* | | | 1 | *1* |
| **24th St.** | 2 | | | *2* | | | | *1* |
| **23rd St.** | 1 | | | *1* | | | | *0* |
| **22nd St.** | 1 | | | *1* | | | | *0* |
| **21st St.** | 1 | | 2 | *3* | 1 | | | *1* |
| **20th St.** | | | | *0* | | | | *0* |
| *Sub-Totals* | *10* | *0* | *6* | *16* | *4* | *1* | *1* | *6* |

**Table 11: Pedestrian and Bicycle Crashes 2009 - 2011 South Segment**

| South Segment | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | St. Paul St. | | | | Calvert St. | | | |
| | Ped Injury | Ped Fatality | Bike Injury | *Totals* | Ped Injury | Ped Fatality | Bike Injury | *Totals* |
| **E North Ave.** | 5 | | | *5* | 2 | | 1 | *3* |
| **E Lafayette Ave.** | | | | *0* | | | | *0* |
| **Lanvale Ave.** | 1 | | | *1* | | | | *0* |
| **E Federal St.** | | | | *0* | | | | *0* |
| **Mt Royal Ave.** | 1 | | 1 | *2* | | | 1 | *1* |
| **E Preston St.** | 2 | | | *2* | 2 | | | *2* |
| **Biddle St.** | 1 | | | *1* | 1 | | | *1* |
| **Chase St.** | 1 | | 1 | *2* | | | | *0* |
| **Eager St.** | | | | *0* | | | | *0* |
| **Read St.** | | | | *0* | | | | *0* |
| **Madison St.** | 1 | | | *1* | | | | *0* |
| **Monument St.** | | | | *0* | 1 | | | *1* |
| **Centre St.** | | | 1 | *1* | | | | *0* |
| **Hamilton St.** | | | | *0* | | | | *0* |
| **Franklin St.** | | | | *0* | | | | *0* |
| **Orleans St.** | | | | *0* | 1 | | | *1* |
| **Mulberry St.** | | | | *0* | | | | *0* |
| **Pleasant St.** | 1 | | | *1* | 1 | | | *1* |
| **Saratoga St.** | 5 | | 1 | *6* | 2 | | 1 | *3* |
| **Lexington St.** | 4 | | | *4* | 4 | | | *4* |
| **Fayette St.** | 6 | | | *6* | 8 | | | *8* |
| ***Sub Total*** | *28* | *0* | *4* | *32* | *22* | *0* | *3* | *25* |
| | | | | | | | | |
| ***Total N Seg.*** | *10* | *0* | *6* | *16* | *4* | *1* | *1* | *6* |
| | | | | | | | | |
| ***TOTAL*** | ***38*** | ***0*** | ***10*** | ***48*** | ***26*** | ***1*** | ***4*** | ***31*** |

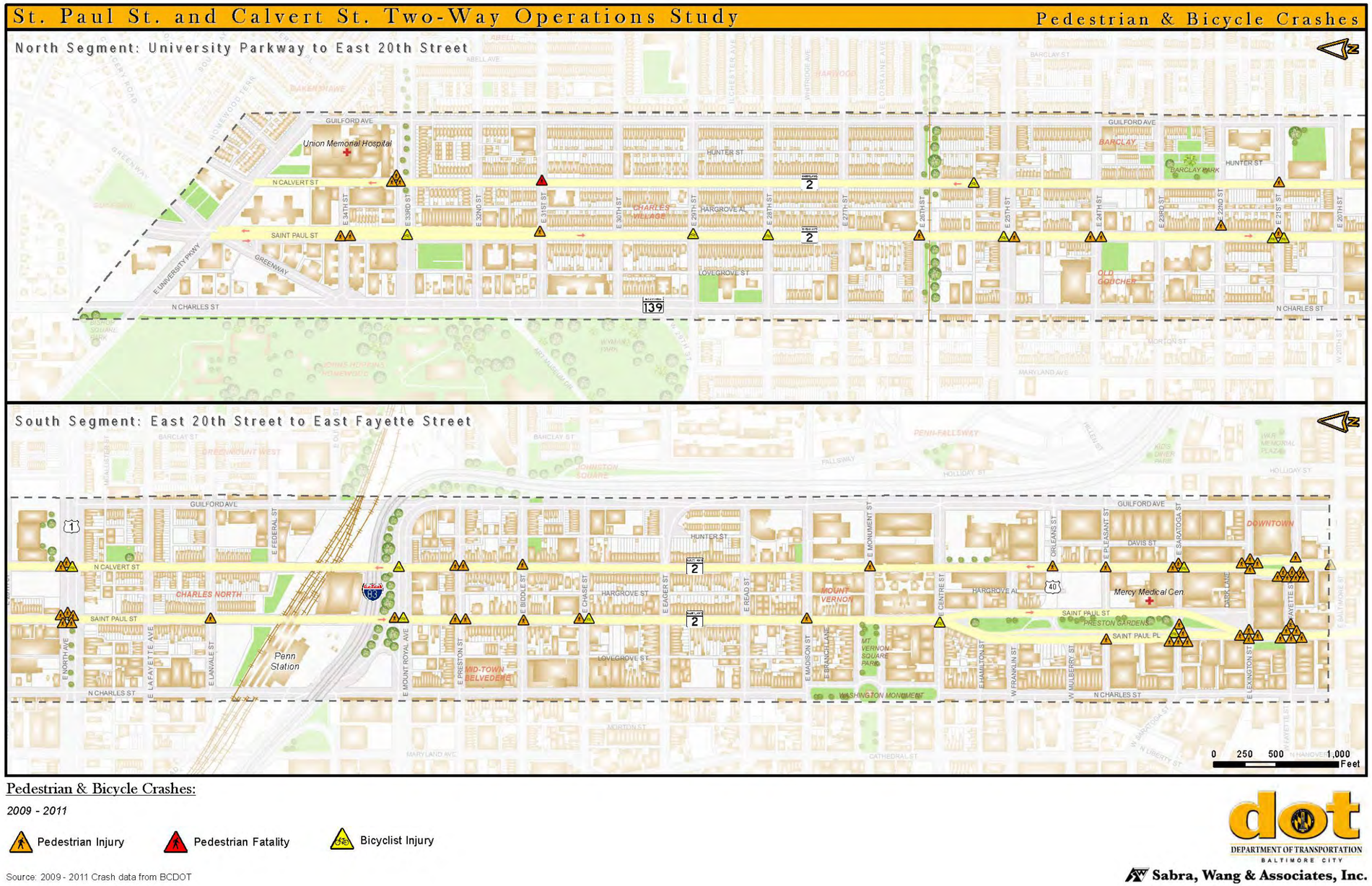



**Figure 15: Pedestrian and Bicyclist Crash Locations**

# VII. Transit Operations

## A. Transit Operations - Overview

There are six (6) transit operators in the study area:

- Maryland Transit Administration (MTA)
- The City of Baltimore
- Collegetown Shuttle Services
- John Hopkins University (JHU)
- University of Baltimore (UB) Shuttle Services
- University of Maryland Baltimore (UMB) Shuttle Services

The MTA provides Local Bus, Quick Bus, Express Bus and Commuter Bus services on 30 routes in the study area, with a combined 110 peak hour buses. These routes operate along Charles, St. Paul, and Calvert Streets, Guilford Avenue, and 13 east-west streets. MTA local bus routes are shown in Figure 16: MTA Local Bus Routes and Stops. Table 12: MTA Peak Hour Buses on North-South Roads, shows the number of peak hour buses operating along a portion of the major north and south roads in the north study area segment, and the south study area segment.

**Table 12: MTA Peak Hour Buses on North-South Roads**

| | Charles St. | St. Paul St. | Calvert St. | Guilford Ave. |
|---|---|---|---|---|
| **North Segment** | 15 | 9 | 3 | 3 |
| **South Segment** | 29 | 26 | 11 | 27 |

The combined shuttle services of Collegetown, JHU/JHMI, UB, and UMB are shown on Figure 17: Educational Institution Shuttle Routes and Stops. The Charm City Circulator (CCC) Purple Route is operated by The City of Baltimore. Additional information on this route can be found in Figure 18: Charm City Circulator Transit Network.

Table 13: Baltimore City and Educational Institution Operators, presents a summary of the eleven (11) Baltimore City and educational institution services, showing peak period headways and operations along north-south study area roads. This table shows that of the 11 routes, most operate along a portion of Charles Street, about half (6) operate along a portion of St. Paul Street, and only one operates along Calvert Street.

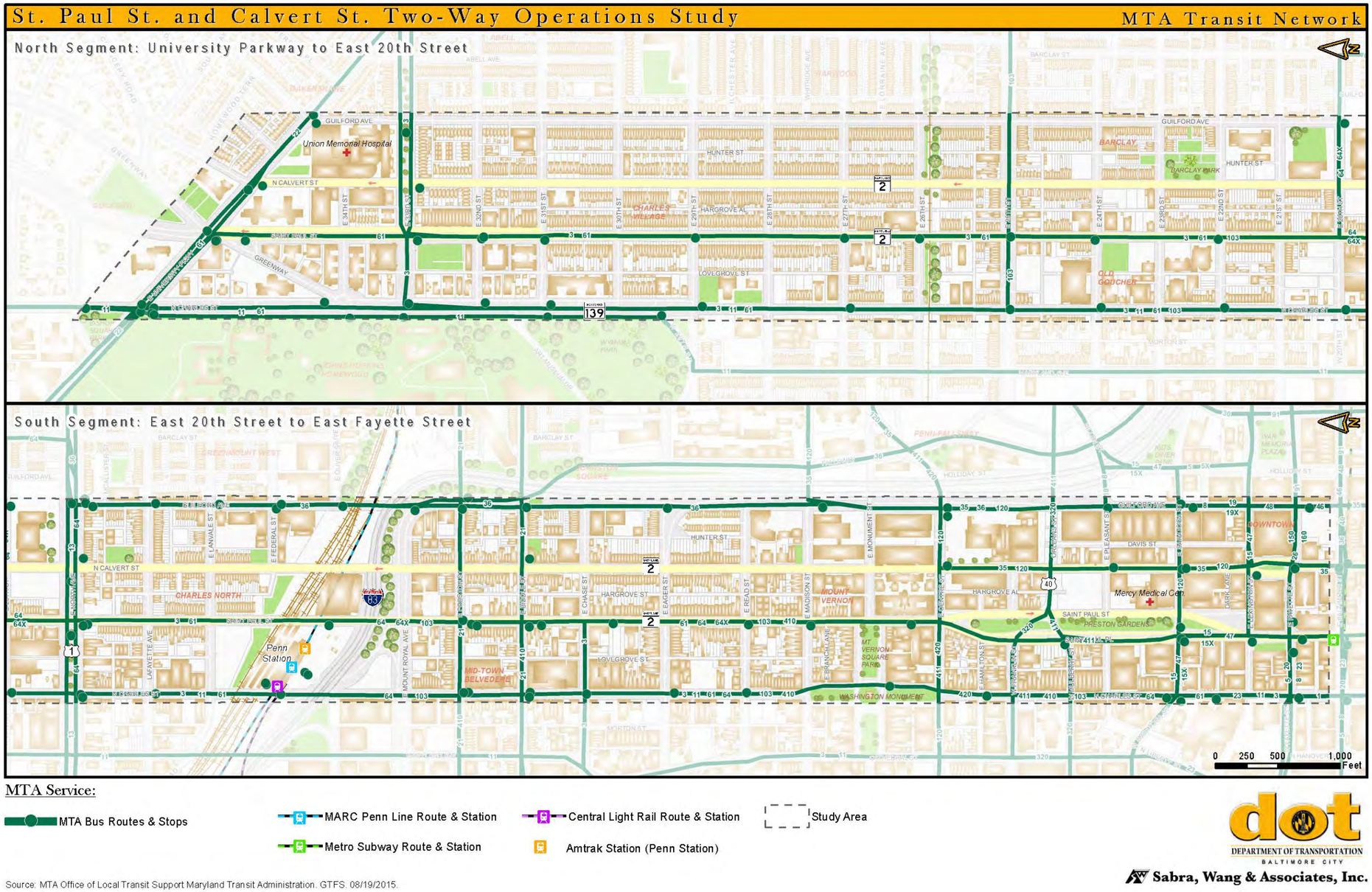



**Figure 16: MTA Local Bus Routes and Stops**

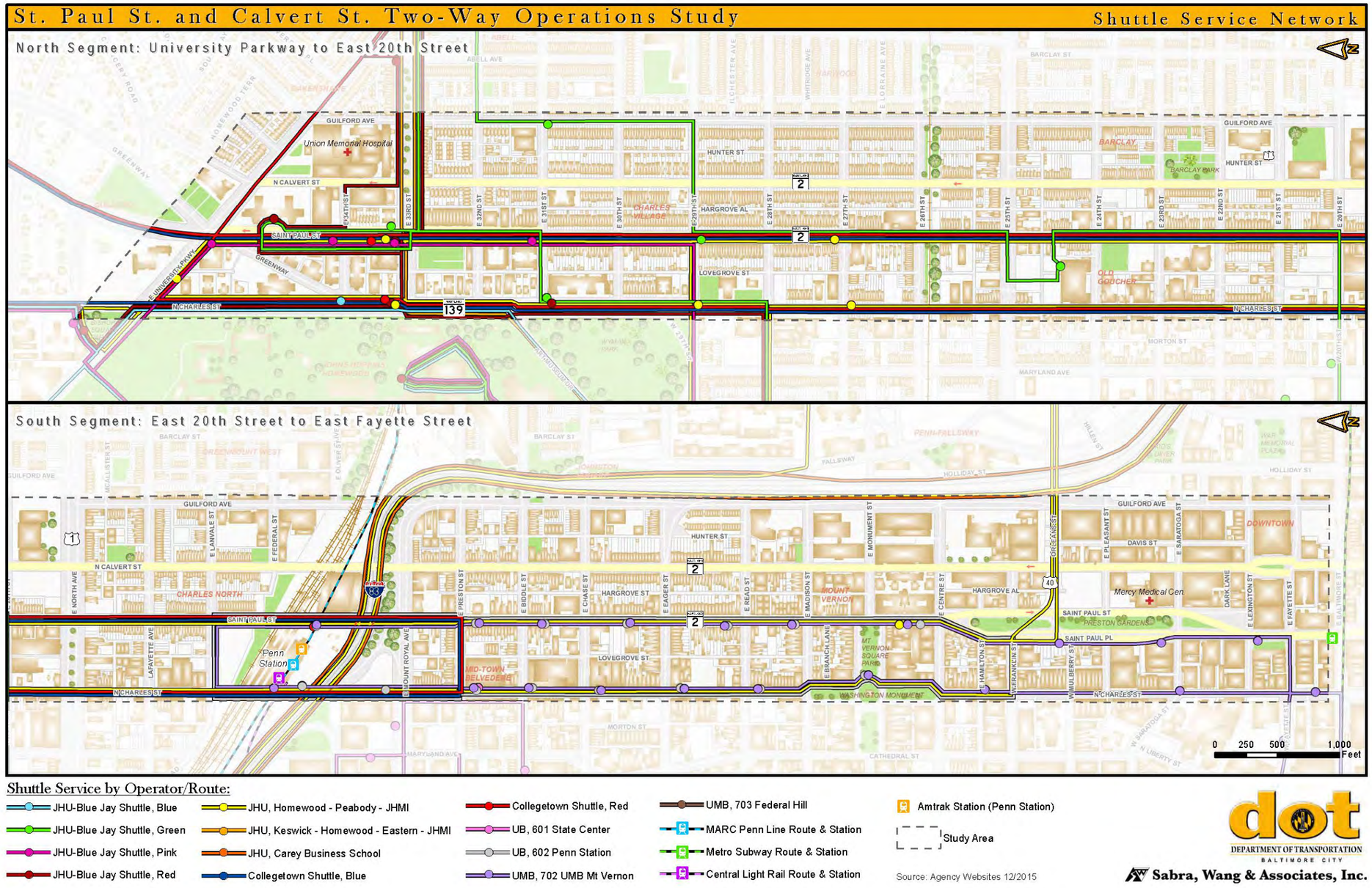



**Figure 17: Educational Institution Shuttle Routes and Stops**

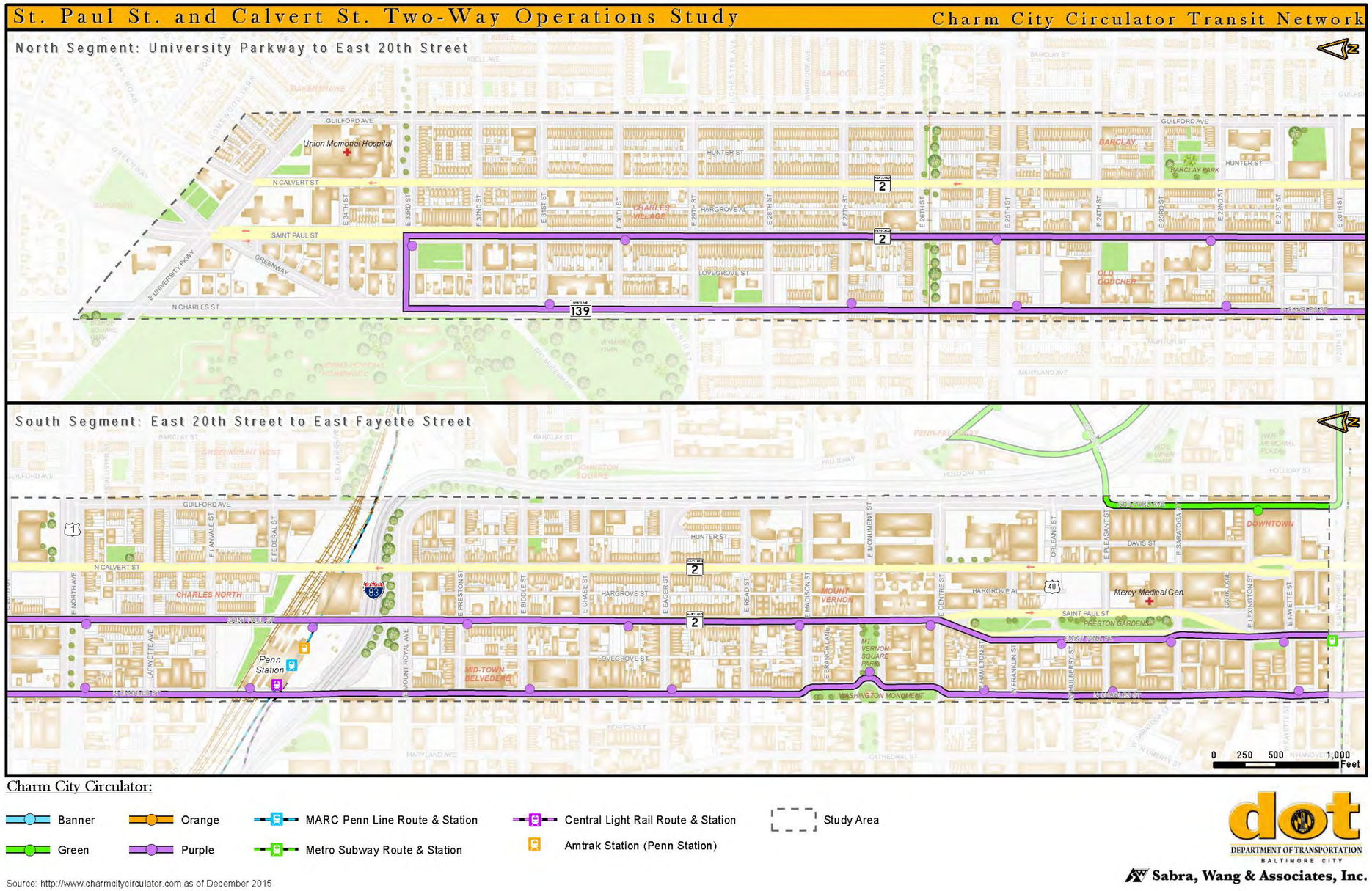



**Figure 18: Charm City Circulator Transit Network**

**Table 13: Baltimore City and Educational Institution Operators**

| Operator | Route Name | Type | Termini | Peak Period Buses | Operates Along a Portion of | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Charles St. | St. Paul St. | Calvert St. | I-83 |
| **Baltimore City DOT** | Purple | Circulator | N/A | 10 minute headway | X | X | | |
| **JHU** | Homewood-Peabody-JHMI | Shuttle | Homewood-JHMI | 60 minute headway | | X | X | |
| **JHU Blue Jay** | Red | Shuttle | JHU-JHU | 30 minute headway | X | | | |
| **JHU Blue Jay** | Green | Shuttle | JHU-25th & Charles | 30 minute headway | X | X | | |
| **JHU Blue Jay** | Pink | Shuttle | JHU-JHU | 30 minute headway | | X | | |
| **JHU** | Carey Business School | Shuttle | Homewood Carey Bus. School | 1 peak per trip | | | | X |
| **Collegetown** | Red | Shuttle | Towson Univ-Penn Station | 90 minute headway | X | | | |
| **Collegetown** | Blue | Shuttle | Goucher-Penn Station | 90 minute headway | X | | | |
| **UMB** | 702 Mt. Vernon (Blue) | Shuttle | Baltimore & Pine Fayette & Paca | 30-40 minute headway | X | X | | |
| **UB** | 601 State Center | Shuttle | Dolphon & Bolton St-Howard St & Park | 20 minute headway | X | | | |
| **UB** | 602 Penn Station | Shuttle | Charles St. & Penn Station | 20 minute headway | X | X | | |

## B. Transit Operators

The following sections present detailed descriptions of the services by each of the six transit operators. Detailed transit route mapping is included in Appendix G.

### *Maryland Transit Administration*

The Maryland Transit Administration (MTA) is a division of the Maryland Department of Transportation, and one of the largest multi-modal transit systems in the United States. MTA operates Local and Commuter Buses, Light Rail, Metro Subway, Maryland Area Regional Commuter (MARC) Train Service, and a comprehensive Paratransit (Mobility) system. MTA also manages the Taxi Access system, and directs funding and statewide assistance to Locally Operated Transit Systems (LOTS) in each of Maryland's 23 counties, Baltimore City, Annapolis and Ocean City.

The MTA operates a total of 30 bus routes in the study area. Table 14: MTA Bus Routes presents a summary of these routes. This table shows that there are 18 local routes, four Quick Bus routes, three Express Bus Routes and five Commuter bus routes passing through the area.

Of these 30 routes, nine operate along a portion of Charles St, seven operate along a portion of St. Paul St, three operate along a portion of Calvert St, and seven operate along a portion of Guilford Avenue.

As shown in green on Table 14, 12 of the routes in the study area operate only along east-west roads.

As noted earlier in this section, the combined 30 routes have a total of 110 buses on the study area road network in the peak hour.

**Table 14: MTA Bus Routes**

| MTA Local Bus | | | | Operates Along Part of | | | |
|---|---|---|---|---|---|---|---|
| Route | Type* | Termini | AM Pk Hr Buses | Chas | St. Paul | Calvert | Guilford |
| 1 | Frequent | Sinai Hospital or Mondawmin to Fort McHenry (via downtown) | 4 | X | | | |
| 3 | Frequent | Downtown to Cromwell Bridge or Sheppard Pratt Hospital | 6 | X | X | | |
| 5 | Frequent | Mondawmin to Cedonia (via downtown) | 4 | | | | |
| 8 | Frequent | Downtown (University of Maryland Transit Center) to Lutherville | 4 | | | | X |
| 11 | Standard | Towson to Canton (via downtown) | 3 | X | | | |
| 13 | Standard | Walbrook to Canton (orbital route) | 3 | | | | |
| 15 | Frequent | Woodlawn or Walbrook to Overlea (via downtown) | 6 | | X | | |
| 19 | Frequent | State Center to Hillendale or Carney (via downtown) | 4 | | | | X |
| 20 | Standard | Woodlawn to CCBC Dundalk (via downtown) | 4 | | | | |
| 21 | Standard | Mondawmin to Fells Point (orbital route) | 3 | | | | |
| 22 | Frequent | Mondawmin to Highlandtown or Bayview Medical Center | 6 | | | | |
| 23 | Frequent | Catonsville or Edmonson Village or Fox Ridge (via downtown) | 4 | X | | | |
| 30 | Frequent | Edmonson Village to Downtown or Bayview Medical Center | 4 | | X | X | |
| 35 | Frequent | UMBC to White Marsh (via downtown) | 4 | | | X | X |
| 36 | Frequent | Chinquapin Park to Pigtown or Riverview (via downtown) | 4 | | | | X |
| 61 | Standard | Downtown to Mount Washington | 2 | X | X | | |
| 64 | Frequent | Station North to Curtis Bay (via downtown) | 4 | X | X | | |
| 91 | Standard | Downtown to Sinai Hospital | 4 | | | | |
| Total | 18 | | 73 | | | | |
| **MTA Quick Bus** | | | | | | | |
| Q40 | Frequent | Woodlawn to Middle River (via downtown) | 6 | | | | |
| Q46 | Limited | Paradise to Cedonia (via downtown) | 4 | | | | X |
| Q47 | Frequent | Walbrook to Overlea (via downtown) | 4 | | | | |
| Q48 | Frequent | Downtown (University of Maryland Transit Center) to Towson | 4 | | | | X |
| **MTA Express Bus** | | | | | | | |
| X120 | Limited | Johns Hopkins Hospital to White Marsh (via downtown) | 3 | | | X | X |
| X150 | Limited | Downtown to Columbia | 2 | | | | |
| X160 | Limited | Johns Hopkins Hospital to Fox Ridge or Whispering Woods (via downtown) | 3 | | | | |
| **MTA Commuter Bus** | | | | | | | |
| K310 | Limited | Johns Hopkins Hospital to Columbia (via downtown) | 3 | | | | |
| K320 | Limited | Johns Hopkins Hospital to Jessup and Columbia (via downtown) | 2 | | | | |
| K410 | Limited | State Center to Bel Air and Churchville (via downtown) | 2 | X | X | | |
| K411 | Limited | Johns Hopkins Hospital to Bel Air and Hickory (via downtown) | 2 | X | X | | |
| K420 | Limited | Johns Hopkins Hospital to Havre de Grace (via downtown) | 2 | X | | | |
| Totals | 12 | | 37 | | | | |
| Grand Total | 30 | | 110 | | | | |

*Type Type of operation. Working definitions are:
Standard, generally 30 minute service. Frequent, generally 10-15 minute service.
Limited, refers to limited stops, and frequencies vary.
Operates east-west through the study area

### *City of Baltimore*

The Charm City Circulator (CCC), operated by the City of Baltimore, has a fleet of 30 free shuttles that travel four routes in Baltimore City. The CCC services residents, downtown employees, students and tourists and anyone else who wishes to ride. The shuttle is intended to reduce congestion and greenhouse gas pollution by offering a convenient, reliable and eco-friendly form of public transportation.

The CCC consists of four separate routes—the Green Route which runs from City Hall to Fells Point to Johns Hopkins, the Purple Route which runs from 33rd Street to Federal Hill, the Orange Route which runs from Hollins Market to Harbor East, and the Banner Route which runs from the Inner Harbor to Fort McHenry. The CCC operates between 6:30 AM and 9:00 PM on 10 minute headways.

The only CCC route that operates in the study area is the Purple route. Within the study area, the Purple route operates along St. Paul St and Charles St from south of Fayette St to 33rd Street.

### *Johns Hopkins University (JHU) and JHMI*

Homewood Transportation Services provides several services to faculty, staff and students. The primary services include:

- Blue Jay Shuttle: Red Route, Blue Route, Green Route and Pink Route
- Homewood - Peabody - JHMI Shuttle
- Keswick - Homewood - Eastern - JHMI Shuttle
- Homewood - Keswick - Mt. Washington Shuttle
- Carey Business School Shuttle

The four Blue Jay Shuttle routes operate on 30 minute headways during the peak period. In the study area:

- The Green route operates along St. Paul and Charles Streets between 20th St and E University Parkway.
- The Red route operates along Charles St between 28th St and E University Parkway.
- The Pink route operates along St. Paul St between 28th St and E University parkway.
- The Blue route operates north of the study area along Charles St.

The Homewood - Peabody - JHMI Shuttle operates along St. Paul and Calvert Streets from Orleans Street to E University Parkway on 60 minute peak period headways.

The Carey Business School Shuttle operates through the study area along I-83 and has one (1) trip during the peak period. The Keswick - Homewood - Eastern - JHMI Shuttle, and the Homewood - Keswick - Mt. Washington Shuttle operate outside of the study area.

### *Collegetown*

The Baltimore Collegetown Shuttle transports students, staff, and faculty. It goes to six schools: Goucher College, Towson University, Loyola University Maryland, Notre Dame of Maryland University, Johns Hopkins University (Homewood Campus), and Morgan State University. In addition to the six schools, the Collegetown Shuttle stops at Towson Town Center, Penn Station, and Towson Place Shopping Center.

The Baltimore Collegetown Shuttle is operated by Veolia Transportation along two routes. The blue route starts at Goucher College and ends at Penn Station, and the red route goes from Towson University, moves eastward to Morgan State and then goes to Penn Station.

The routes operate from 8:00 AM to 10:00 PM on generally 90 minute+ peak period headways. Within the study area, both the blue and red routes operate along Charles St from Penn Station to north of E University Parkway.

### *University of Baltimore*

The University of Baltimore campus is generally bounded on the east by Charles St, the west by the Central Light Rail Line, the north by I-83, and the south by Chase Street. Charles St, UB's eastern boundary, is the study area's western boundary.

The University of Baltimore operates two free shuttle routes. These are the 601 State Center route, and the 602 Penn Station route. Both shuttles operate from 7:00 AM to 11:00 PM on 20 minute peak period headways.

The 601 provides service to the Maryland Avenue and Fitzgerald garages, State Center Metro and other stops. Within the study area, the 601 operates along Charles St between Biddle St and Mt. Royal Avenue.

The 602 operates along North Charles and Saint Paul streets between Franklin and Lanvale Streets.

### *University of Maryland Baltimore*

The University of Maryland Baltimore (UMB) campus is located outside of the study area. It is generally bounded by Paca St on the east, Martin Luther King, Jr. Blvd on the west, Lexington St on the north and Pratt St on the south.

The UMB shuttle system consists of three routes: BioPark route 701, Mount Vernon route 702, and Federal Hill route 703. These routes operate between 6:00 AM and 11:20 PM generally on 30 to 40 minute peak period headways.

Valid University or Medical Center ID cards must be presented on all UM shuttle routes. Non-University affiliated individuals are permitted to ride UM shuttle routes when accompanied by a student, faculty, or staff member.

Only the 702 operates within the study area, along St. Paul and Charles Streets between Fayette St and Lanvale Avenue.

## C. Route Density

Route density is measured by how many routes are operating over a particular roadway or roadway section. Table 15: Number of Bus Routes per Street Segment shows the number of bus routes along every street segment in the study area.

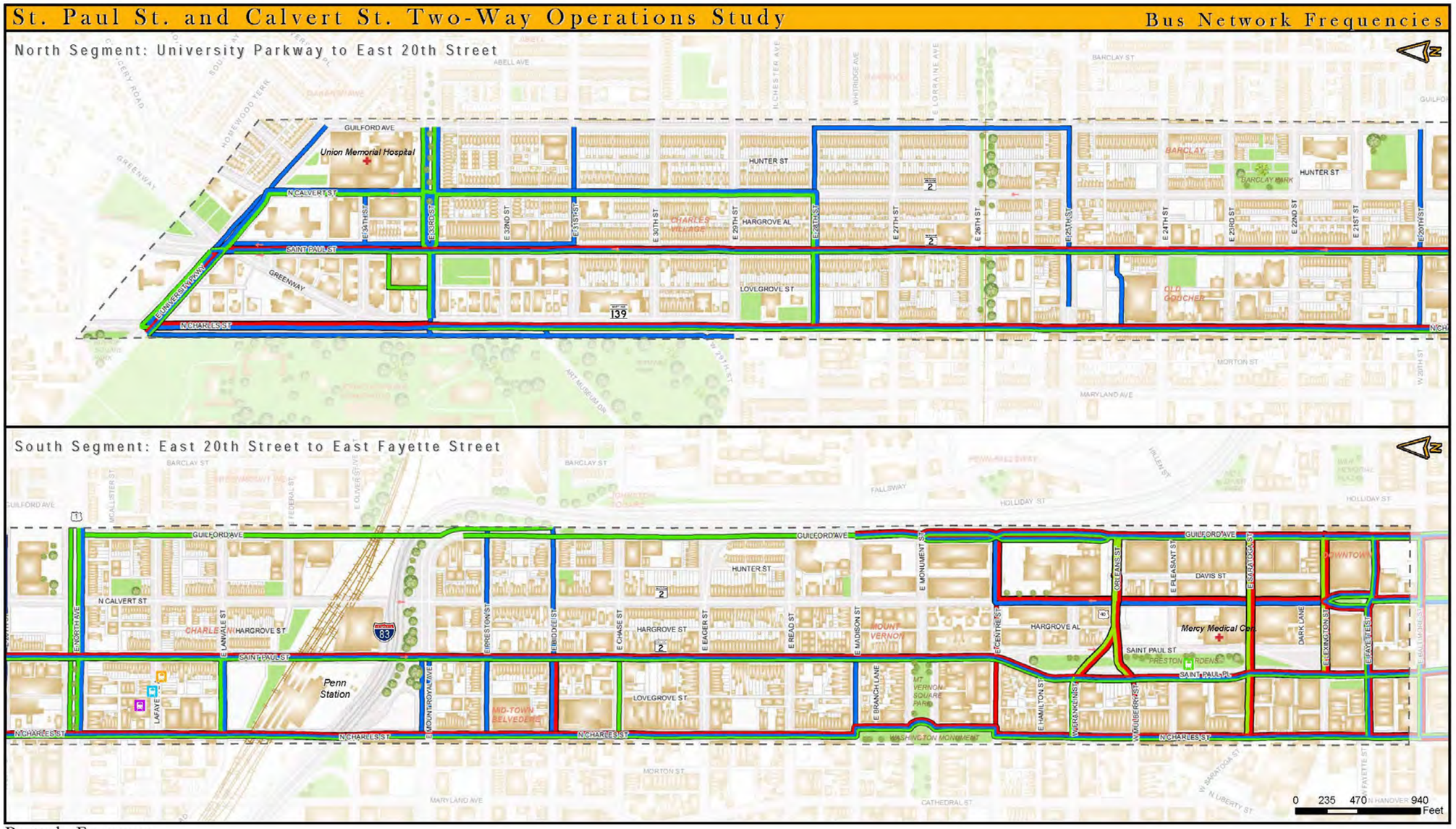
Along St. Paul Street there are typically 7 to 9 routes on every street section, for its entire length from Fayette Street to E University Parkway. Mt Royal Avenue to E Preston Street carries 10 to 12 routes. Several street segments carry 4 to 6 routes.

Along Calvert Street, route density is much lower than along St. Paul Street. In the south segment, there are 1 to 3 routes along Calvert Street between Fayette and Centre Streets, and 4 to 6 routes between 28$^{th}$ Street and E University Parkway. Along more than half the length of Calvert Street, from Centre Street to 28$^{th}$ Street, there are no bus routes.

In addition to the number of bus routes that travel each block, how frequently buses arrive (the headway between buses) is shown in Figure 19. Buses arrive more frequently on Guildford Avenue, St. Paul Street, and Charles Street than on Calvert Street.

**Table 15: Number of Bus Routes per Street Segment**

| Segment | St. Paul St. | Calvert St. | Segment | St. Paul St. | Calvert St. |
|---|---|---|---|---|---|
| Lafayette to Lanvale | 7-9 | | E Univ. Pkwy to 34th | 4-6 | 4-6 |
| Lanvale to E Federal | 7-9 | | 34th to 33rd | 7-9 | 4-6 |
| E Federal to Mt Royal | 7-9 | | 33rd to 32nd | 7-9 | 4-6 |
| Mt Royal to E Preston | 10-12 | | 32nd to 31st | 7-9 | 4-6 |
| E Preston to Biddle | 7-9 | | 31st to 30th | 7-9 | 4-6 |
| Biddle to Chase | 7-9 | | 30th to 29th | 7-9 | 4-6 |
| Chase to Eager | 7-9 | | 29th to 28th | 7-9 | 4-6 |
| Eager to Read | 7-9 | | 28th to 27th | 4-6 | |
| Read to Madison | 7-9 | | 27th to 26th | 4-6 | |
| Madison to Monument | 7-9 | | 26th to 25th | 4-6 | |
| Monument to Centre | 7-9 | | 25th to 24th | 7-9 | |
| Centre to Hamilton | 7-9 | 1-3 | 24th to 23rd | 7-9 | |
| Hamilton to Franklin | 7-9 | 1-3 | 23rd to 22nd | 7-9 | |
| Franklin to Mulberry | 7-9 | 1-3 | 22nd to 21st | 7-9 | |
| Mulberry to Saratoga | 4-6 | 1-3 | 21st to 20th | 7-9 | |
| Saratoga to Lexington | 7-9 | 1-3 | 20th to E North | 7-9 | |
| Lexington to Fayette | 7-9 | 1-3 | E North to E Lafayette | 7-9 | |




Routes by Frequency:

Frequent: Service every 10-15 Minutes

Standard: Service every 20-90 Minutes

Limited: Weekday service during peak hours only

Study Area

*Data includes JHU shuttles, Blue Jay shuttles, MTA bus, Charm City Circulator, UM shuttles, UB shuttles, and Collegetown shuttles.*
*Frequency determined from agency schedules & manifests*

DEPARTMENT OF TRANSPORTATION BALTIMORE CITY

Sabra, Wang & Associates, Inc.

**Figure 19: Bus Frequency by Block**

### D. Transit Ridership

Bus ridership data was obtained for 32 locations along St. Paul and Calvert Streets. This data is shown in Figure 20: Summary of Line Ridership by Block and Table 16: Average Daily Boardings by Stop along St. Paul and Calvert Streets for the north and south segments. Key observations from this table are:

- The total daily boardings in the study area at the 32 stops along St. Paul and Calvert Streets between Fayette St and E University Parkway, were 12,850.
- Boardings along the south segment: 7,950 (62%)
- Boardings along the north segment: 4,900 (38%)
- Boardings along St. Paul St: 9,400 (73%)
- Boardings along Calvert St: 3,450 (27%)

**Table 16: Average Daily Boardings by Stop**

| South Segment | | | North Segment | | |
|---|---|---|---|---|---|
| Average Daily Boardings by Stop* | | | Average Daily Boardings by Stop* | | |
| | St. Paul St. | Calvert St. | | St. Paul St. | Calvert St. |
| **Lanvale Ave.** | | | **E Univ. Pkwy** | 100 | 100 |
| **E Federal St.** | | | **34th St.** | | |
| **Between Lanvale & Mt. Royal Ave.** | 600 | | **33rd St.** | 2050 | 100 |
| **Mt. Royal Ave.** | | | **32nd St.** | 350 | |
| **E Preston St.** | 300 | | **31st St.** | 50 | |
| **Biddle St.** | 200 | | **30th St.** | | |
| **Chase St.** | 50 | | **29th St.** | 50 | 50 |
| **Eager St.** | | | **28th St.** | | |
| **Read St.** | 50 | | **27th St.** | 600 | |
| **Madison St.** | 50 | | **26th St.** | 50 | |
| **Monument St.** | 350 | | **25th St.** | 300 | |
| **Centre St.** | | 50 | **24th St.** | 300 | |
| **Hamilton St.** | | | **23rd St.** | | |
| **Franklin St.** | | | **22nd St.** | 50 | |
| **Orleans St.** | | | **21st St.** | | |
| **Mulberry St.** | 50 | | **20th St.** | | |
| **Pleasant St.** | | 50 | **E North** | 350 | 400 |
| **Saratoga St.** | 400 | 350 | **E Lafayette Ave.** | | |
| **Lexington St.** | 50 | 300 | | | |
| **Fayette St.** | 3050 | 2000 | | | |
| *Totals* | *5150* | *2800* | | *4250* | *650* |

*Includes MTA 2012 and JHU 2014

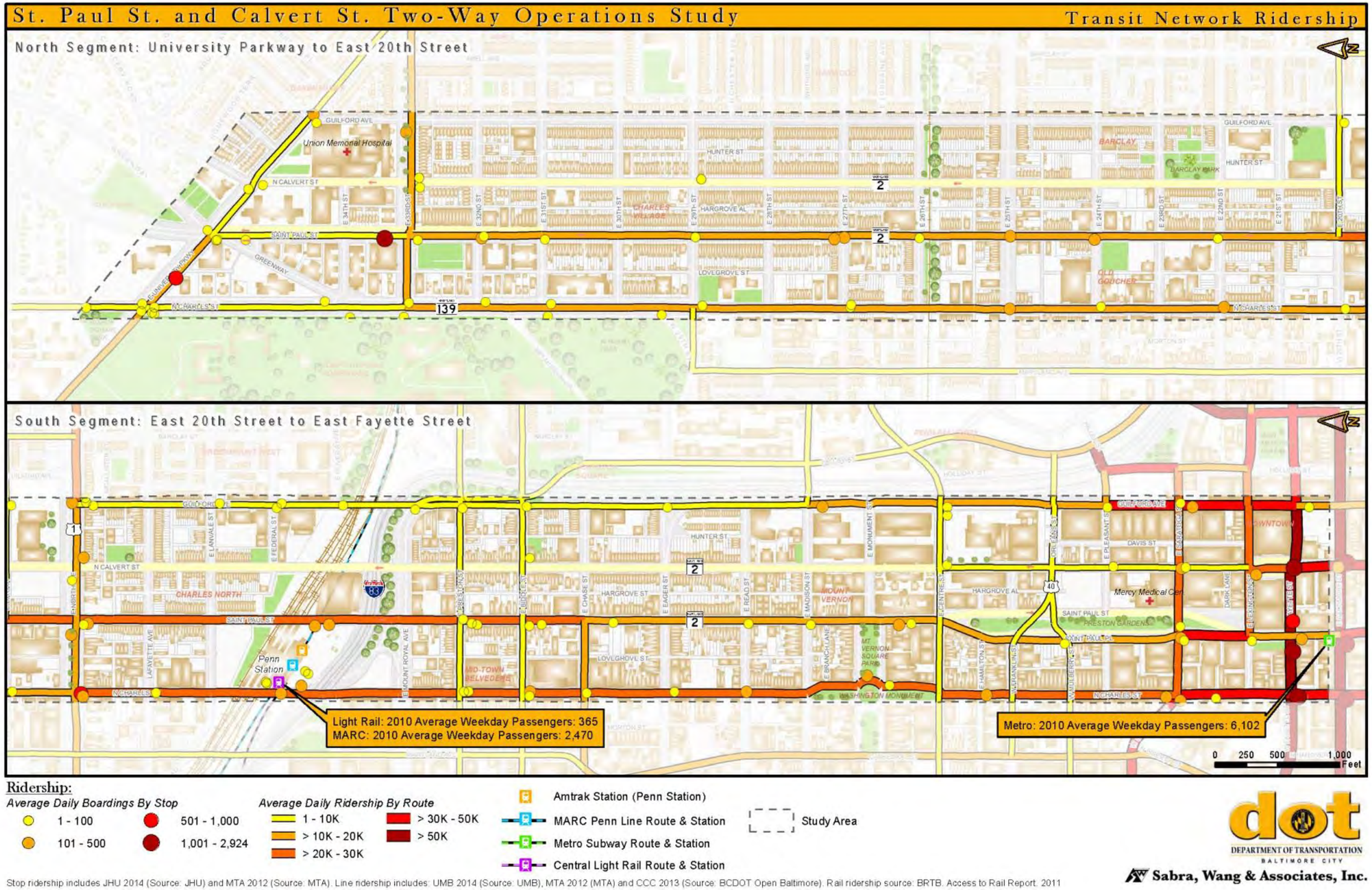



**Figure 20: Summary of Line Ridership by Block**

# VIII. Commute Shed License Plate Survey Evaluation

An origin-destination study was performed on St. Paul Street and Calvert Street to better understand who utilizes the corridor. In these studies, data is collected and analyzed to determine where those who use the corridor may be coming from, based off of a home (origin) address. Maryland and Pennsylvania license plate data of non-commercial vehicles were manually recorded, and later transcribed for three peak hour periods: morning (7:00-8:00 AM), midday (12:00-1:00 PM) and evening (4:30-5:30 PM). Data was collected at four different locations to capture traffic patterns on each street and segment of the corridor:

- Calvert St north of 28th St
- Calvert St north of Read St
- St. Paul St south of 28th St
- St. Paul St south of Read St

The raw Maryland license plate data for over 800 vehicles sampled was sent to the Maryland Motor Vehicle Administration, and each matching license plate number returned a Maryland registered driver's home zip code. This data was then entered into a mapping and analytic software, ArcGIS, to show the spatial distribution of the origins of drivers travelling through the corridor, highlighting zip codes that heavily utilize the corridor.

The analysis revealed that the corridor is used by commuters around the region. Primary users of both St. Paul St and Calvert St have home addresses in Baltimore City and Baltimore County. It was observed that 53% of commuters reside in Baltimore City and 27% in Baltimore County. Drivers from Anne Arundel County and Howard County also show heavy use of this corridor. Figure 21 summarizes the vehicle origins by jurisdiction.

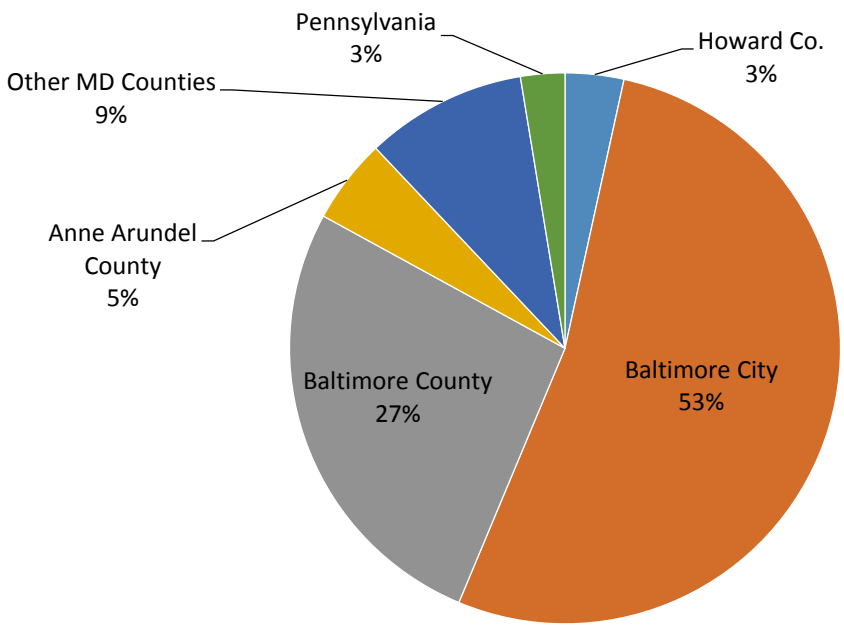



**Figure 21: Summary of Vehicle Origins by Home Jurisdiction**

Baltimore City resident travel patterns were examined more closely to identify which city zip codes were producing the most vehicle trips along each corridor and segment. Within Baltimore City, three zip codes showed the highest utilization of the corridor. Each of the following zip codes, 21218, 21202, and 21212, showed the heaviest utilization, with over 50 cars passing through the corridor within morning or evening peak hours. The first two zip codes contain the study corridor, while the third is located directly above it. This indicates that the greatest source of corridor utilization is drivers who reside in or nearby the study area. Figure 22 through Figure 27 summarize the City vehicle trip origins for St. Paul and Calvert Streets morning, midday, and evening peak hours. The darker shaded areas represent neighborhoods generating the most trips.

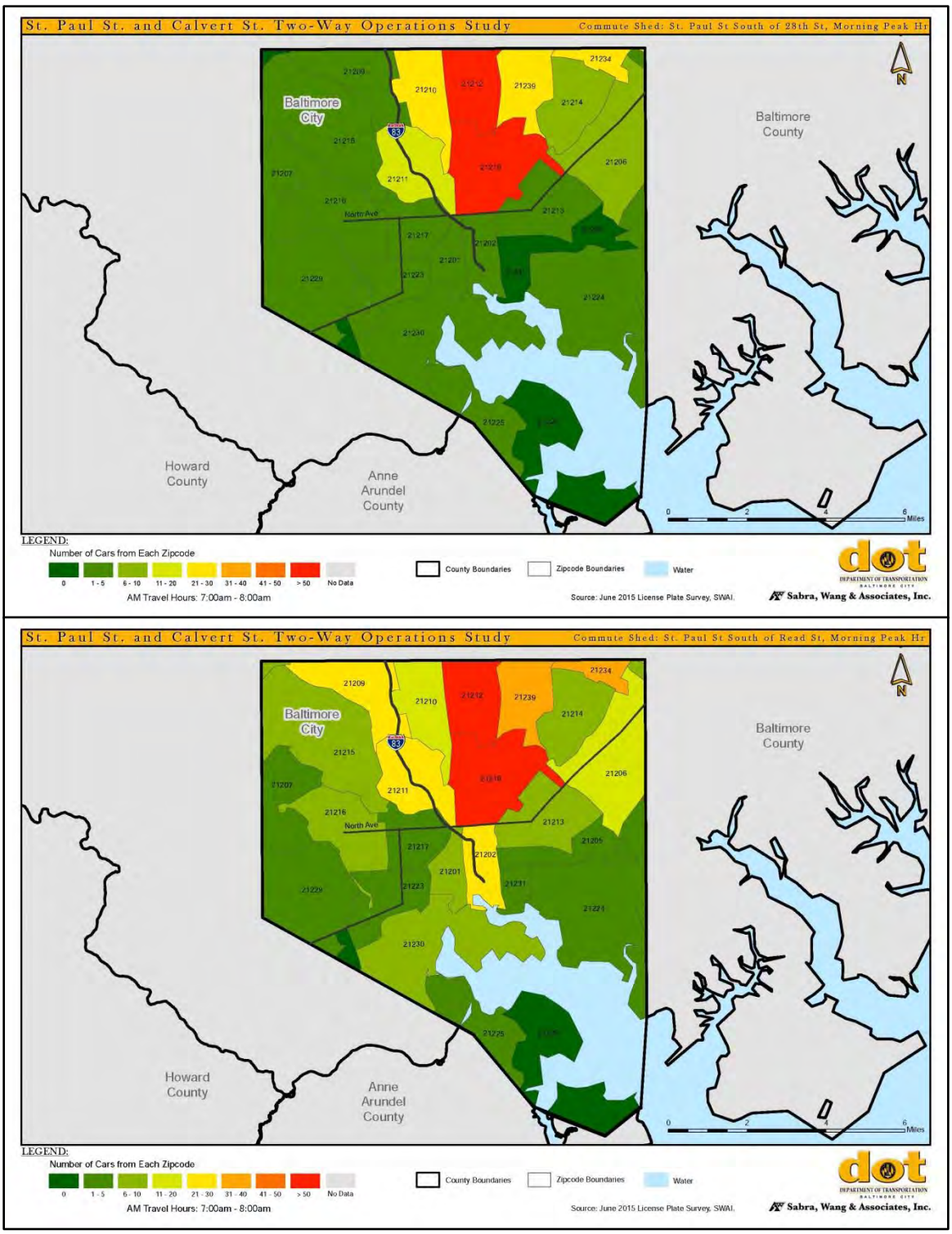



**Figure 22: Vehicle Trip Origin in Baltimore City – Morning Peak on St. Paul St.**

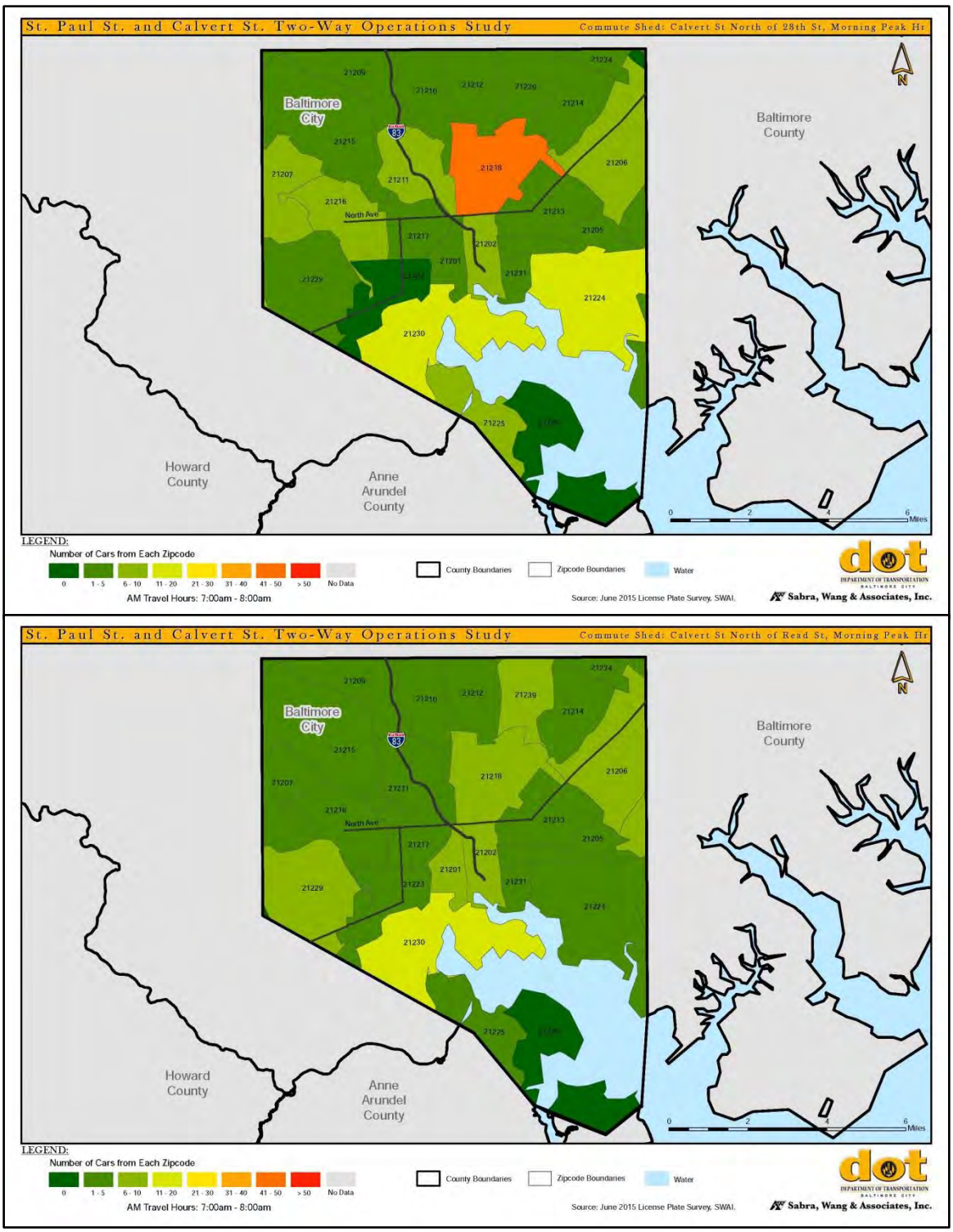



**Figure 23: Vehicle Trip Origin in Baltimore City – Morning Peak on Calvert St.**

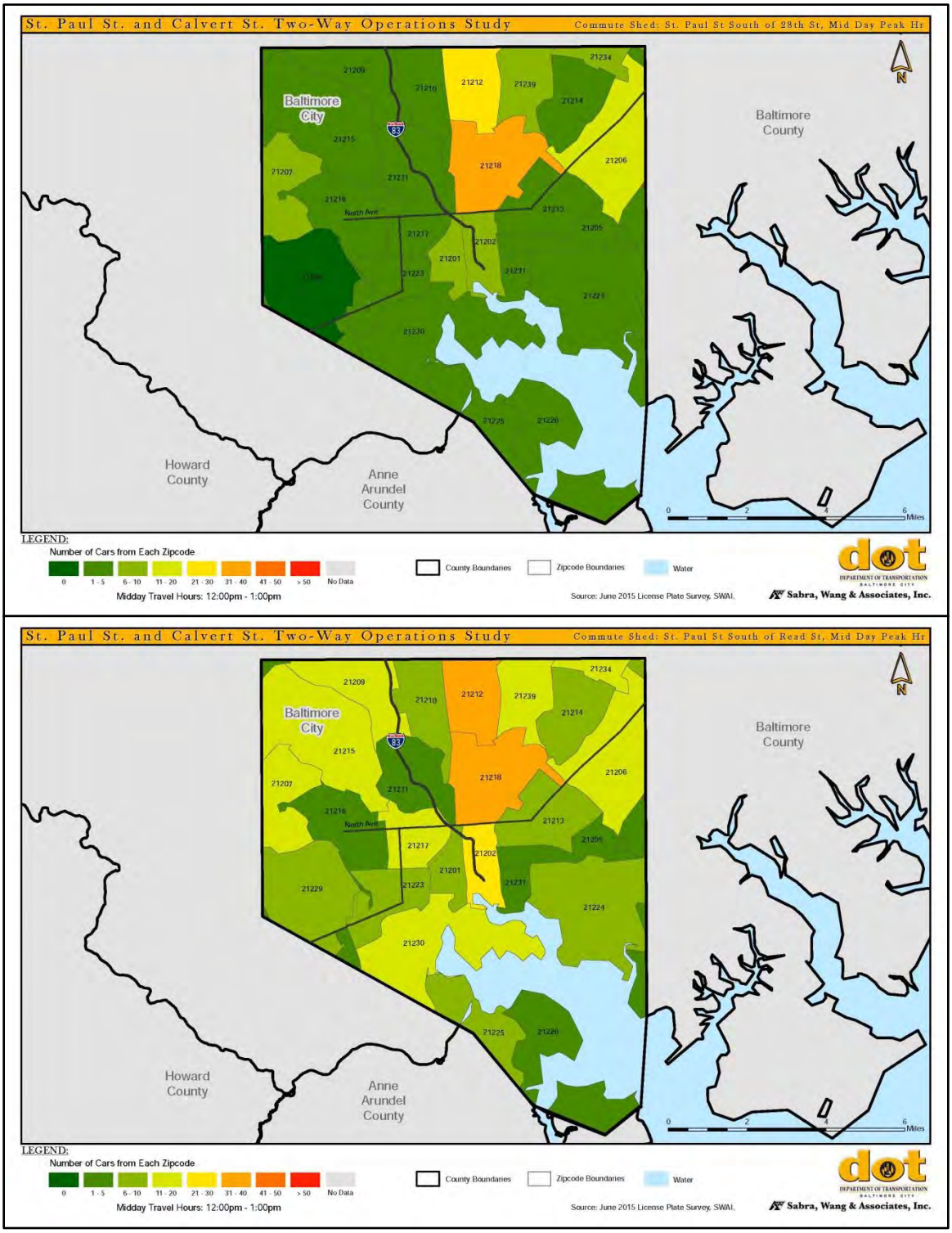



**Figure 24: Vehicle Trip Origin in Baltimore City – Mid Day Peak on St. Paul St.**

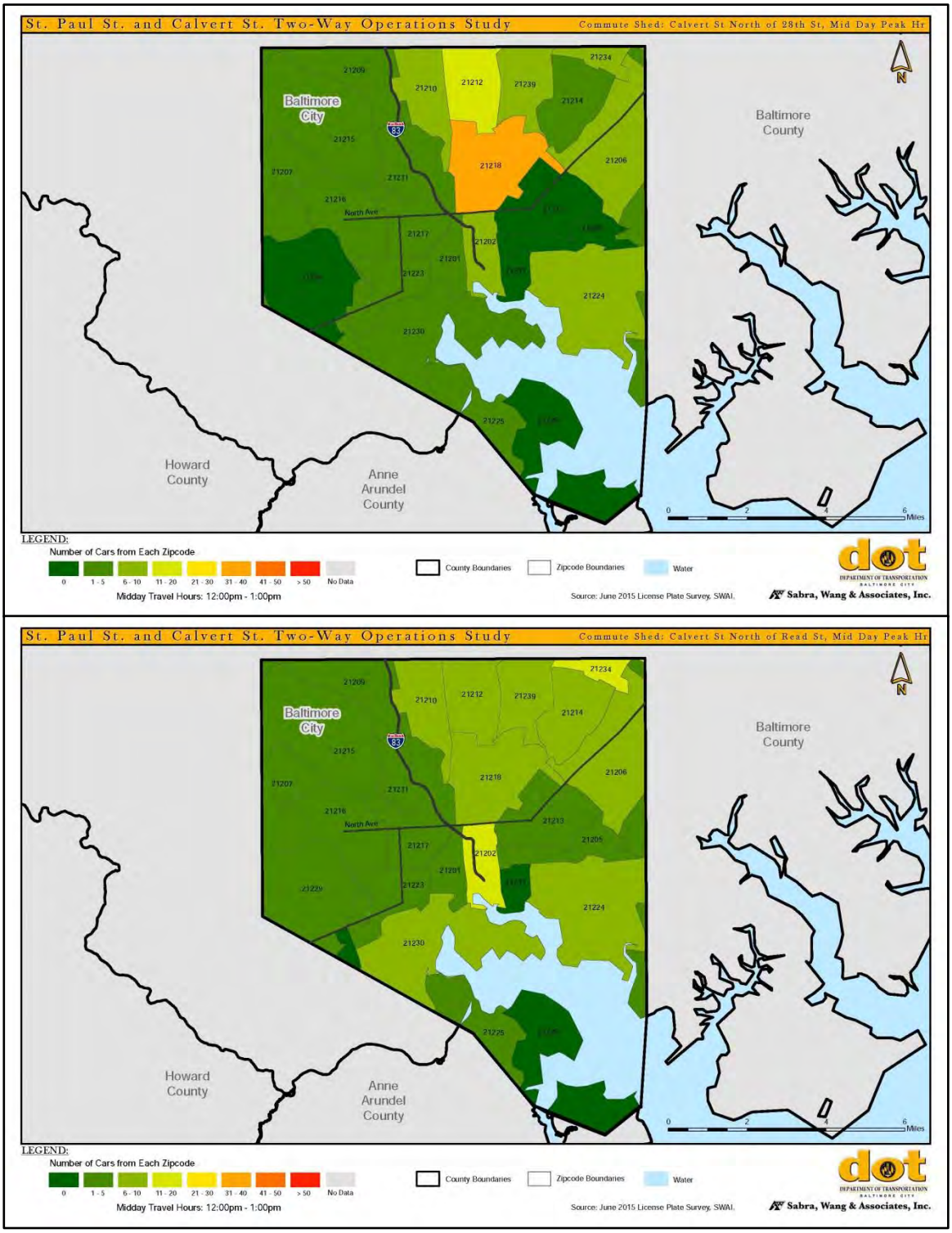



**Figure 25: Vehicle Trip Origin in Baltimore City – Mid Day Peak on Calvert St.**

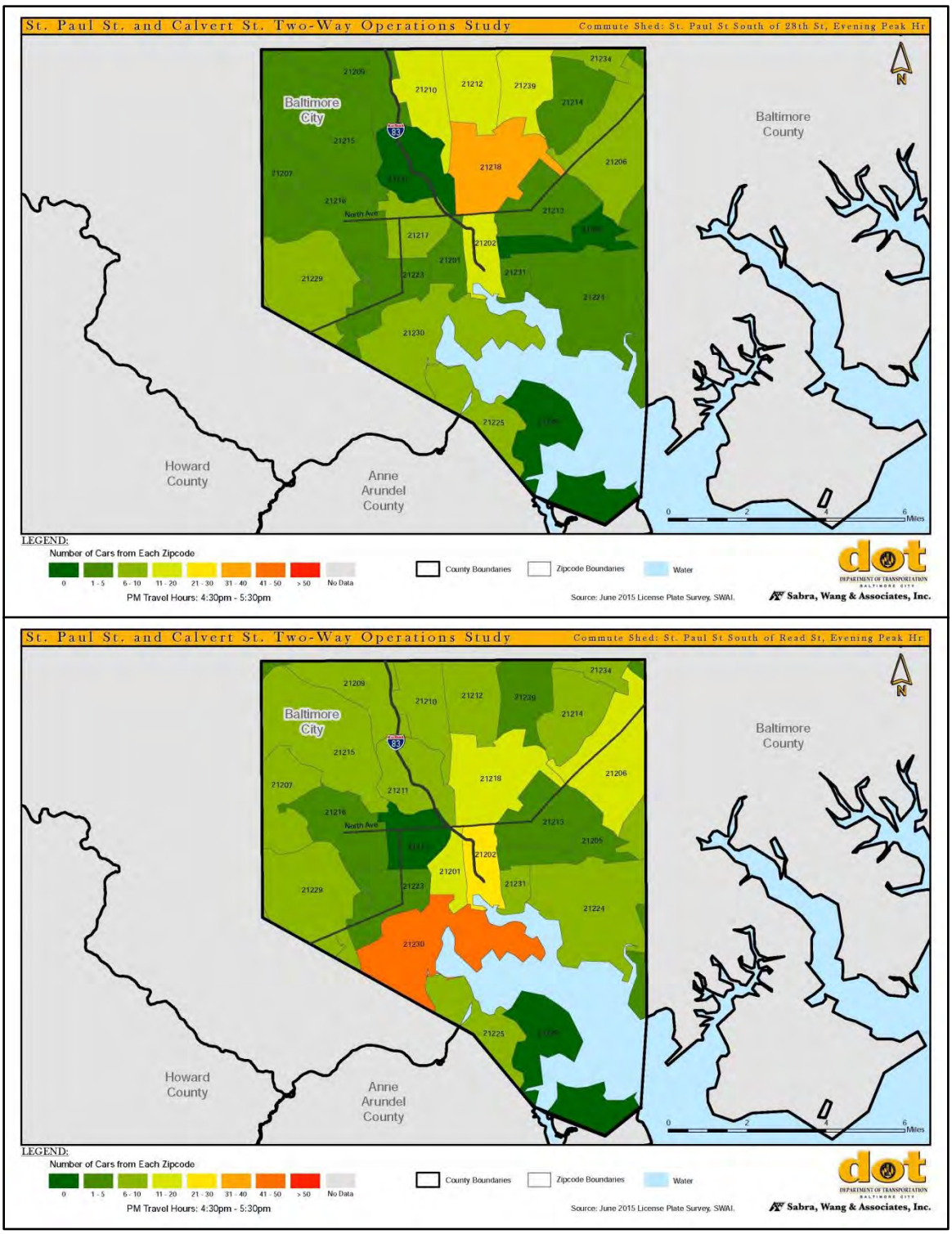



**Figure 26: Vehicle Trip Origin in Baltimore City – Evening Peak on St. Paul St.**

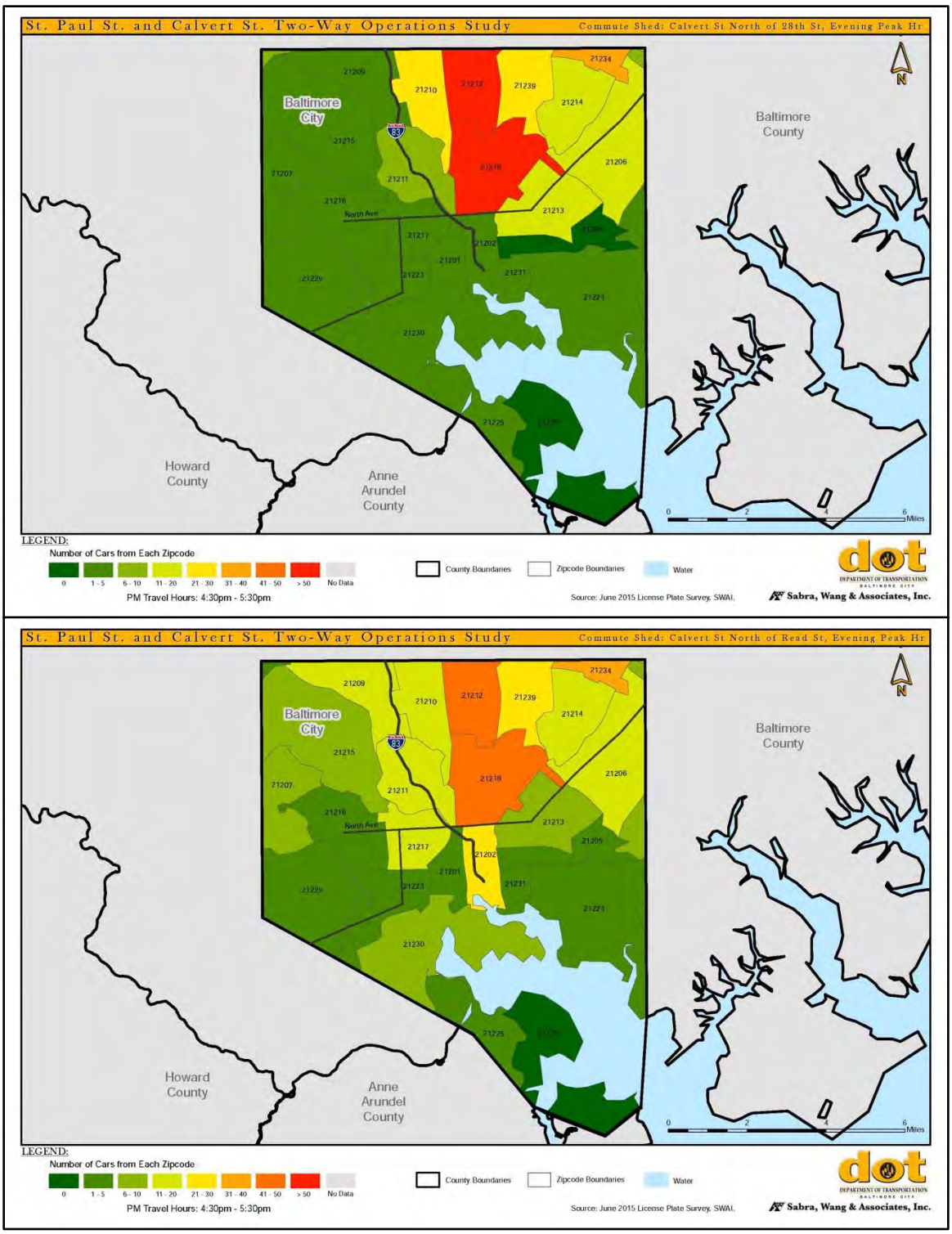



**Figure 27: Vehicle Trip Origin in Baltimore City – Evening Peak on Calvert St.**

# IX. Public Opinion Survey

## A. Survey Development & Administration

A public opinion survey was conducted in the fall of 2014 to gain an understanding of the residents and business owners' opinion on converting St. Paul and Calvert Streets to two-way, as well as how residents and business owners are using the street. The survey was developed in conjunction with the Baltimore City Department of Health, whom was also using the survey results to support their independent Health Impact Assessment of one-way vs. two-way traffic flow along St. Paul and Calvert Street. The results of the literature review conducted on the benefits and disadvantages of one-way vs. two-way streets informed the development of the questions.

The public opinion survey was administered via an online portal (SurveyMonkey®) and was open for a period of 60 days. Over 5,800 stakeholders who live or own a business within the corridor were mailed post cards with a website address to take the survey online. Instructions were also included in the project newsletter sent to the steering committee. The survey administration took greater effort in ensuring responses came from those living/owning a business along the study corridor. BCDOT uploaded the survey results when the survey period ended and let the survey stay open for an additional 30 days as to not receive a skewed response.

## B. Survey Questions

The survey consisted of twenty-two questions and was expected to take 10-12 minutes to complete. The full questionnaire is located in Appendix D; however, an overview of the types of questions asked and insight intended to be gained is given below.

- Two questions assessed what modes of transportation are most commonly utilized and the use of on-street parking by respondents
- Three questions assessed opinions towards aspects that are affected by one-way vs two-way traffic such as crime, safety of different modes, traffic flow, infrastructure of different modes, quality of life, and neighborhood livability
- Four stated-preference questions explicitly asked if respondents supported the two way conversion and their opinion on if two way positively or negatively impacts aspects such as crime, safety, livability, etc.

- Seven demographically related questions were included to support the Baltimore City Department of Health's Health Impact Assessment study that was conducted in conjunction with this study
- Six questions established a respondent's stake in the area by assessing duration of residence, ownership of residence, zip code of residence, etc.

### C. Survey Results

The survey received 1,446 responses. The complete analysis of the response is shown in Appendix D; however, key findings from the survey are outlined below.

- 40% of respondents are of the millennial generation (18-34 years)
- 84% of respondents identified themselves as white
- 52% of respondents have a graduate/professional degree, with 90% of respondents having some sort of higher education degree
- 54% of respondents represent a household of two or more adults, but no children
- 63% of responses came from a residence vs a business, while 60% of respondents are renters
- Half of the respondents have lived on the study corridor less than five years and the remaining half have lived on the study corridor greater than five years
- The question assessing how respondents travel the corridor shows:
    - three-quarters never travel by bicycle or private shuttle,
    - half travel by a personal vehicle more than five times per week,
    - half walk more than five times per week, and
    - half never use public transit, but 35% use it once/twice per week
- Half of the respondents report not using on street parking either during the day or overnight, while only a quarter use on-street parking during the day five or more times per week, and a quarter use on-street parking over night
- 55% of the respondents believe that traffic flow and operations along the study corridor should primarily support a livable & safe community compared to supporting efficient traffic flow or retail/commercial businesses; while 45% believe traffic flow and operations should be primarily supported over a livable & safe community or retail & commercial businesses

- Half of the respondents report being *extremely* or *very* concerned over pedestrian safety, bike safety, traffic safety, and crime along the corridor; air quality, noise level, and public transit were less of a concern
- 45% of respondents report being *satisfied* or *highly satisfied* with the livability of the community, pedestrian infrastructure, and traffic flow; while 45% report being *neutral* towards the quality of bicycle infrastructure, parking availability, and bus efficiency
- 41% believe conversion to two-way flow will have a positive effect on pedestrian infrastructure, 51% believe it will have no effect on air quality and public safety, 55% believe it will have a negative effect on bicycle access and traffic safety, and 70% believe it will have a negative effect on traffic flow
- On average, 55% of the respondents would support conversion if it resulted in improved public safety, created a more pedestrian friendly environment, and improved accessibility to their residence/business
- On average, 66% of the respondents would not support conversion if it increased vehicle travel times, negatively affected bike access and bus service, did not alleviate rush hour congestion, and reduced on-street parking
- When asked d*o you support the conversion of St. Paul and Calvert Street to two-way traffic between Fayette and University Parkway?*:
    - 26% *support* or *strongly support*
    - 61% *oppose* or *strongly oppose* (where 45% *strongly oppose*)
    - 13% are *unsure* or *indifferent/neutral*

# X. Public and Stakeholder Involvement

## A. Public Involvement - Community Meetings

Three series of community meetings were held to share the current state of infrastructure and traffic, transit and parking operations of the study corridor, educate the public on the benefits and disadvantages of two-way vs. one-way traffic, and to understand what roadway elements for various modes of travel the community would like to see along each segment of St. Paul and Calvert Streets. Each series consisted of three meetings held in different locations along the study corridor. Representatives from Baltimore City Department of Transportation and the consultant team conducted the meetings. Each meeting followed a similar format consisting of a presentation, an interactive activity, and a break out time for informal questions and discussions.

Table 17 below summarizes the date of each public meeting and what information was presented. Please note that due to the cancellation of two of the February meetings due to inclement weather, the information presented in the February and May series overlaps. All community meetings were held in the evenings for a two hour duration. The meetings highlighted in red were cancelled. Detailed public comments submitted are included in Appendix H.

**Table 17: Public Meetings**

| Date | Location | *Address* | Information Presented |
|---|---|---|---|
| 10/28/14 | Saint Philip and James Church | *2801 N. Charles St.* | Project Purpose & Goals<br>Study Area & Neighborhoods<br>Priorities & Challenges<br>Work Plan & Next Steps |
| 10/29/14 | Benton Building | *417 E. Fayette St.* | |
| 02/17/15 | Saint Philip and James Church | *2801 N. Charles St.* | Public Opinion Survey Results<br>Case Studies<br>Existing Conditions Mapping<br>Cross-Section Development Exercise |
| 02/19/15 | Baltimore Montessori School | *1600 Guilford Ave.* | |
| 02/26/15 | Benton Building | *417 E. Fayette St.* | |
| 05/12/15 | Benton Building | *417 E. Fayette St.* | |
| 05/14/15 | Saint Philip and James Church | *2801 N. Charles St.* | |
| 05/19/15 | Baltimore Montessori School | *1600 Guilford Ave.* | |
| 12/01/15 | Saint Philip and James Church | *2801 N. Charles St.* | Commuter Shed Study<br>Corridor Travel Time<br>Two-Lane Two-Way Cross Sections<br>Logical Termini |
| 12/06/15 | Baltimore Montessori School | *1600 Guilford Ave.* | |
| 12/15/15 | Benton Building | *417 E. Fayette St.* | |

### B. Stakeholder Involvement - Steering Committee

Seven steering committee meetings were held throughout the project. These meetings served to involve the primary stakeholders of the community in the study and to gain insight into the needs of the community from the members as well as facilitate the distribution of technical project data. Organizations represented include the Baltimore City Department of Transportation (Planning, Traffic, and Transit divisions), Baltimore City Department of Health, Baltimore City Planning Department, Baltimore City Housing and Community Development, Bikemore, Central Baltimore Partnership, City Council Staff, Downtown Partnership of Baltimore, Charles Village Civic Association, Harbor Group Management Company, HNA, Horizon House, John Hopkins University, JHSPH/BCDOH, Jubilee Baltimore, Mayor's Office, Medstar Health, Mercy Hospital, Sahara Communications, Southern Management Corporation (property manager for Mt. Vernon Residencies), and Mount Vernon Belvedere Association. Table 18 below summaries the steering committee meetings held. The complete list of members can be found in Appendix I.

**Table 18: Steering Committee Meetings**

| No. | Date | Agenda |
|---|---|---|
| 1 | 8/25/2014 | Kick Off<br>Project Purpose & Need<br>Project Challenges<br>Stakeholder Issues/Priorities<br>Work Plan<br>Project Schedule<br>DOT Project Team |
| 2 | 11/21/2014 | Public Opinion Survey – Question<br>Comments from October Public Meetings<br>Base mapping of roadway inventory and cross sections |
| 3 | 1/22/2015 | Public Opinion Survey Results<br>Literature Review Summary<br>Transit Maps |
| 4 | 4/16/2015 | Parking Utilization Survey Results<br>Travel Time Studies Results<br>Traffic Reassignment Results<br>Alternative Roadway Sections Exercise |
| 5 | 6/24/2015 | Existing Cross Sections |
| 6 | 10/15/2015 | Commute Shed Study Results<br>Cross Sections - Alternative 1<br>Existing Intersection LOS<br>Scenario 1 - Intersection LOS |

### C. Stakeholder Involvement – Project Newsletter

To provide periodic updates and advertise for upcoming community meetings on the study to the steering committee members as well as the community, four newsletters were issued by BCDOT over the 18 month study period. The newsletters were emailed to the steering committee as well as placed on the BCDOT Planning website[5]. The Baltimore City DOT Transportation/Planning page's website also posted copies of the newsletter for download. Newsletters were issued in October of 2014, February of 2015, May of 2015, and January of 2016. Copies of all newsletters are contained in Appendix E.

[5] http://archive.baltimorecity.gov/Government/AgenciesDepartments/Transportation/planning.aspx

# XI. Literature Review and Case Studies

A brief literature review of urban one-way and two-way street operations was conducted to gain an understanding of the advantages and disadvantages of one-way versus two-way operations that have been studied in the professional and academic field, as well as case studies that show the results of one to two-way conversions.

## A. Why City Streets Were Converted to One-Way

In the post-World War II era, the exodus of people from the cities to the suburbs was in part fueled by the construction of highways and the affordability of automobiles. However, jobs and some retail remained in the city. Converting city streets which were mainly built prior to the automobile and as a result are a bit narrow for them, from two-way to one-way flow was the city traffic engineers' solution to provide efficient access from the evolving suburbs to the city center. Baltimore City's traffic commissioner in the mid-20th century, Henry Barnes, brought this solution to Baltimore and the City became a leading example of converting streets to one-way operations. In the early 1950s, he changed St. Paul and Calvert Street from two-way to one-way flow from 29th Street to downtown in an effort to expedite the traffic in and out of downtown to keep the downtown business district economically viable as people moved further out from the city center.

## B. Current Conversation on One-Way versus Two-Way Streets

While research conducted in the mid-20th century convinced city engineers and planners that the traffic flow efficiency of one-way streets was more beneficial than two-way streets, the modern debate, which has expanded to include numerous street characteristics in addition to traffic flow, remains rather divergent. At a high-level comparison, the current debate compares the auto-centricity of one-way streets against neighborhood/business district revitalization and community-oriented neighborhoods spawned by the conversion to two-way streets.

The primary argument for one-way streets is the ability to synchronize traffic signals along a corridor allowing for an efficient through-put of vehicles with minimal stopping. The minimal delay produced on one-way streets and the higher average travel speed

provide for a higher vehicle capacity on one-way streets than two-way streets. Although one-way streets can reduce the frequency of left-turn and head-on accidents, higher speeds can increase the severity of an accident.

Advocates of two-way streets cite that higher vehicle speeds do not promote a pedestrian friendly environment and do not breed a community-oriented neighborhood. The increased speeds and vehicle volume make it challenging for pedestrians to cross the street at an unsignalized intersection due to the reduced distance between vehicles, and result in wasted street space outside of rush hours. Conversion to two-way streets acts as a tool for traffic calming, which have been shown to have many benefits including aesthetic appeal to pedestrians. The increase in pedestrian activity is believed to facilitate a more vibrant community, reduced crime rates, and a healthier business environment. The slower vehicle speeds also may make roads more comfortable for bicyclists.

One-way versus two-way networks create respective safety issues for pedestrians and bicyclists at intersections as well. The reduced number of vehicle-pedestrian conflict points at an intersection of one-way streets - four compared to 24 at a two-way intersection - is a benefit of one-way streets. However, this is also counter-argued by proposing that street networks with one-way streets create more 'conflict sequences' (16 possible sequences) at an intersection than a two-way street network (two possible sequences). This implies that two-way street networks create a standard type of intersection where pedestrian are more cognizant of the potential conflicts.

The business and economic environment along a street is also influenced by the street's traffic flow. One-way streets create less storefront exposure with half of the store fronts visually eclipsed from the driver's view. The improved vehicle flow on one-way streets however, allows drivers to reach a business more efficiently, and may also allow for more on-street parking. The difference in vehicle miles traveled on one-way versus two-way networks is often a factor of comparison for cities deciding on whether to convert their streets to two-way as drivers typically 'drive around the block' to reach a destination on a one-way street. The increase in vehicle miles traveled on one-way streets is also compared against the more congested nature of two-way streets which require more vehicle stops and thus increase vehicle emissions and reduce air quality. The higher speeds found on one-way streets also decreases the visibility and read-ability of store

signs to drivers. The lower speeds found on two-way streets leads to a more comfortable environment for pedestrians who may be more likely to walk and shop along these streets. Despite these counter-arguments, research generally concludes that one-way and two-way streets each cater to a specific type of business. One-way streets are more beneficial to larger footprint retail/ commercial stores with off-street parking. However, two-way streets cater more towards stores that rely on foot traffic and impulse purchases.

The benefits to transit due to one-way versus two-way flow also have diverging viewpoints. The possible increase in congestion may negatively impact transit services provided by buses; however, two-way streets make it easier to locate the returning bus stop and the increase in community-orientation cited to be created by two-way streets may also lead to increase use of transit. On-street parking configurations, loading zones and bus stops are also sensitive to street direction flows. Typically more rush hour parking restrictions are found on two-way streets than one-way streets.

Two-way traffic proponents believe that one-way traffic flow provides a less healthy living environment overall. One-way traffic proponents believe that efficient traffic flow on a city's street system is paramount, and that one-way street sections can more easily integrate multi-modal elements such as exclusive bus and bike lanes. To achieve the best of both worlds, one study showed using modeling software that two-way streets with limited or banned left turning movements can yield a similar capacity to one-way couplets. The decision to convert one-way streets to two-way streets is highly dependent on the unique characteristics of the street or neighborhood in question as well as the desires of the city and many aspects should be evaluated including network capacity, travel distance to destination, travel speed, pedestrian environment, and retail exposure.

### C. Case Studies – Example of cities that have recently undergone a two-way conversion

Several case studies of recent one-way to two-way conversions are presented below with the first row highlighting this study for comparison.

| Street | ADT | Year Converted to Two-way | Primary Reason For Conversion | Results |
|---|---|---|---|---|
| **St. Paul & Calvert Streets** | 12,500 (St. Paull 2013) 7,500 (Calvert 2013) | N/A | Enhance the livability of the communities | • N/A |
| **Kings Street – Charleston, SC** | 11,500 (1994) | 1994 | Commercial and economic benefit of downtown Charleston | • Frequency and quality of business increased post conversion<br>• Conversion induced a positive change in commercial property values |
| **Brook & First Street - Louisville, KY** | 8,900 (Brook 2009); 7,700 (Brook 2013); 3,650 (First 2009); 5,700 (First 2013) | 2011 *Converted to a single lane in each direction with bike lane* | Downtown Revitalization with a focus to establish more desirable residential neighborhoods | Pre- vs. post- conversion analysis revealed:<br>• 23% drop in crime<br>• Brook St: 36% reduction in collisions<br>• First St: 60% reduction in collisions<br>• Brook St: 39% increase in property values |
| **North & Main Street – Old Town Fairfax, VA** | 17,000 (2005); 12,000 (Main 2013); 22,000 (North 2013) | 2006 | Downtown Revitalization including a pedestrian-friendly downtown | • Speeds increased post conversion by 2-4 MPH<br>• Daily traffic volumes decreased<br>• Conversion spurred redevelopment that also increased parking four fold |
| **Second Avenue – Midtown of Detroit, MI** | No data available | 2014 *Four lanes to one in each direction, a center turn lanes, and buffed bicycle lane in each direction* | Traffic calming to create a broader walkable urban district and revitalized a deteriorated corridor | Anecdotal:<br>• Reduced confusion to visitors<br>• Feels more like a slower paced residential street<br>• Encouraged more bicycle travel<br>• Negatively impacted parking and access to a restaurant |
| **Vine Street – Cincinnati, OH**<br><br>***Central Parkway to McMiken Avenue, 0.7 miles*** | No data available | 1975 *Converted to one-way;* 1999 *Converted to two-way* | To stimulate and support increased business activity; *40% of the businesses on Vine St closed after the 1975 conversion to one-way* | • Post two-way conversion, traffic volumes decreased by 28%<br>• Average crashes per year were<br>  • 212 prior to 1975,<br>  • 102 from 1975-1999<br>  • 164 post 1999<br>• Post two-way conversion, travel time as doubled from 2 minutes to 4.5 minutes<br>• Post two-way conversion, average speed decreased from 18 to 12 mph |

# XII. Summary of Findings

The following are key observations of the existing conditions concerning neighborhoods, the roadway network, traffic conditions, on-street parking, traffic safety, and bus operations. Figure 28 and Figure 29 show a summary of the existing conditions data collected. The data is summarized by segment, where individual blocks have similar characteristics.

- Auto ownership is highest in the Downtown and Greenmount West neighborhoods, and is in the middle range in most other neighborhoods.
- Population density varies widely throughout the study area neighborhoods, with the highest densities reached in Charles Village, Mid-Town Belvedere and Mount Vernon neighborhoods, and the lowest in Charles North and Downtown neighborhoods.
- St. Paul Street in the north segment generally has two travel and two parking lanes. It operates with three travel lanes and one parking lane between 29th and 31st Streets. In the south segment, there is extensive variation in lane use along St. Paul Street. Travel lanes vary from two to four lanes, and parking lanes are generally one to two lanes, and in some location there is no parking.
- Calvert Street in the north segment has two travel lanes and two parking lanes. Between 33rd and 34th Streets there is only one parking lane. In the south segment, north of Centre Street, Calvert Street has two travel and two parking lanes. South of Centre Street to Fayette Street, lane operation varies from three to four travel lanes and zero to one parking lanes.
- The curb to curb roadway width of St. Paul and Calvert Streets ranges from 30 to 48 and 34 to 48 feet, respectively. St. Paul Street is generally wider than Calvert Street while Calvert Street has a more consistent width for the length of the study area.
- There are pedestrian signals and marked crosswalks for a high majority of study intersections.

- St. Paul Street carries more traffic than Calvert Street and together, they carry half of the north-south traffic within the study area (excluding volume on I-83.)
- Of the 61 signalized intersections within the study area, 54 are operating at level of service C or better during both the morning and evening peak hour.
- There are a total of 1,760 curbside parking spaces in the corridor, with nearly equal amounts along St. Paul and Calvert Streets. Spaces requiring residential permits and unrestricted spaces each account for one third of the curbside spaces. Out of 144 block faces (accounting for east and west sides of St. Paul and Calvert Streets), 45 blocks have a 75% or high utilization rate during the mid-day and 89 blocks have a 75% or higher utilizations rate during the evening hours.
- Over the five-year period of 2009-2013, there were a total of 767 accidents at the 74 intersections along St. Paul and Calvert Streets, for an annual average of 153 accidents. An equal number of accidents occurred along St. Paul and Calvert Streets.
- There were a total of 79 pedestrian and bicycle crashes over the three year period (2009-2011) along St. Paul and Calvert Streets. One pedestrian fatality occurred. There were significantly less pedestrian crashes on Calvert Street than St. Paul Street. Pedestrian and bicycle crashes were more frequent in Downtown at Saratoga, Lexington, and Fayette Streets.
- The total daily boardings in the study area, at the 32 stops along St. Paul and Calvert Streets were 12,850. Total daily combined line ridership exceeds 30,000 passengers per day in some segments.
- Bus boardings in the south segment of the study area are almost twice than that of those in the north segment and were three times higher along St. Paul than Calvert Street.
- Primary users of both St. Paul St and Calvert St have home addresses in Baltimore City and Baltimore County. Roughly 50% of commuters reside in Baltimore City and 25% in Baltimore County.

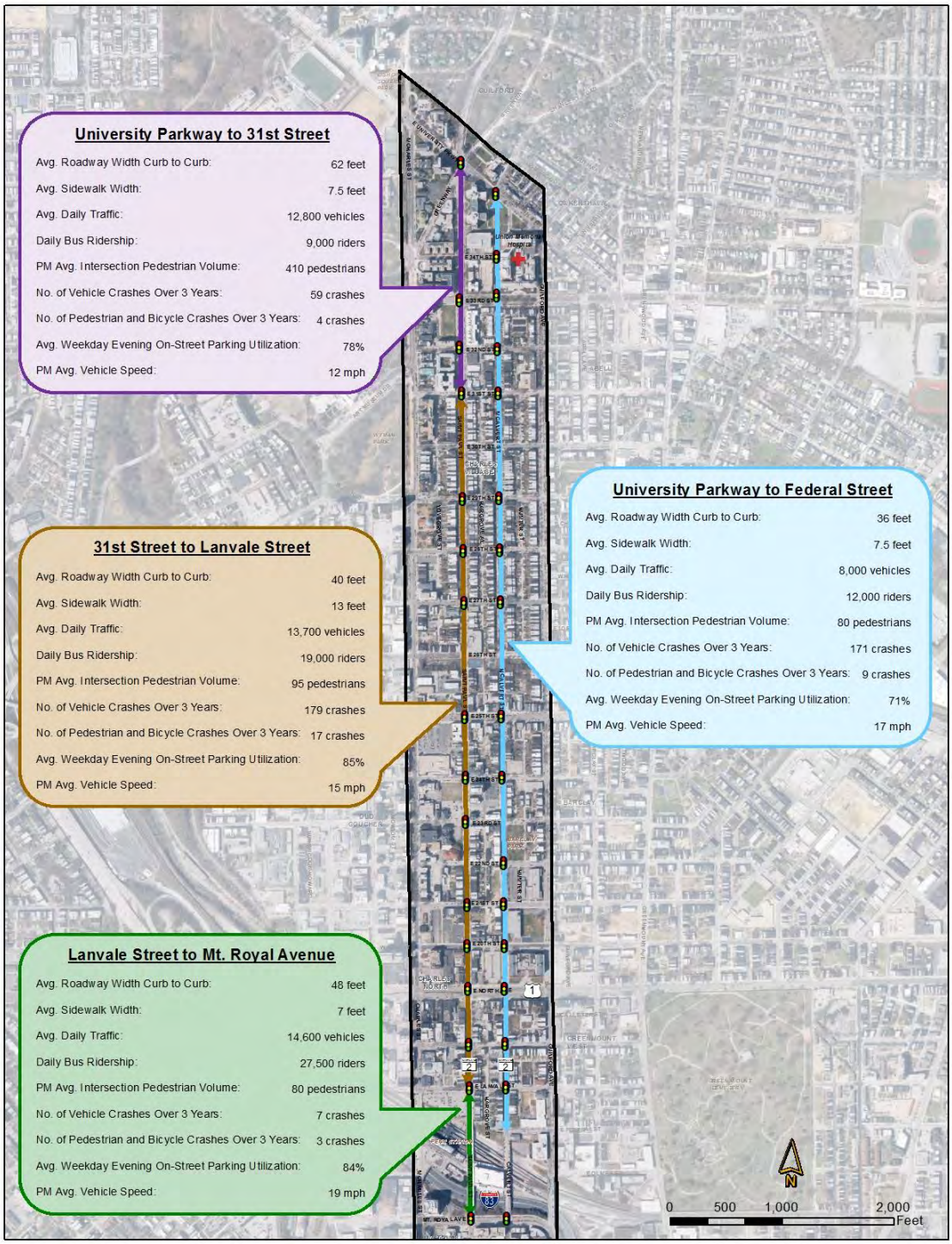



**Figure 28: Map Summary of Corridor - North Segment**

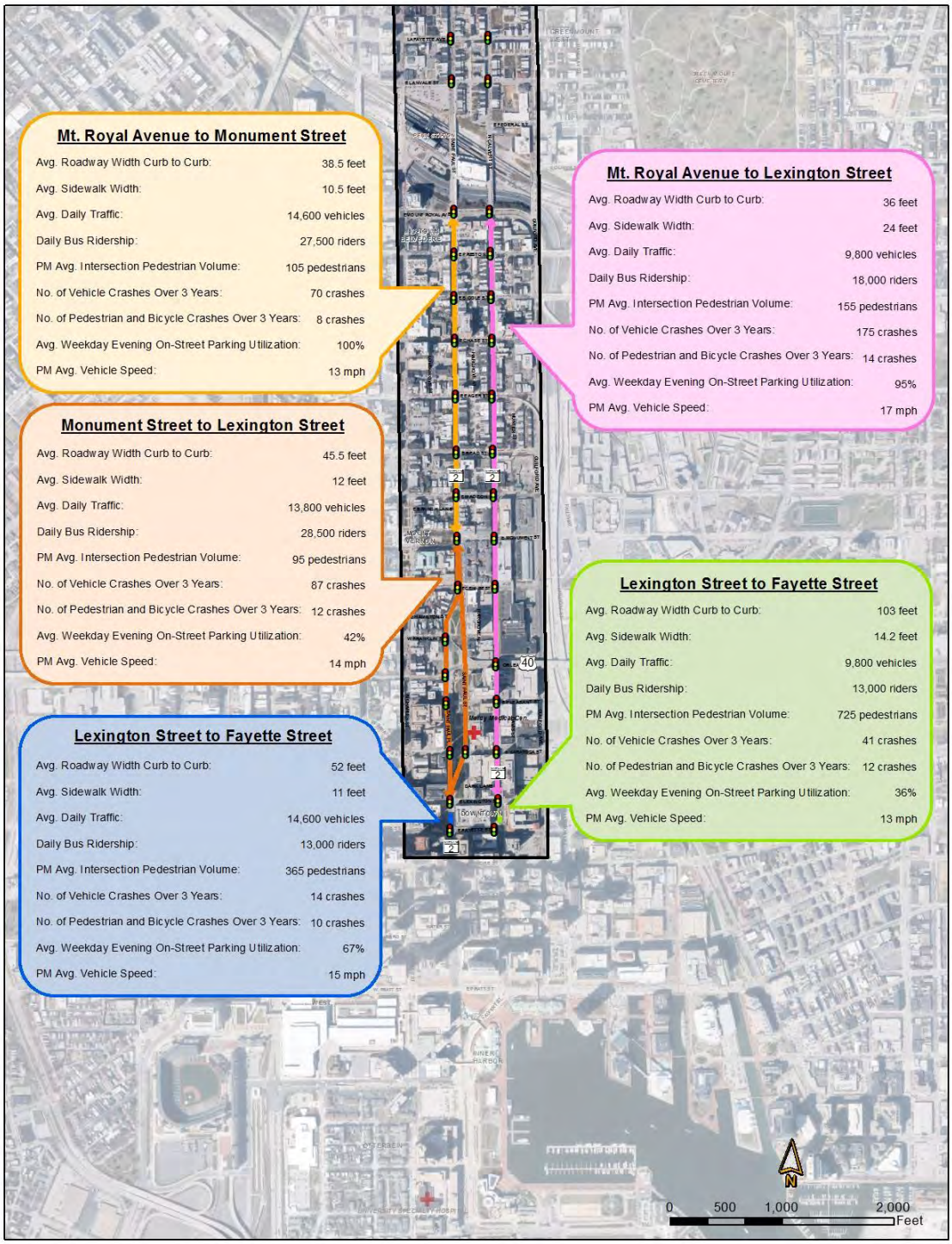



**Figure 29: Map Summary of Corridor - South Segment**

# APPENDIX A

# TRAFFIC VOLUMES

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

Weather: SUNNY
Counted By: ALDON & DEVRIN
Town: BALTIMORE CITY
County: BALTIMORE CITY

File Name : St Paul St at University Pkwy
Site Code : 00000000
Start Date : 9/22/2015
Page No : 1

Groups Printed- VEHS&PEDS

| | ST PAUL ST From North | | | | | UNIVERSITY PKWY From East | | | | | ST PAUL ST From South | | | | | UNIVERSITY PKWY From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 1 | 143 | 3 | 1 | 148 | 17 | 54 | 11 | 1 | 83 | 1 | 0 | 0 | 7 | 8 | 52 | 35 | 2 | 11 | 100 | 339 |
| 07:15 AM | 2 | 180 | 7 | 2 | 191 | 21 | 84 | 2 | 1 | 108 | 1 | 0 | 0 | 4 | 5 | 47 | 39 | 4 | 7 | 97 | 401 |
| 07:30 AM | 2 | 200 | 3 | 0 | 205 | 30 | 96 | 7 | 4 | 137 | 3 | 0 | 0 | 9 | 12 | 70 | 53 | 2 | 3 | 128 | 482 |
| 07:45 AM | 5 | 188 | 8 | 0 | 201 | 24 | 158 | 8 | 1 | 191 | 2 | 0 | 0 | 3 | 5 | 50 | 53 | 1 | 8 | 112 | 509 |
| Total | 10 | 711 | 21 | 3 | 745 | 92 | 392 | 28 | 7 | 519 | 7 | 0 | 0 | 23 | 30 | 219 | 180 | 9 | 29 | 437 | 1731 |
| 08:00 AM | 3 | 204 | 11 | 1 | 219 | 34 | 91 | 10 | 1 | 136 | 0 | 0 | 0 | 5 | 5 | 76 | 64 | 3 | 4 | 147 | 507 |
| 08:15 AM | 3 | 202 | 8 | 1 | 214 | 22 | 95 | 19 | 1 | 137 | 0 | 0 | 0 | 4 | 4 | 83 | 63 | 4 | 14 | 164 | 519 |
| 08:30 AM | 3 | 176 | 13 | 1 | 193 | 46 | 78 | 14 | 1 | 139 | 0 | 0 | 0 | 4 | 4 | 63 | 59 | 5 | 2 | 129 | 465 |
| 08:45 AM | 2 | 139 | 6 | 4 | 151 | 38 | 92 | 11 | 0 | 141 | 0 | 0 | 0 | 15 | 15 | 54 | 42 | 5 | 18 | 119 | 426 |
| Total | 11 | 721 | 38 | 7 | 777 | 140 | 356 | 54 | 3 | 553 | 0 | 0 | 0 | 28 | 28 | 276 | 228 | 17 | 38 | 559 | 1917 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 11:00 AM | 4 | 56 | 7 | 1 | 68 | 26 | 62 | 10 | 0 | 98 | 2 | 0 | 0 | 0 | 2 | 27 | 37 | 3 | 0 | 67 | 235 |
| 11:15 AM | 2 | 59 | 5 | 0 | 66 | 18 | 38 | 14 | 1 | 71 | 2 | 0 | 0 | 1 | 3 | 21 | 30 | 0 | 0 | 51 | 191 |
| 11:30 AM | 5 | 39 | 5 | 0 | 49 | 30 | 68 | 6 | 1 | 105 | 1 | 0 | 0 | 7 | 8 | 41 | 21 | 2 | 0 | 64 | 226 |
| 11:45 AM | 7 | 85 | 6 | 0 | 98 | 34 | 94 | 23 | 8 | 159 | 3 | 0 | 0 | 0 | 3 | 30 | 42 | 4 | 0 | 76 | 336 |
| Total | 18 | 239 | 23 | 1 | 281 | 108 | 262 | 53 | 10 | 433 | 8 | 0 | 0 | 8 | 16 | 119 | 130 | 9 | 0 | 258 | 988 |
| 12:00 PM | 0 | 26 | 5 | 0 | 31 | 13 | 19 | 2 | 0 | 34 | 0 | 0 | 0 | 2 | 2 | 37 | 31 | 3 | 0 | 71 | 138 |
| 12:15 PM | 0 | 70 | 5 | 0 | 75 | 18 | 61 | 10 | 0 | 89 | 2 | 0 | 0 | 3 | 5 | 24 | 32 | 2 | 0 | 58 | 227 |
| 12:30 PM | 3 | 55 | 7 | 1 | 66 | 27 | 68 | 8 | 8 | 111 | 1 | 0 | 0 | 0 | 1 | 28 | 31 | 3 | 0 | 62 | 240 |
| 12:45 PM | 3 | 31 | 4 | 2 | 40 | 9 | 34 | 3 | 0 | 46 | 1 | 0 | 0 | 0 | 1 | 28 | 24 | 2 | 0 | 54 | 141 |
| Total | 6 | 182 | 21 | 3 | 212 | 67 | 182 | 23 | 8 | 280 | 4 | 0 | 0 | 5 | 9 | 117 | 118 | 10 | 0 | 245 | 746 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 03:30 PM | 0 | 84 | 9 | 1 | 94 | 59 | 81 | 11 | 1 | 152 | 4 | 0 | 0 | 3 | 7 | 40 | 58 | 3 | 8 | 109 | 362 |
| 03:45 PM | 1 | 57 | 8 | 2 | 68 | 65 | 79 | 7 | 0 | 151 | 5 | 0 | 0 | 2 | 7 | 36 | 56 | 2 | 4 | 98 | 324 |
| Total | 1 | 141 | 17 | 3 | 162 | 124 | 160 | 18 | 1 | 303 | 9 | 0 | 0 | 5 | 14 | 76 | 114 | 5 | 12 | 207 | 686 |
| 04:00 PM | 1 | 64 | 7 | 4 | 76 | 64 | 79 | 7 | 2 | 152 | 1 | 0 | 0 | 6 | 7 | 29 | 54 | 5 | 8 | 96 | 331 |
| 04:15 PM | 2 | 57 | 7 | 0 | 66 | 95 | 84 | 8 | 1 | 188 | 3 | 0 | 0 | 4 | 7 | 45 | 57 | 2 | 19 | 123 | 384 |
| 04:30 PM | 4 | 56 | 5 | 3 | 68 | 126 | 89 | 13 | 1 | 229 | 3 | 0 | 0 | 10 | 13 | 45 | 64 | 1 | 14 | 124 | 434 |
| 04:45 PM | 1 | 72 | 3 | 0 | 76 | 111 | 102 | 8 | 1 | 222 | 5 | 0 | 0 | 5 | 10 | 42 | 80 | 1 | 5 | 128 | 436 |
| Total | 8 | 249 | 22 | 7 | 286 | 396 | 354 | 36 | 5 | 791 | 12 | 0 | 0 | 25 | 37 | 161 | 255 | 9 | 46 | 471 | 1585 |

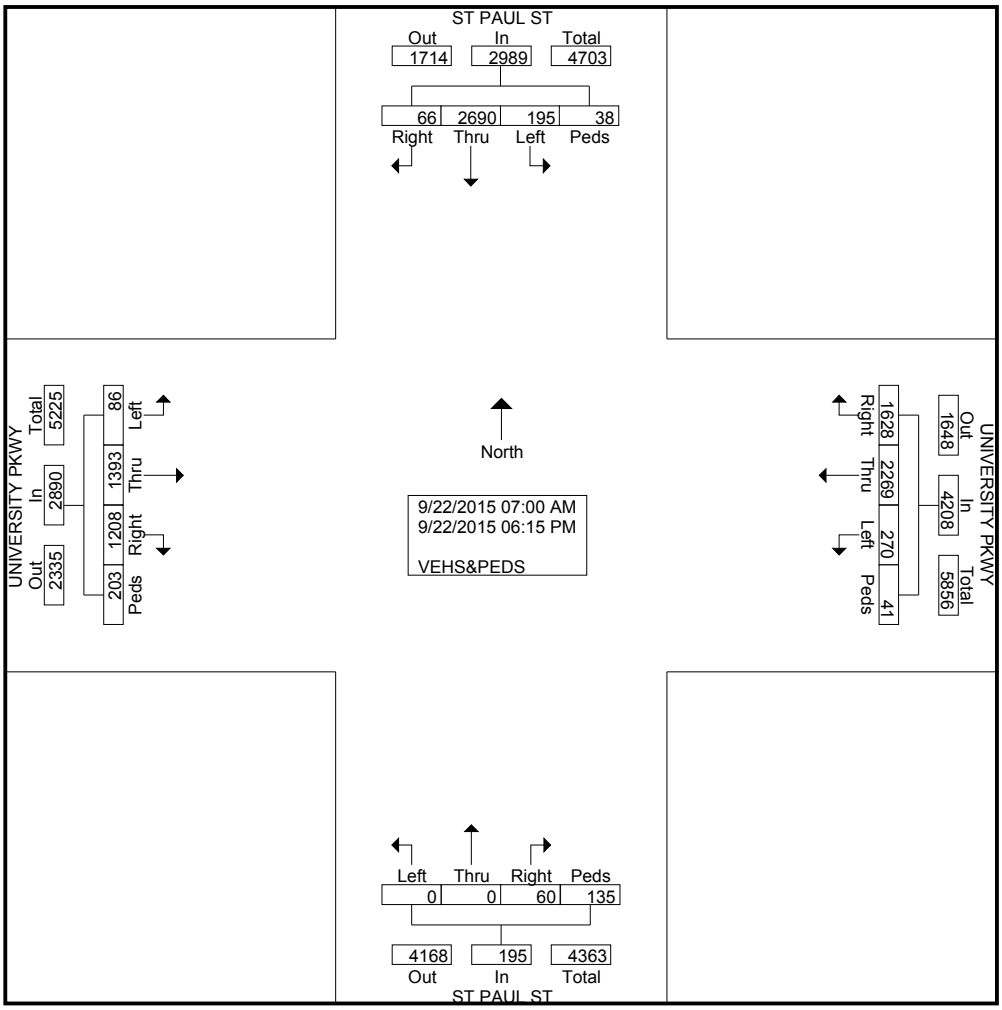
# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at University Pkwy
Site Code : 00000000
Start Date : 9/22/2015
Page No : 2

Groups Printed- VEHS&PEDS

| | ST PAUL ST From North | | | | | UNIVERSITY PKWY From East | | | | | ST PAUL ST From South | | | | | UNIVERSITY PKWY From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 05:00 PM | 0 | 72 | 5 | 1 | 78 | 127 | 102 | 10 | 0 | 239 | 6 | 0 | 0 | 4 | 10 | 39 | 63 | 8 | 3 | 113 | 440 |
| 05:15 PM | 3 | 75 | 11 | 4 | 93 | 107 | 102 | 8 | 1 | 218 | 2 | 0 | 0 | 3 | 5 | 32 | 90 | 2 | 9 | 133 | 449 |
| 05:30 PM | 5 | 83 | 23 | 4 | 115 | 170 | 100 | 7 | 2 | 279 | 4 | 0 | 0 | 17 | 21 | 34 | 59 | 9 | 11 | 113 | 528 |
| 05:45 PM | 2 | 75 | 6 | 2 | 85 | 134 | 98 | 15 | 2 | 249 | 1 | 0 | 0 | 6 | 7 | 36 | 52 | 0 | 17 | 105 | 446 |
| Total | 10 | 305 | 45 | 11 | 371 | 538 | 402 | 40 | 5 | 985 | 13 | 0 | 0 | 30 | 43 | 141 | 264 | 19 | 40 | 464 | 1863 |
| 06:00 PM | 1 | 63 | 3 | 1 | 68 | 93 | 87 | 13 | 0 | 193 | 2 | 0 | 0 | 5 | 7 | 51 | 48 | 3 | 27 | 129 | 397 |
| 06:15 PM | 1 | 79 | 5 | 2 | 87 | 70 | 74 | 5 | 2 | 151 | 5 | 0 | 0 | 6 | 11 | 48 | 56 | 5 | 11 | 120 | 369 |
| Grand Total | 66 | 2690 | 195 | 38 | 2989 | 1628 | 2269 | 270 | 41 | 4208 | 60 | 0 | 0 | 135 | 195 | 1208 | 1393 | 86 | 203 | 2890 | 10282 |
| Apprch % | 2.2 | 90 | 6.5 | 1.3 | | 38.7 | 53.9 | 6.4 | 1 | | 30.8 | 0 | 0 | 69.2 | | 41.8 | 48.2 | 3 | 7 | | |
| Total % | 0.6 | 26.2 | 1.9 | 0.4 | 29.1 | 15.8 | 22.1 | 2.6 | 0.4 | 40.9 | 0.6 | 0 | 0 | 1.3 | 1.9 | 11.7 | 13.5 | 0.8 | 2 | 28.1 | |

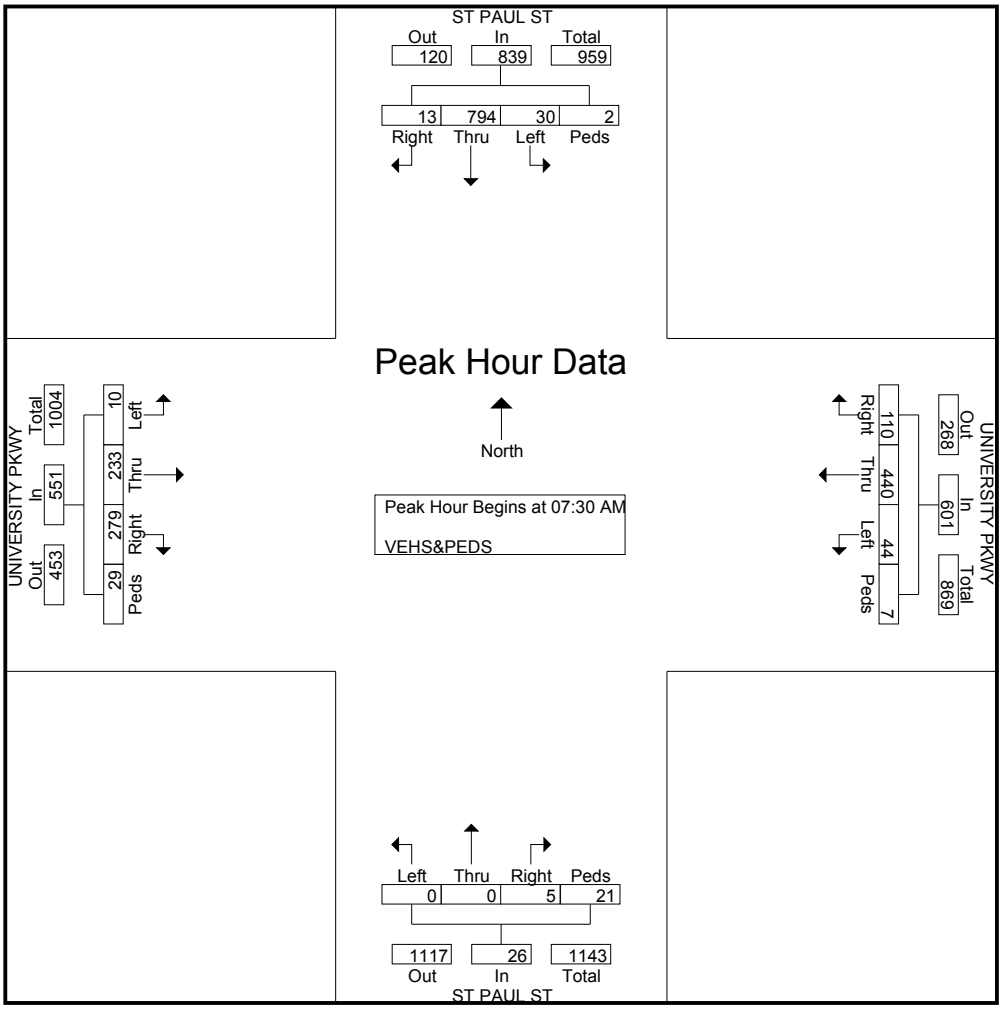


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at University Pkwy
Site Code : 00000000
Start Date : 9/22/2015
Page No : 3

| | ST PAUL ST From North | | | | | UNIVERSITY PKWY From East | | | | | ST PAUL ST From South | | | | | UNIVERSITY PKWY From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:30 AM | 2 | 200 | 3 | 0 | 205 | 30 | 96 | 7 | **4** | 137 | **3** | 0 | 0 | **9** | **12** | 70 | 53 | 2 | 3 | 128 | 482 |
| 07:45 AM | **5** | 188 | 8 | 0 | 201 | 24 | **158** | 8 | 1 | **191** | 2 | 0 | 0 | 3 | 5 | 50 | 53 | 1 | 8 | 112 | 509 |
| 08:00 AM | 3 | **204** | **11** | **1** | **219** | **34** | 91 | 10 | 1 | 136 | 0 | 0 | 0 | 5 | 5 | 76 | **64** | 3 | 4 | 147 | 507 |
| 08:15 AM | 3 | 202 | 8 | 1 | 214 | 22 | 95 | **19** | 1 | 137 | 0 | 0 | 0 | 4 | 4 | **83** | 63 | **4** | **14** | **164** | **519** |
| Total Volume | 13 | 794 | 30 | 2 | 839 | 110 | 440 | 44 | 7 | 601 | 5 | 0 | 0 | 21 | 26 | 279 | 233 | 10 | 29 | 551 | 2017 |
| % App. Total | 1.5 | 94.6 | 3.6 | 0.2 | | 18.3 | 73.2 | 7.3 | 1.2 | | 19.2 | 0 | 0 | 80.8 | | 50.6 | 42.3 | 1.8 | 5.3 | | |
| PHF | .650 | .973 | .682 | .500 | .958 | .809 | .696 | .579 | .438 | .787 | .417 | .000 | .000 | .583 | .542 | .840 | .910 | .625 | .518 | .840 | .972 |

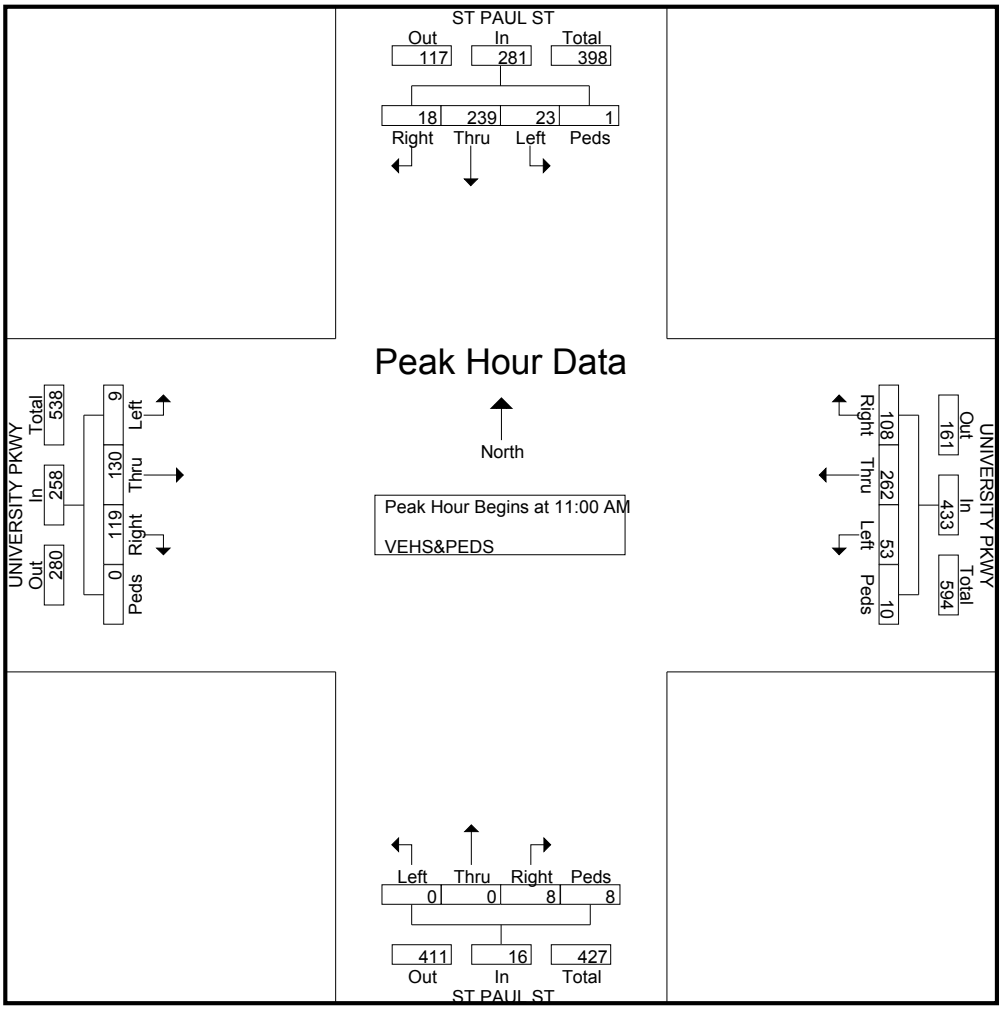


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*


File Name : St Paul St at University Pkwy
Site Code : 00000000
Start Date : 9/22/2015
Page No : 4

| | ST PAUL ST From North | | | | | UNIVERSITY PKWY From East | | | | | ST PAUL ST From South | | | | | UNIVERSITY PKWY From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 11:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 11:00 AM | 4 | 56 | **7** | **1** | 68 | 26 | 62 | 10 | 0 | 98 | 2 | 0 | 0 | 0 | 2 | 27 | 37 | 3 | 0 | 67 | 235 |
| 11:15 AM | 2 | 59 | 5 | 0 | 66 | 18 | 38 | 14 | 1 | 71 | 2 | 0 | 0 | 1 | 3 | 21 | 30 | 0 | 0 | 51 | 191 |
| 11:30 AM | 5 | 39 | 5 | 0 | 49 | 30 | 68 | 6 | 1 | 105 | 1 | 0 | 0 | **7** | **8** | **41** | 21 | 2 | 0 | 64 | 226 |
| 11:45 AM | **7** | **85** | 6 | 0 | **98** | **34** | **94** | **23** | **8** | **159** | **3** | 0 | 0 | 0 | 3 | 30 | **42** | **4** | 0 | **76** | **336** |
| Total Volume | 18 | 239 | 23 | 1 | 281 | 108 | 262 | 53 | 10 | 433 | 8 | 0 | 0 | 8 | 16 | 119 | 130 | 9 | 0 | 258 | 988 |
| % App. Total | 6.4 | 85.1 | 8.2 | 0.4 | | 24.9 | 60.5 | 12.2 | 2.3 | | 50 | 0 | 0 | 50 | | 46.1 | 50.4 | 3.5 | 0 | | |
| PHF | .643 | .703 | .821 | .250 | .717 | .794 | .697 | .576 | .313 | .681 | .667 | .000 | .000 | .286 | .500 | .726 | .774 | .563 | .000 | .849 | .735 |

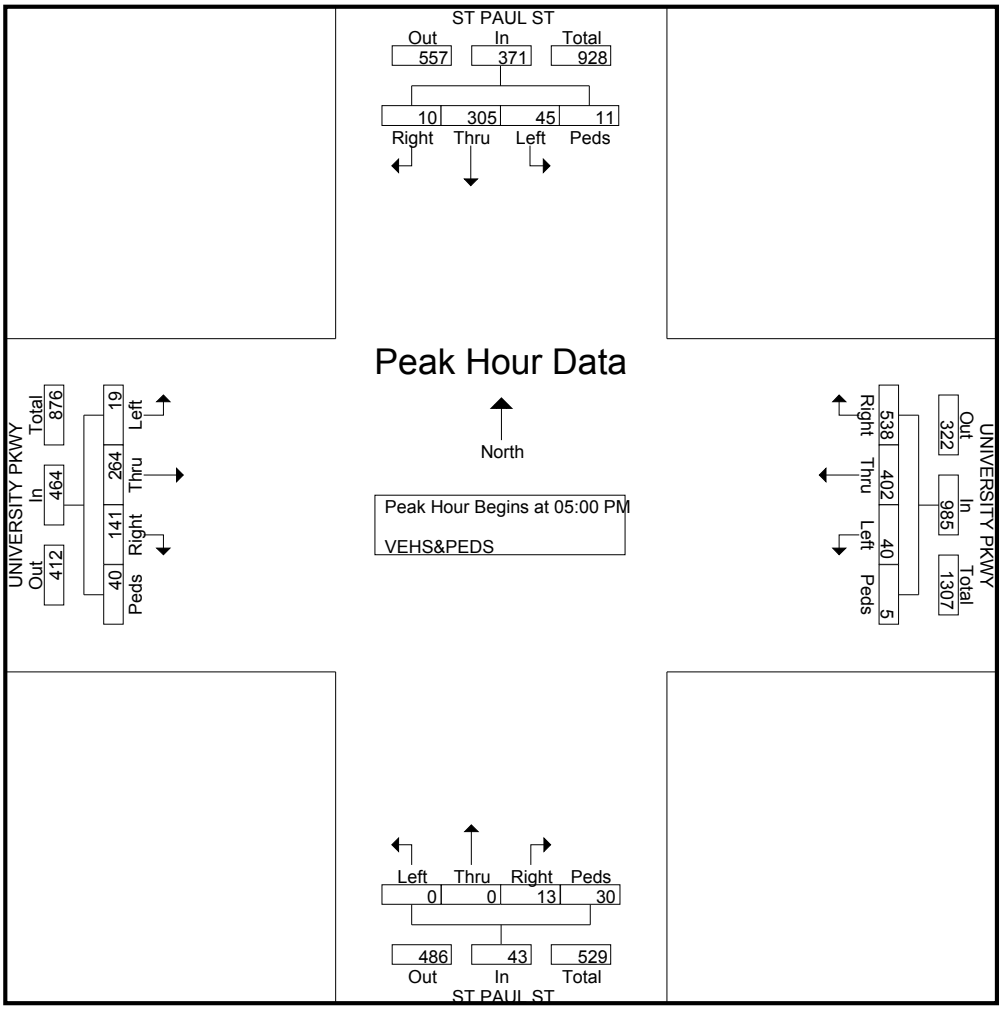


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at University Pkwy
Site Code : 00000000
Start Date : 9/22/2015
Page No : 5

| | ST PAUL ST From North | | | | | UNIVERSITY PKWY From East | | | | | ST PAUL ST From South | | | | | UNIVERSITY PKWY From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 05:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 05:00 PM | 0 | 72 | 5 | 1 | 78 | 127 | **102** | 10 | 0 | 239 | **6** | 0 | 0 | 4 | 10 | **39** | 63 | 8 | 3 | 113 | 440 |
| 05:15 PM | 3 | 75 | 11 | **4** | 93 | 107 | 102 | 8 | 1 | 218 | 2 | 0 | 0 | 3 | 5 | 32 | **90** | 2 | 9 | **133** | 449 |
| 05:30 PM | **5** | **83** | **23** | 4 | **115** | **170** | 100 | 7 | **2** | **279** | 4 | 0 | 0 | **17** | **21** | 34 | 59 | **9** | 11 | 113 | **528** |
| 05:45 PM | 2 | 75 | 6 | 2 | 85 | 134 | 98 | **15** | 2 | 249 | 1 | 0 | 0 | 6 | 7 | 36 | 52 | 0 | **17** | 105 | 446 |
| Total Volume | 10 | 305 | 45 | 11 | 371 | 538 | 402 | 40 | 5 | 985 | 13 | 0 | 0 | 30 | 43 | 141 | 264 | 19 | 40 | 464 | 1863 |
| % App. Total | 2.7 | 82.2 | 12.1 | 3 | | 54.6 | 40.8 | 4.1 | 0.5 | | 30.2 | 0 | 0 | 69.8 | | 30.4 | 56.9 | 4.1 | 8.6 | | |
| PHF | .500 | .919 | .489 | .688 | .807 | .791 | .985 | .667 | .625 | .883 | .542 | .000 | .000 | .441 | .512 | .904 | .733 | .528 | .588 | .872 | .882 |



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

Weather: SUNNY
Counted By: HORACE & GARY
Town: BALTIMORE CITY
County: BALTIMORE CITY

File Name : Calvert St at 33rd St
Site Code : 00000000
Start Date : 9/3/2015
Page No : 1

Groups Printed- VEHS&PEDS

| | CALVERT ST From North | | | | | 33RD ST From East | | | | | CALVERT ST From South | | | | | 33RD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 0 | 0 | 12 | 12 | 18 | 150 | 0 | 5 | 173 | 16 | 46 | 1 | 2 | 65 | 0 | 29 | 8 | 1 | 38 | 288 |
| 07:15 AM | 0 | 0 | 0 | 8 | 8 | 23 | 122 | 0 | 2 | 147 | 23 | 57 | 2 | 2 | 84 | 0 | 46 | 7 | 1 | 54 | 293 |
| 07:30 AM | 0 | 0 | 0 | 22 | 22 | 18 | 152 | 0 | 7 | 177 | 24 | 59 | 3 | 5 | 91 | 0 | 41 | 8 | 2 | 51 | 341 |
| 07:45 AM | 0 | 0 | 0 | 8 | 8 | 37 | 169 | 0 | 5 | 211 | 25 | 84 | 4 | 19 | 132 | 0 | 46 | 12 | 6 | 64 | 415 |
| Total | 0 | 0 | 0 | 50 | 50 | 96 | 593 | 0 | 19 | 708 | 88 | 246 | 10 | 28 | 372 | 0 | 162 | 35 | 10 | 207 | 1337 |
| 08:00 AM | 0 | 0 | 0 | 13 | 13 | 32 | 175 | 0 | 8 | 215 | 21 | 64 | 2 | 9 | 96 | 0 | 39 | 9 | 2 | 50 | 374 |
| 08:15 AM | 0 | 0 | 0 | 3 | 3 | 39 | 158 | 0 | 1 | 198 | 26 | 57 | 6 | 12 | 101 | 0 | 63 | 12 | 4 | 79 | 381 |
| 08:30 AM | 0 | 0 | 0 | 12 | 12 | 30 | 139 | 0 | 7 | 176 | 18 | 71 | 4 | 7 | 100 | 0 | 54 | 12 | 1 | 67 | 355 |
| 08:45 AM | 0 | 0 | 0 | 14 | 14 | 40 | 129 | 0 | 15 | 184 | 16 | 49 | 5 | 23 | 93 | 0 | 48 | 9 | 8 | 65 | 356 |
| Total | 0 | 0 | 0 | 42 | 42 | 141 | 601 | 0 | 31 | 773 | 81 | 241 | 17 | 51 | 390 | 0 | 204 | 42 | 15 | 261 | 1466 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 11:00 AM | 0 | 0 | 0 | 9 | 9 | 21 | 100 | 0 | 10 | 131 | 20 | 48 | 0 | 5 | 73 | 0 | 47 | 9 | 2 | 58 | 271 |
| 11:15 AM | 0 | 0 | 0 | 9 | 9 | 28 | 110 | 0 | 21 | 159 | 23 | 48 | 2 | 6 | 79 | 0 | 43 | 21 | 16 | 80 | 327 |
| 11:30 AM | 0 | 0 | 0 | 22 | 22 | 17 | 85 | 0 | 25 | 127 | 23 | 35 | 7 | 14 | 79 | 0 | 55 | 12 | 1 | 68 | 296 |
| 11:45 AM | 0 | 0 | 0 | 24 | 24 | 13 | 72 | 0 | 22 | 107 | 24 | 55 | 6 | 12 | 97 | 0 | 45 | 9 | 8 | 62 | 290 |
| Total | 0 | 0 | 0 | 64 | 64 | 79 | 367 | 0 | 78 | 524 | 90 | 186 | 15 | 37 | 328 | 0 | 190 | 51 | 27 | 268 | 1184 |
| 12:00 PM | 0 | 0 | 0 | 27 | 27 | 12 | 68 | 0 | 28 | 108 | 32 | 55 | 6 | 29 | 122 | 0 | 45 | 14 | 13 | 72 | 329 |
| 12:15 PM | 0 | 0 | 0 | 30 | 30 | 27 | 95 | 0 | 16 | 138 | 20 | 58 | 11 | 15 | 104 | 0 | 61 | 13 | 14 | 88 | 360 |
| 12:30 PM | 0 | 0 | 0 | 25 | 25 | 24 | 88 | 0 | 22 | 134 | 23 | 43 | 3 | 17 | 86 | 0 | 59 | 10 | 13 | 82 | 327 |
| 12:45 PM | 0 | 0 | 0 | 30 | 30 | 17 | 94 | 0 | 24 | 135 | 18 | 44 | 5 | 17 | 84 | 0 | 66 | 14 | 7 | 87 | 336 |
| Total | 0 | 0 | 0 | 112 | 112 | 80 | 345 | 0 | 90 | 515 | 93 | 200 | 25 | 78 | 396 | 0 | 231 | 51 | 47 | 329 | 1352 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 03:30 PM | 0 | 0 | 0 | 6 | 6 | 28 | 119 | 0 | 7 | 154 | 29 | 83 | 8 | 24 | 144 | 0 | 79 | 16 | 5 | 100 | 404 |
| 03:45 PM | 0 | 0 | 0 | 10 | 10 | 39 | 109 | 0 | 10 | 158 | 26 | 84 | 4 | 17 | 131 | 0 | 90 | 11 | 10 | 111 | 410 |
| Total | 0 | 0 | 0 | 16 | 16 | 67 | 228 | 0 | 17 | 312 | 55 | 167 | 12 | 41 | 275 | 0 | 169 | 27 | 15 | 211 | 814 |
| 04:00 PM | 0 | 0 | 0 | 5 | 5 | 16 | 118 | 0 | 6 | 140 | 34 | 90 | 7 | 7 | 138 | 0 | 104 | 8 | 4 | 116 | 399 |
| 04:15 PM | 0 | 0 | 0 | 10 | 10 | 14 | 103 | 0 | 8 | 125 | 49 | 92 | 8 | 18 | 167 | 0 | 97 | 10 | 5 | 112 | 414 |
| 04:30 PM | 0 | 0 | 0 | 19 | 19 | 16 | 127 | 0 | 8 | 151 | 37 | 136 | 3 | 13 | 189 | 0 | 100 | 14 | 5 | 119 | 478 |
| 04:45 PM | 0 | 0 | 0 | 5 | 5 | 14 | 165 | 0 | 9 | 188 | 38 | 142 | 1 | 12 | 193 | 0 | 89 | 10 | 6 | 105 | 491 |
| Total | 0 | 0 | 0 | 39 | 39 | 60 | 513 | 0 | 31 | 604 | 158 | 460 | 19 | 50 | 687 | 0 | 390 | 42 | 20 | 452 | 1782 |

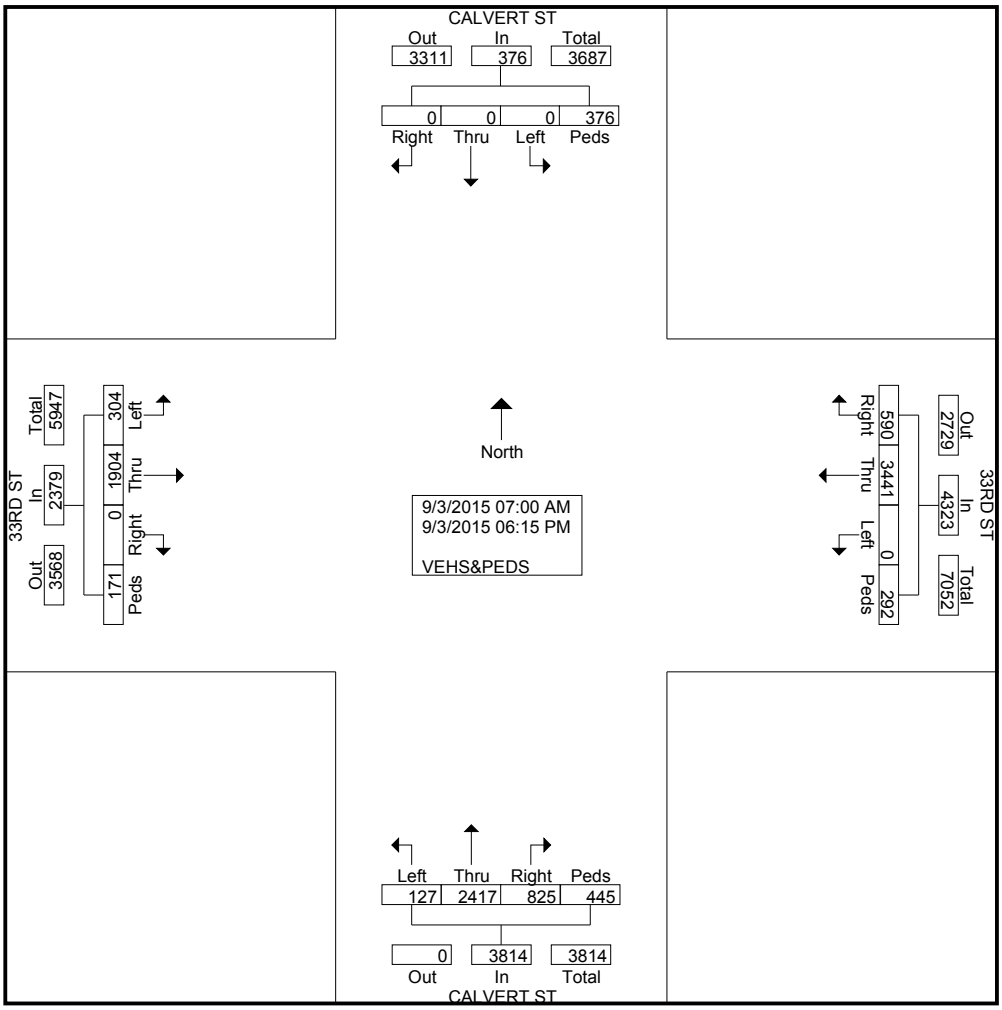
# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at 33rd St
Site Code : 00000000
Start Date : 9/3/2015
Page No : 2

Groups Printed- VEHS&PEDS

| | CALVERT ST From North | | | | | 33RD ST From East | | | | | CALVERT ST From South | | | | | 33RD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 05:00 PM | 0 | 0 | 0 | 17 | 17 | 18 | 105 | 0 | 3 | 126 | 44 | 150 | 4 | 21 | 219 | 0 | 103 | 14 | 2 | 119 | 481 |
| 05:15 PM | 0 | 0 | 0 | 7 | 7 | 11 | 161 | 0 | 4 | 176 | 54 | 181 | 8 | 21 | 264 | 0 | 100 | 9 | 4 | 113 | 560 |
| 05:30 PM | 0 | 0 | 0 | 3 | 3 | 6 | 122 | 0 | 5 | 133 | 42 | 211 | 1 | 48 | 302 | 0 | 88 | 12 | 8 | 108 | 546 |
| 05:45 PM | 0 | 0 | 0 | 10 | 10 | 9 | 126 | 0 | 6 | 141 | 39 | 166 | 4 | 22 | 231 | 0 | 94 | 7 | 8 | 109 | 491 |
| Total | 0 | 0 | 0 | 37 | 37 | 44 | 514 | 0 | 18 | 576 | 179 | 708 | 17 | 112 | 1016 | 0 | 385 | 42 | 22 | 449 | 2078 |
| 06:00 PM | 0 | 0 | 0 | 11 | 11 | 11 | 131 | 0 | 7 | 149 | 40 | 105 | 2 | 26 | 173 | 0 | 98 | 6 | 7 | 111 | 444 |
| 06:15 PM | 0 | 0 | 0 | 5 | 5 | 12 | 149 | 0 | 1 | 162 | 41 | 104 | 10 | 22 | 177 | 0 | 75 | 8 | 8 | 91 | 435 |
| Grand Total | 0 | 0 | 0 | 376 | 376 | 590 | 3441 | 0 | 292 | 4323 | 825 | 2417 | 127 | 445 | 3814 | 0 | 1904 | 304 | 171 | 2379 | 10892 |
| Apprch % | 0 | 0 | 0 | 100 | | 13.6 | 79.6 | 0 | 6.8 | | 21.6 | 63.4 | 3.3 | 11.7 | | 0 | 80 | 12.8 | 7.2 | | |
| Total % | 0 | 0 | 0 | 3.5 | 3.5 | 5.4 | 31.6 | 0 | 2.7 | 39.7 | 7.6 | 22.2 | 1.2 | 4.1 | 35 | 0 | 17.5 | 2.8 | 1.6 | 21.8 | |

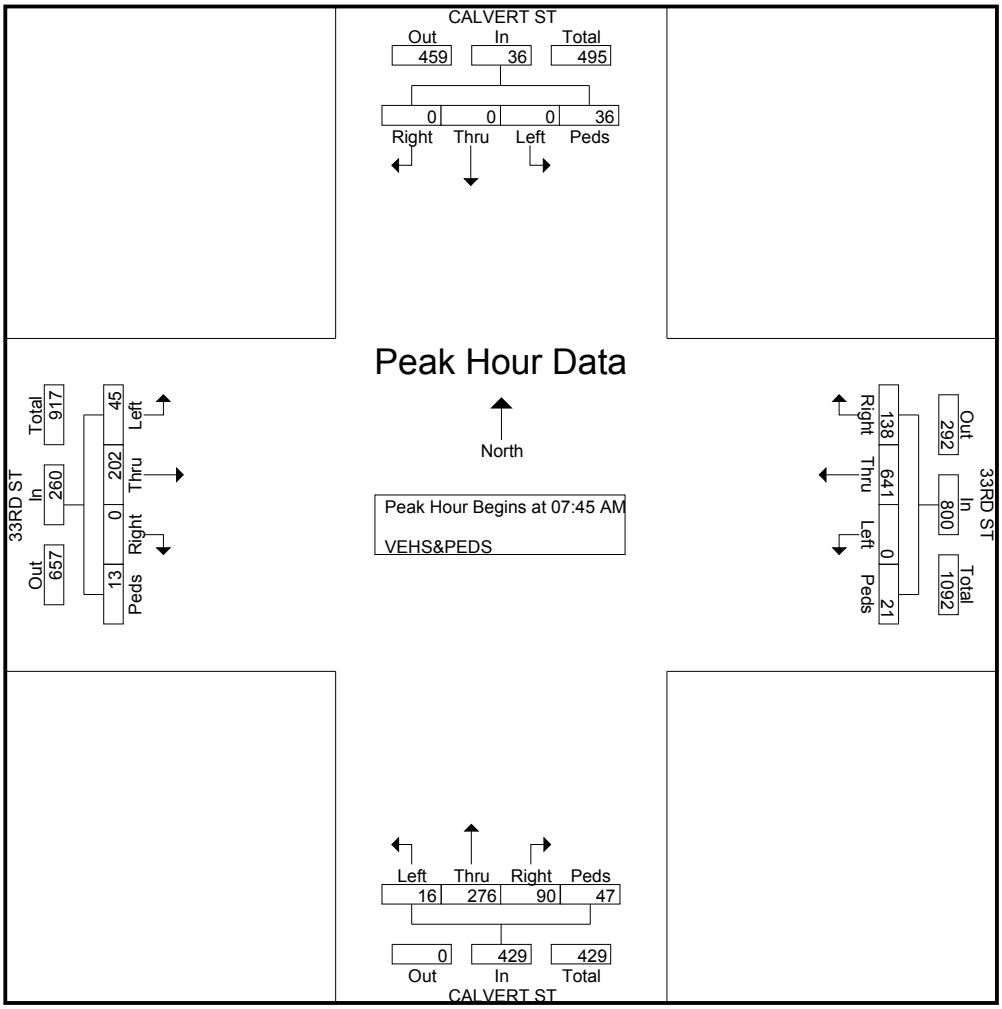


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at 33rd St
Site Code : 00000000
Start Date : 9/3/2015
Page No : 3

| | CALVERT ST From North | | | | | 33RD ST From East | | | | | CALVERT ST From South | | | | | 33RD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:45 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:45 AM | 0 | 0 | 0 | 8 | 8 | 37 | 169 | 0 | 5 | 211 | 25 | **84** | 4 | **19** | **132** | 0 | 46 | **12** | **6** | 64 | **415** |
| 08:00 AM | 0 | 0 | 0 | **13** | **13** | 32 | **175** | 0 | **8** | **215** | 21 | 64 | 2 | 9 | 96 | 0 | 39 | 9 | 2 | 50 | 374 |
| 08:15 AM | 0 | 0 | 0 | 3 | 3 | **39** | 158 | 0 | 1 | 198 | **26** | 57 | **6** | 12 | 101 | 0 | **63** | 12 | 4 | **79** | 381 |
| 08:30 AM | 0 | 0 | 0 | 12 | 12 | 30 | 139 | 0 | 7 | 176 | 18 | 71 | 4 | 7 | 100 | 0 | 54 | 12 | 1 | 67 | 355 |
| Total Volume | 0 | 0 | 0 | 36 | 36 | 138 | 641 | 0 | 21 | 800 | 90 | 276 | 16 | 47 | 429 | 0 | 202 | 45 | 13 | 260 | 1525 |
| % App. Total | 0 | 0 | 0 | 100 | | 17.2 | 80.1 | 0 | 2.6 | | 21 | 64.3 | 3.7 | 11 | | 0 | 77.7 | 17.3 | 5 | | |
| PHF | .000 | .000 | .000 | .692 | .692 | .885 | .916 | .000 | .656 | .930 | .865 | .821 | .667 | .618 | .813 | .000 | .802 | .938 | .542 | .823 | .919 |

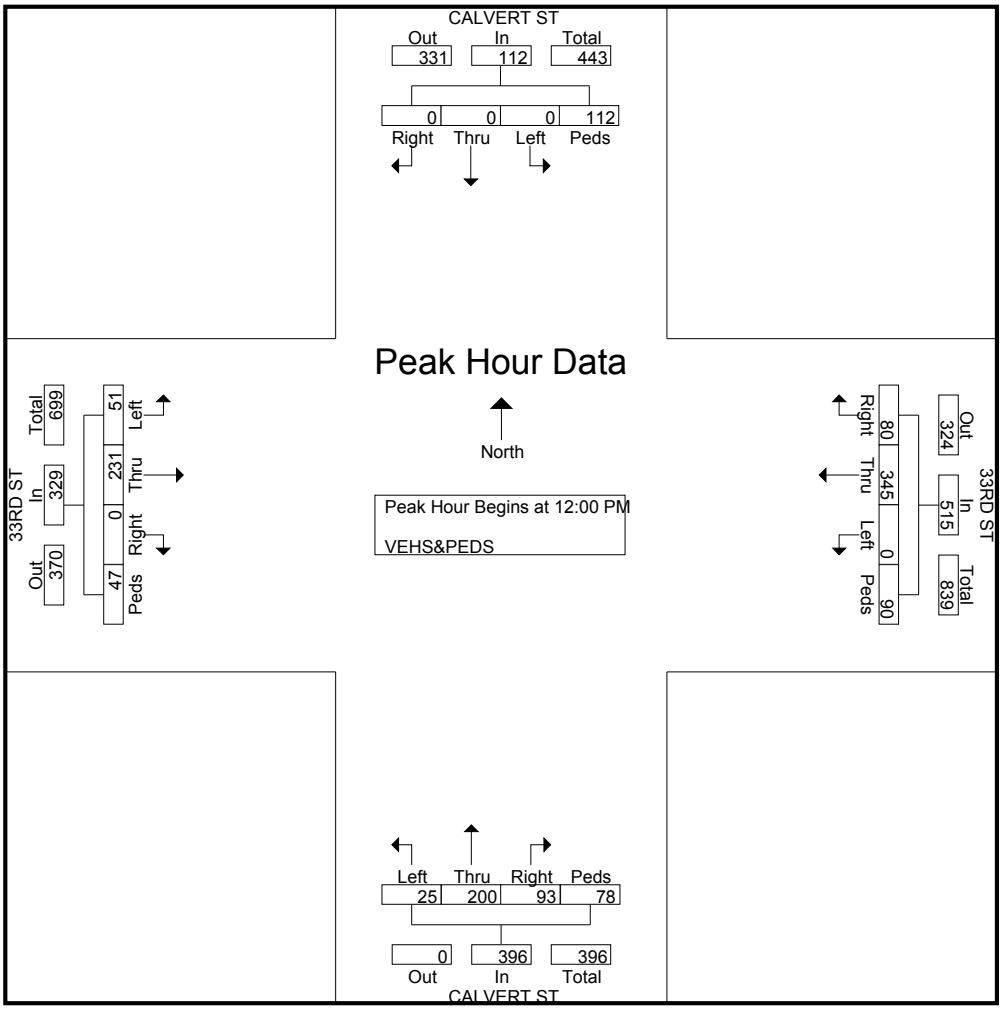


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*


File Name : Calvert St at 33rd St
Site Code : 00000000
Start Date : 9/3/2015
Page No : 4

| | CALVERT ST From North | | | | | 33RD ST From East | | | | | CALVERT ST From South | | | | | 33RD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 12:00 PM | 0 | 0 | 0 | 27 | 27 | 12 | 68 | 0 | **28** | 108 | **32** | 55 | 6 | **29** | **122** | 0 | 45 | **14** | 13 | 72 | 329 |
| 12:15 PM | 0 | 0 | 0 | **30** | **30** | **27** | **95** | 0 | 16 | **138** | 20 | **58** | **11** | 15 | 104 | 0 | 61 | 13 | **14** | **88** | **360** |
| 12:30 PM | 0 | 0 | 0 | 25 | 25 | 24 | 88 | 0 | 22 | 134 | 23 | 43 | 3 | 17 | 86 | 0 | 59 | 10 | 13 | 82 | 327 |
| 12:45 PM | 0 | 0 | 0 | 30 | 30 | 17 | 94 | 0 | 24 | 135 | 18 | 44 | 5 | 17 | 84 | 0 | **66** | 14 | 7 | 87 | 336 |
| Total Volume | 0 | 0 | 0 | 112 | 112 | 80 | 345 | 0 | 90 | 515 | 93 | 200 | 25 | 78 | 396 | 0 | 231 | 51 | 47 | 329 | 1352 |
| % App. Total | 0 | 0 | 0 | 100 | | 15.5 | 67 | 0 | 17.5 | | 23.5 | 50.5 | 6.3 | 19.7 | | 0 | 70.2 | 15.5 | 14.3 | | |
| PHF | .000 | .000 | .000 | .933 | .933 | .741 | .908 | .000 | .804 | .933 | .727 | .862 | .568 | .672 | .811 | .000 | .875 | .911 | .839 | .935 | .939 |

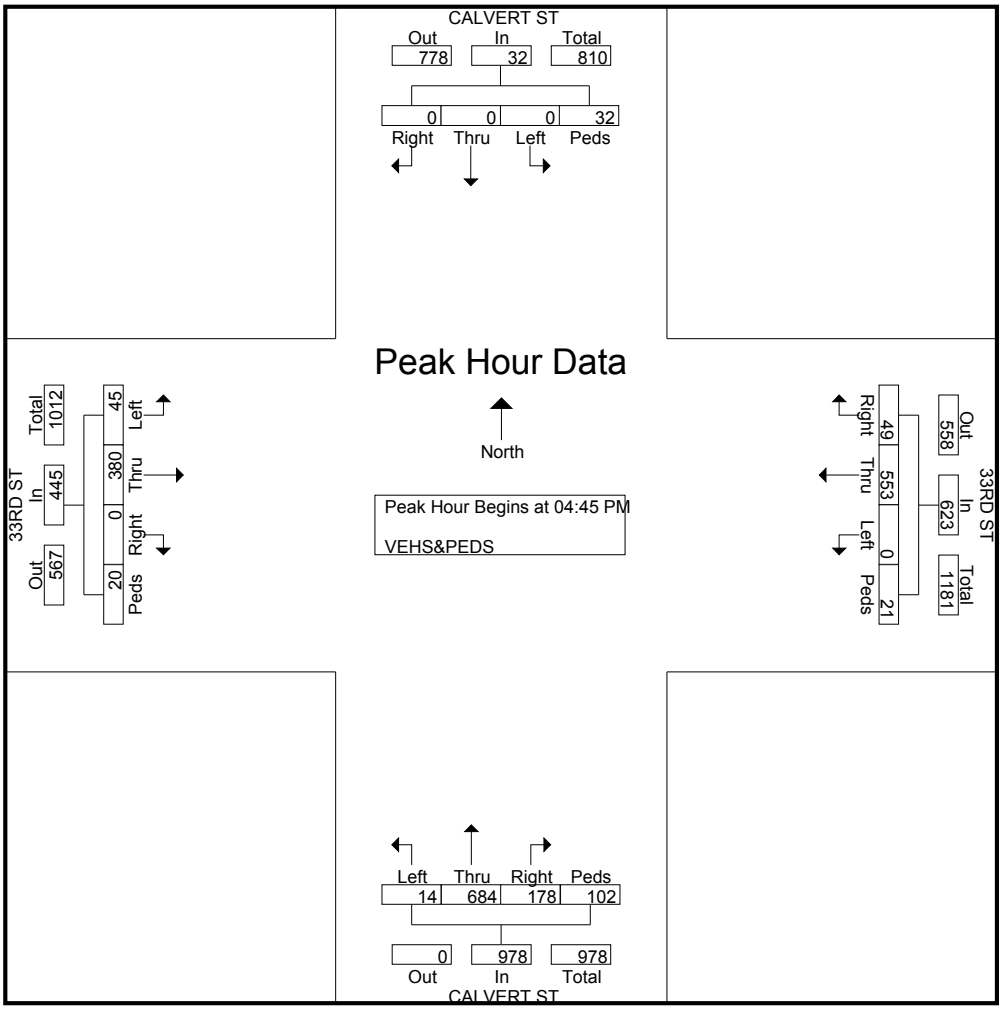


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*


File Name : Calvert St at 33rd St
Site Code : 00000000
Start Date : 9/3/2015
Page No : 5

| | CALVERT ST From North | | | | | 33RD ST From East | | | | | CALVERT ST From South | | | | | 33RD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:45 PM | 0 | 0 | 0 | 5 | 5 | 14 | **165** | 0 | **9** | **188** | 38 | 142 | 1 | 12 | 193 | 0 | 89 | 10 | 6 | 105 | 491 |
| 05:00 PM | 0 | 0 | 0 | **17** | **17** | **18** | 105 | 0 | 3 | 126 | 44 | 150 | 4 | 21 | 219 | 0 | **103** | **14** | 2 | **119** | 481 |
| 05:15 PM | 0 | 0 | 0 | 7 | 7 | 11 | 161 | 0 | 4 | 176 | **54** | 181 | **8** | 21 | 264 | 0 | 100 | 9 | 4 | 113 | **560** |
| 05:30 PM | 0 | 0 | 0 | 3 | 3 | 6 | 122 | 0 | 5 | 133 | 42 | **211** | 1 | **48** | **302** | 0 | 88 | 12 | **8** | 108 | 546 |
| Total Volume | 0 | 0 | 0 | 32 | 32 | 49 | 553 | 0 | 21 | 623 | 178 | 684 | 14 | 102 | 978 | 0 | 380 | 45 | 20 | 445 | 2078 |
| % App. Total | 0 | 0 | 0 | 100 | | 7.9 | 88.8 | 0 | 3.4 | | 18.2 | 69.9 | 1.4 | 10.4 | | 0 | 85.4 | 10.1 | 4.5 | | |
| PHF | .000 | .000 | .000 | .471 | .471 | .681 | .838 | .000 | .583 | .828 | .824 | .810 | .438 | .531 | .810 | .000 | .922 | .804 | .625 | .935 | .928 |



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

Weather: SUNNY
Counted By: DEVRIN
Town: BALTIMORE CITY
County: BALTIMORE CITY

File Name : Calvert St at 29th St
Site Code : 00000000
Start Date : 9/3/2015
Page No : 1

Groups Printed- VEHS&PEDS

| | CALVERT ST From North | | | | | 29TH ST From East | | | | | CALVERT ST From South | | | | | 29TH ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 0 | 0 | 7 | 7 | 6 | 185 | 0 | 4 | 195 | 0 | 68 | 10 | 1 | 79 | 0 | 0 | 0 | 3 | 3 | 284 |
| 07:15 AM | 0 | 0 | 0 | 3 | 3 | 5 | 241 | 0 | 0 | 246 | 0 | 85 | 18 | 0 | 103 | 0 | 0 | 0 | 2 | 2 | 354 |
| 07:30 AM | 0 | 0 | 0 | 1 | 1 | 5 | 304 | 0 | 1 | 310 | 0 | 90 | 17 | 0 | 107 | 0 | 0 | 0 | 1 | 1 | 419 |
| 07:45 AM | 0 | 0 | 0 | 5 | 5 | 1 | 274 | 0 | 4 | 279 | 0 | 86 | 12 | 5 | 103 | 0 | 0 | 0 | 1 | 1 | 388 |
| Total | 0 | 0 | 0 | 16 | 16 | 17 | 1004 | 0 | 9 | 1030 | 0 | 329 | 57 | 6 | 392 | 0 | 0 | 0 | 7 | 7 | 1445 |
| 08:00 AM | 0 | 0 | 0 | 8 | 8 | 5 | 280 | 0 | 1 | 286 | 0 | 87 | 19 | 1 | 107 | 0 | 0 | 0 | 2 | 2 | 403 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 4 | 270 | 0 | 3 | 277 | 0 | 96 | 24 | 1 | 121 | 0 | 0 | 0 | 1 | 1 | 399 |
| 08:30 AM | 0 | 0 | 0 | 3 | 3 | 5 | 272 | 0 | 1 | 278 | 0 | 82 | 20 | 2 | 104 | 0 | 0 | 0 | 1 | 1 | 386 |
| 08:45 AM | 0 | 0 | 0 | 2 | 2 | 4 | 161 | 0 | 7 | 172 | 0 | 68 | 8 | 0 | 76 | 0 | 0 | 0 | 0 | 0 | 250 |
| Total | 0 | 0 | 0 | 13 | 13 | 18 | 983 | 0 | 12 | 1013 | 0 | 333 | 71 | 4 | 408 | 0 | 0 | 0 | 4 | 4 | 1438 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 11:00 AM | 0 | 0 | 0 | 0 | 0 | 6 | 114 | 0 | 1 | 121 | 0 | 75 | 13 | 1 | 89 | 0 | 0 | 0 | 2 | 2 | 212 |
| 11:15 AM | 0 | 0 | 0 | 0 | 0 | 4 | 115 | 0 | 0 | 119 | 0 | 87 | 17 | 0 | 104 | 0 | 0 | 0 | 1 | 1 | 224 |
| 11:30 AM | 0 | 0 | 0 | 1 | 1 | 6 | 119 | 0 | 8 | 133 | 0 | 98 | 20 | 0 | 118 | 0 | 0 | 0 | 2 | 2 | 254 |
| 11:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 107 | 0 | 1 | 110 | 0 | 79 | 14 | 0 | 93 | 0 | 0 | 0 | 2 | 2 | 205 |
| Total | 0 | 0 | 0 | 1 | 1 | 18 | 455 | 0 | 10 | 483 | 0 | 339 | 64 | 1 | 404 | 0 | 0 | 0 | 7 | 7 | 895 |
| 12:00 PM | 0 | 0 | 0 | 1 | 1 | 2 | 114 | 0 | 2 | 118 | 0 | 108 | 14 | 4 | 126 | 0 | 0 | 0 | 2 | 2 | 247 |
| 12:15 PM | 0 | 0 | 0 | 0 | 0 | 9 | 99 | 0 | 3 | 111 | 0 | 92 | 10 | 1 | 103 | 0 | 0 | 0 | 3 | 3 | 217 |
| 12:30 PM | 0 | 0 | 0 | 4 | 4 | 4 | 111 | 0 | 20 | 135 | 0 | 82 | 12 | 0 | 94 | 0 | 0 | 0 | 0 | 0 | 233 |
| 12:45 PM | 0 | 0 | 0 | 2 | 2 | 6 | 120 | 0 | 0 | 126 | 0 | 74 | 11 | 2 | 87 | 0 | 0 | 0 | 2 | 2 | 217 |
| Total | 0 | 0 | 0 | 7 | 7 | 21 | 444 | 0 | 25 | 490 | 0 | 356 | 47 | 7 | 410 | 0 | 0 | 0 | 7 | 7 | 914 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 03:30 PM | 0 | 0 | 0 | 0 | 0 | 5 | 134 | 0 | 1 | 140 | 0 | 114 | 15 | 3 | 132 | 0 | 0 | 0 | 0 | 0 | 272 |
| 03:45 PM | 0 | 0 | 0 | 1 | 1 | 3 | 124 | 0 | 0 | 127 | 0 | 133 | 17 | 5 | 155 | 0 | 0 | 0 | 1 | 1 | 284 |
| Total | 0 | 0 | 0 | 1 | 1 | 8 | 258 | 0 | 1 | 267 | 0 | 247 | 32 | 8 | 287 | 0 | 0 | 0 | 1 | 1 | 556 |
| 04:00 PM | 0 | 0 | 0 | 2 | 2 | 4 | 145 | 0 | 0 | 149 | 0 | 140 | 27 | 1 | 168 | 0 | 0 | 0 | 5 | 5 | 324 |
| 04:15 PM | 0 | 0 | 0 | 1 | 1 | 3 | 147 | 0 | 3 | 153 | 0 | 134 | 18 | 1 | 153 | 0 | 0 | 0 | 7 | 7 | 314 |
| 04:30 PM | 0 | 0 | 0 | 2 | 2 | 7 | 168 | 0 | 3 | 178 | 0 | 199 | 20 | 2 | 221 | 0 | 0 | 0 | 3 | 3 | 404 |
| 04:45 PM | 0 | 0 | 0 | 1 | 1 | 3 | 133 | 0 | 3 | 139 | 0 | 197 | 13 | 1 | 211 | 0 | 0 | 0 | 1 | 1 | 352 |
| Total | 0 | 0 | 0 | 6 | 6 | 17 | 593 | 0 | 9 | 619 | 0 | 670 | 78 | 5 | 753 | 0 | 0 | 0 | 16 | 16 | 1394 |

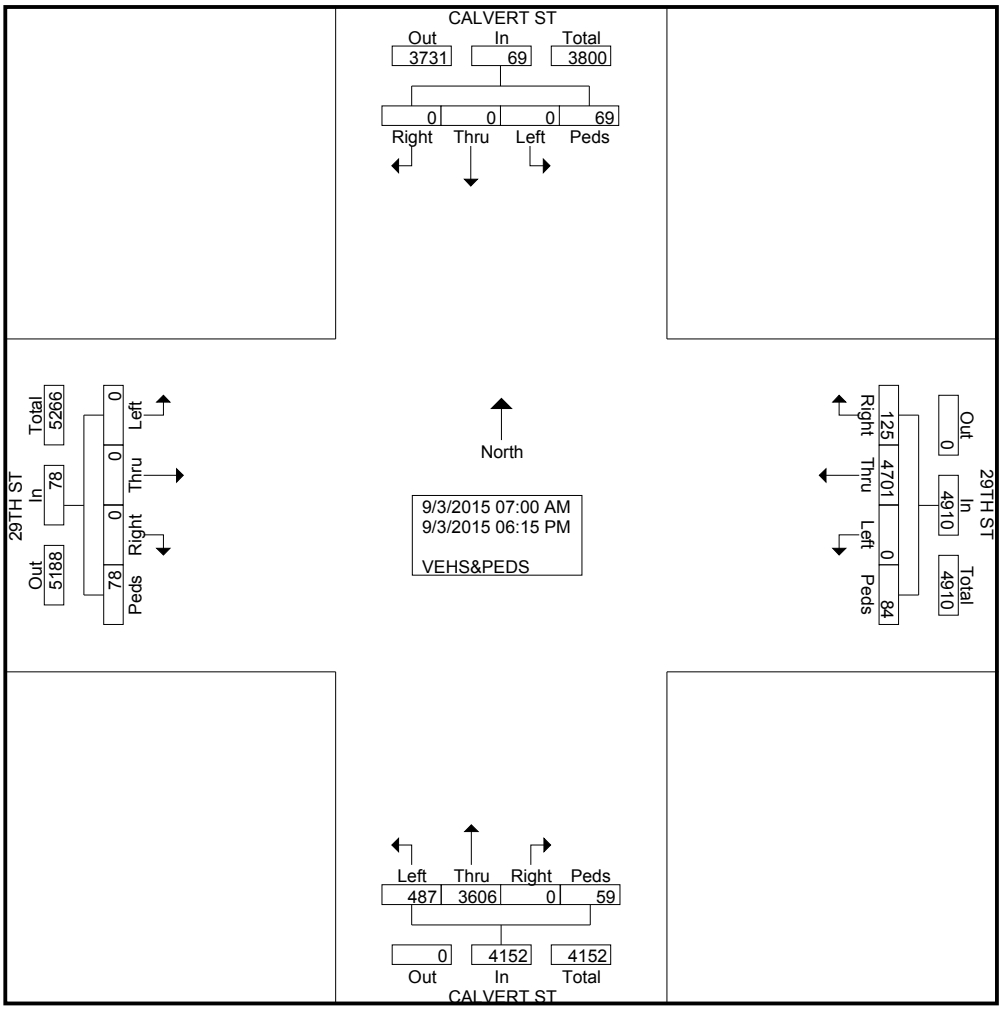
# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at 29th St
Site Code : 00000000
Start Date : 9/3/2015
Page No : 2

Groups Printed- VEHS&PEDS

| | CALVERT ST From North | | | | | 29TH ST From East | | | | | CALVERT ST From South | | | | | 29TH ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 05:00 PM | 0 | 0 | 0 | 5 | 5 | 6 | 177 | 0 | 4 | 187 | 0 | 218 | 32 | 2 | 252 | 0 | 0 | 0 | 3 | 3 | 447 |
| 05:15 PM | 0 | 0 | 0 | 1 | 1 | 7 | 159 | 0 | 1 | 167 | 0 | 284 | 23 | 0 | 307 | 0 | 0 | 0 | 5 | 5 | 480 |
| 05:30 PM | 0 | 0 | 0 | 5 | 5 | 2 | 147 | 0 | 4 | 153 | 0 | 247 | 22 | 8 | 277 | 0 | 0 | 0 | 7 | 7 | 442 |
| 05:45 PM | 0 | 0 | 0 | 6 | 6 | 4 | 175 | 0 | 3 | 182 | 0 | 245 | 21 | 5 | 271 | 0 | 0 | 0 | 6 | 6 | 465 |
| Total | 0 | 0 | 0 | 17 | 17 | 19 | 658 | 0 | 12 | 689 | 0 | 994 | 98 | 15 | 1107 | 0 | 0 | 0 | 21 | 21 | 1834 |
| 06:00 PM | 0 | 0 | 0 | 3 | 3 | 5 | 175 | 0 | 2 | 182 | 0 | 172 | 17 | 6 | 195 | 0 | 0 | 0 | 8 | 8 | 388 |
| 06:15 PM | 0 | 0 | 0 | 5 | 5 | 2 | 131 | 0 | 4 | 137 | 0 | 166 | 23 | 7 | 196 | 0 | 0 | 0 | 7 | 7 | 345 |
| Grand Total | 0 | 0 | 0 | 69 | 69 | 125 | 4701 | 0 | 84 | 4910 | 0 | 3606 | 487 | 59 | 4152 | 0 | 0 | 0 | 78 | 78 | 9209 |
| Apprch % | 0 | 0 | 0 | 100 | | 2.5 | 95.7 | 0 | 1.7 | | 0 | 86.8 | 11.7 | 1.4 | | 0 | 0 | 0 | 100 | | |
| Total % | 0 | 0 | 0 | 0.7 | 0.7 | 1.4 | 51 | 0 | 0.9 | 53.3 | 0 | 39.2 | 5.3 | 0.6 | 45.1 | 0 | 0 | 0 | 0.8 | 0.8 | |

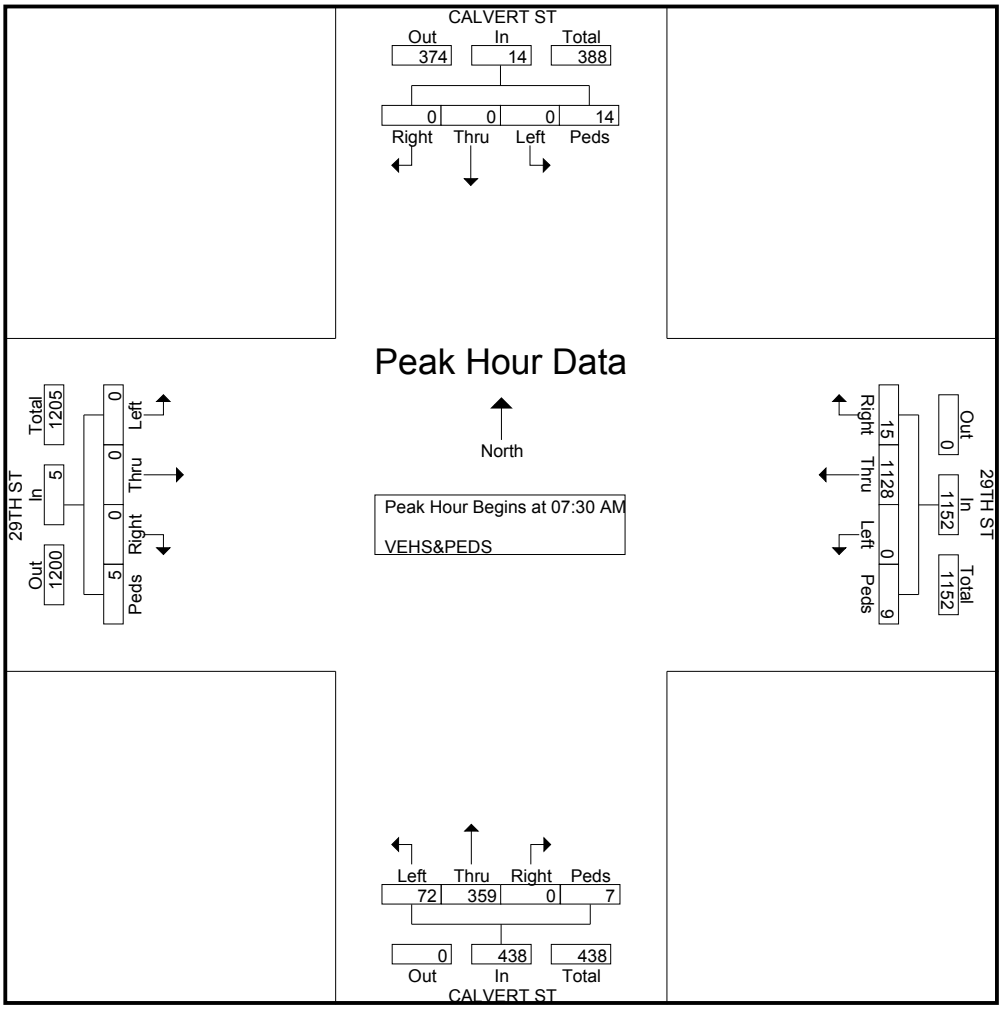


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at 29th St
Site Code : 00000000
Start Date : 9/3/2015
Page No : 3

| | CALVERT ST From North | | | | | 29TH ST From East | | | | | CALVERT ST From South | | | | | 29TH ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:30 AM | 0 | 0 | 0 | 1 | 1 | **5** | **304** | 0 | 1 | **310** | 0 | 90 | 17 | 0 | 107 | 0 | 0 | 0 | 1 | 1 | **419** |
| 07:45 AM | 0 | 0 | 0 | 5 | 5 | 1 | 274 | 0 | **4** | 279 | 0 | 86 | 12 | **5** | 103 | 0 | 0 | 0 | 1 | 1 | 388 |
| 08:00 AM | 0 | 0 | 0 | **8** | **8** | 5 | 280 | 0 | 1 | 286 | 0 | 87 | 19 | 1 | 107 | 0 | 0 | 0 | **2** | **2** | 403 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 4 | 270 | 0 | 3 | 277 | 0 | **96** | **24** | 1 | **121** | 0 | 0 | 0 | 1 | 1 | 399 |
| Total Volume | 0 | 0 | 0 | 14 | 14 | 15 | 1128 | 0 | 9 | 1152 | 0 | 359 | 72 | 7 | 438 | 0 | 0 | 0 | 5 | 5 | 1609 |
| % App. Total | 0 | 0 | 0 | 100 | | 1.3 | 97.9 | 0 | 0.8 | | 0 | 82 | 16.4 | 1.6 | | 0 | 0 | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .438 | .438 | .750 | .928 | .000 | .563 | .929 | .000 | .935 | .750 | .350 | .905 | .000 | .000 | .000 | .625 | .625 | .960 |

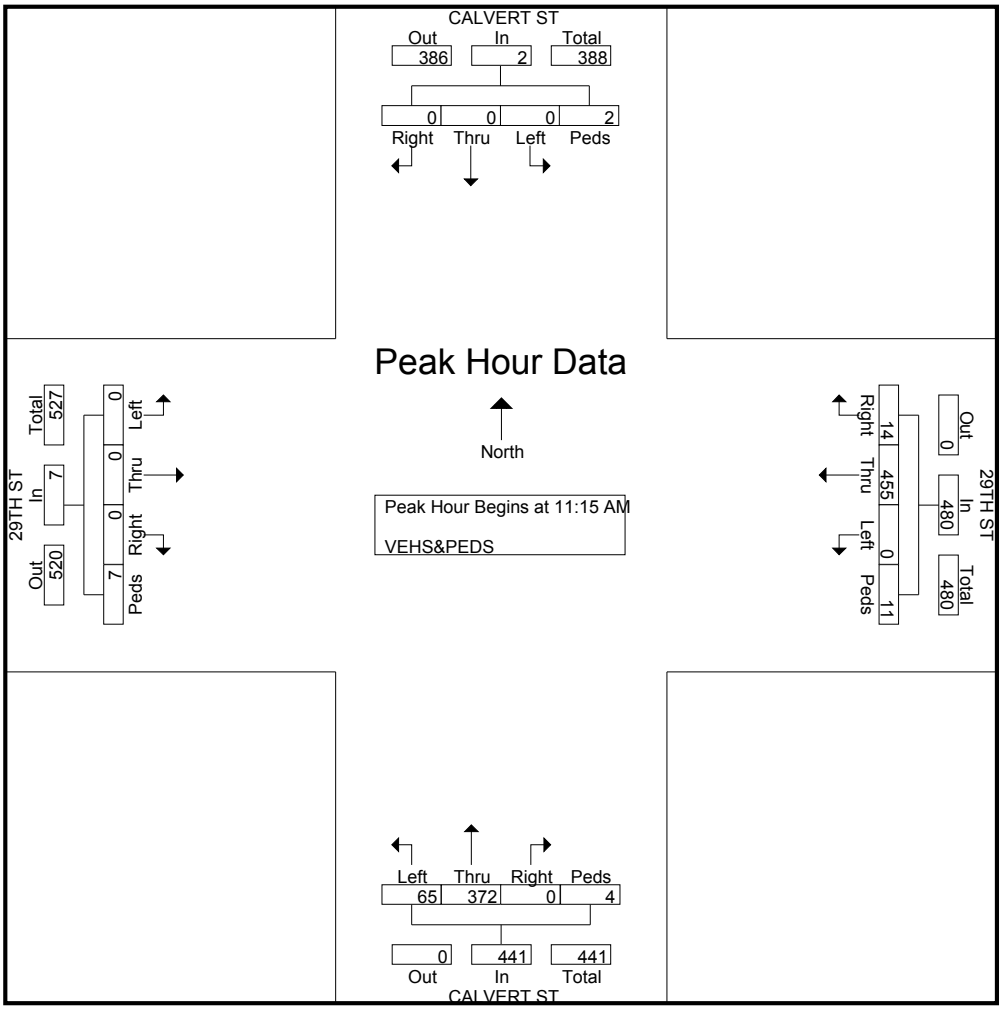


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at 29th St
Site Code : 00000000
Start Date : 9/3/2015
Page No : 4

| | CALVERT ST From North | | | | | 29TH ST From East | | | | | CALVERT ST From South | | | | | 29TH ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 11:15 AM | | | | | | | | | | | | | | | | | | | | | |
| 11:15 AM | 0 | 0 | 0 | 0 | 0 | 4 | 115 | 0 | 0 | 119 | 0 | 87 | 17 | 0 | 104 | 0 | 0 | 0 | 1 | 1 | 224 |
| 11:30 AM | 0 | 0 | 0 | **1** | **1** | **6** | **119** | 0 | **8** | **133** | 0 | 98 | **20** | 0 | 118 | 0 | 0 | 0 | **2** | **2** | **254** |
| 11:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 107 | 0 | 1 | 110 | 0 | 79 | 14 | 0 | 93 | 0 | 0 | 0 | 2 | 2 | 205 |
| 12:00 PM | 0 | 0 | 0 | 1 | 1 | 2 | 114 | 0 | 2 | 118 | 0 | **108** | 14 | **4** | **126** | 0 | 0 | 0 | 2 | 2 | 247 |
| Total Volume | 0 | 0 | 0 | 2 | 2 | 14 | 455 | 0 | 11 | 480 | 0 | 372 | 65 | 4 | 441 | 0 | 0 | 0 | 7 | 7 | 930 |
| % App. Total | 0 | 0 | 0 | 100 | | 2.9 | 94.8 | 0 | 2.3 | | 0 | 84.4 | 14.7 | 0.9 | | 0 | 0 | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .500 | .500 | .583 | .956 | .000 | .344 | .902 | .000 | .861 | .813 | .250 | .875 | .000 | .000 | .000 | .875 | .875 | .915 |

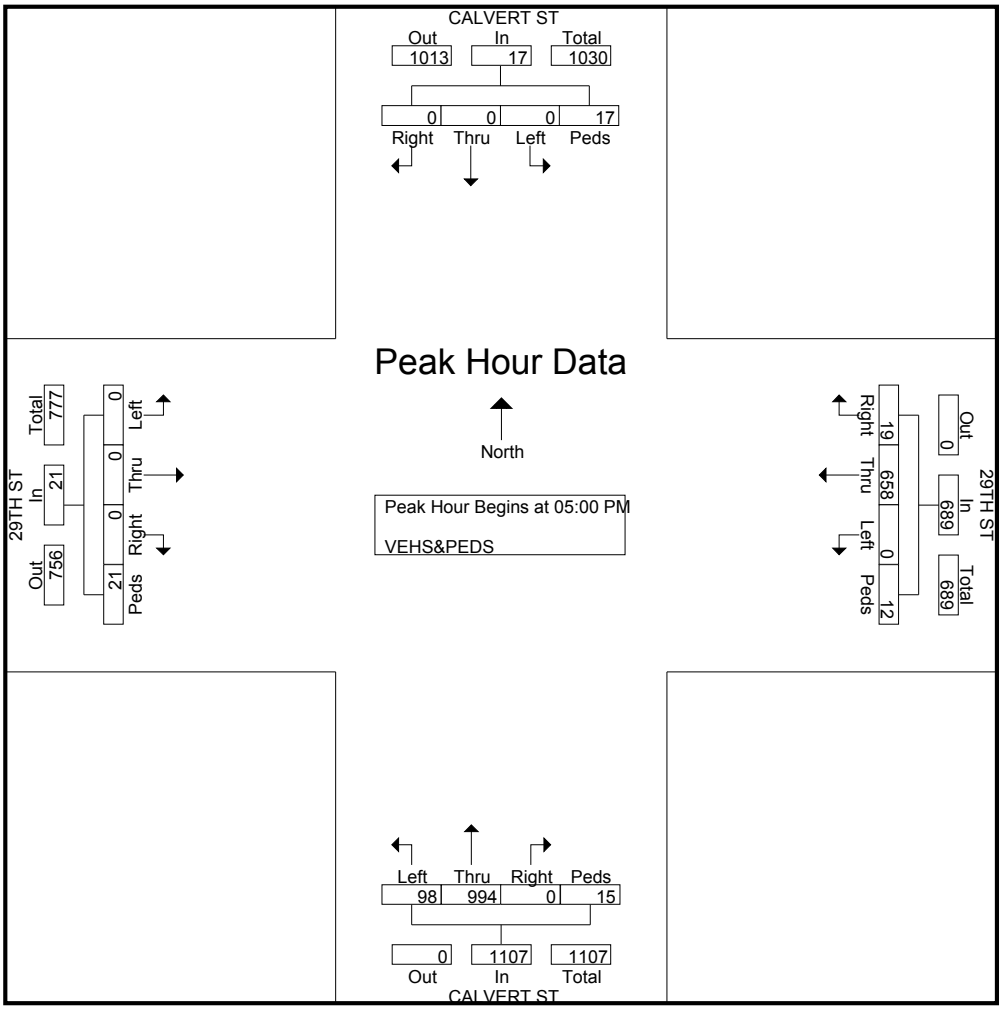


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at 29th St
Site Code : 00000000
Start Date : 9/3/2015
Page No : 5

| | CALVERT ST From North | | | | | 29TH ST From East | | | | | CALVERT ST From South | | | | | 29TH ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 05:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 05:00 PM | 0 | 0 | 0 | 5 | 5 | 6 | **177** | 0 | **4** | **187** | 0 | 218 | **32** | 2 | 252 | 0 | 0 | 0 | 3 | 3 | 447 |
| 05:15 PM | 0 | 0 | 0 | 1 | 1 | **7** | 159 | 0 | 1 | 167 | 0 | **284** | 23 | 0 | **307** | 0 | 0 | 0 | 5 | 5 | **480** |
| 05:30 PM | 0 | 0 | 0 | 5 | 5 | 2 | 147 | 0 | 4 | 153 | 0 | 247 | 22 | **8** | 277 | 0 | 0 | 0 | **7** | **7** | 442 |
| 05:45 PM | 0 | 0 | 0 | **6** | **6** | 4 | 175 | 0 | 3 | 182 | 0 | 245 | 21 | 5 | 271 | 0 | 0 | 0 | 6 | 6 | 465 |
| Total Volume | 0 | 0 | 0 | 17 | 17 | 19 | 658 | 0 | 12 | 689 | 0 | 994 | 98 | 15 | 1107 | 0 | 0 | 0 | 21 | 21 | 1834 |
| % App. Total | 0 | 0 | 0 | 100 | | 2.8 | 95.5 | 0 | 1.7 | | 0 | 89.8 | 8.9 | 1.4 | | 0 | 0 | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .708 | .708 | .679 | .929 | .000 | .750 | .921 | .000 | .875 | .766 | .469 | .901 | .000 | .000 | .000 | .750 | .750 | .955 |



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_Calvert_AM
Site Code : 00000000
Start Date : 9/1/2015
Page No : 1

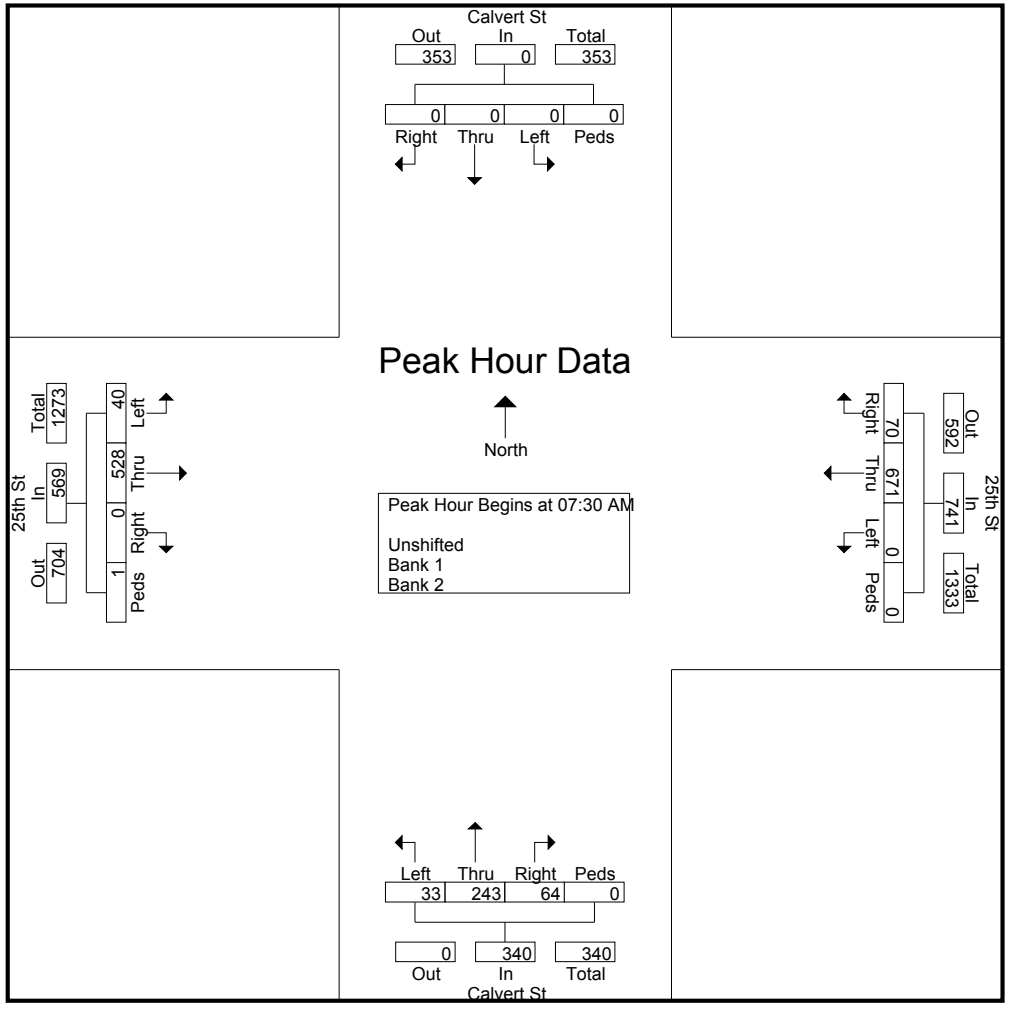
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | 25th St From East | | | | | Calvert St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 11 | 136 | 0 | 3 | 150 | 15 | 68 | 6 | 0 | 89 | 0 | 90 | 3 | 5 | 98 | 337 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 11 | 128 | 0 | 5 | 144 | 24 | 48 | 6 | 0 | 78 | 0 | 112 | 6 | 0 | 118 | 340 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 12 | 188 | 0 | 0 | 200 | 15 | 51 | 9 | 0 | 75 | 0 | 148 | 9 | 0 | 157 | 432 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 18 | 174 | 0 | 0 | 192 | 13 | 56 | 7 | 0 | 76 | 0 | 141 | 11 | 0 | 152 | 420 |
| Total | 0 | 0 | 0 | 0 | 0 | 52 | 626 | 0 | 8 | 686 | 67 | 223 | 28 | 0 | 318 | 0 | 491 | 29 | 5 | 525 | 1529 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 24 | 155 | 0 | 0 | 179 | 20 | 63 | 9 | 0 | 92 | 0 | 111 | 7 | 0 | 118 | 389 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 16 | 154 | 0 | 0 | 170 | 16 | 73 | 8 | 0 | 97 | 0 | 128 | 13 | 1 | 142 | 409 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 20 | 127 | 0 | 4 | 151 | 24 | 59 | 11 | 0 | 94 | 0 | 101 | 13 | 0 | 114 | 359 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 17 | 108 | 0 | 0 | 125 | 25 | 54 | 10 | 0 | 89 | 0 | 125 | 5 | 0 | 130 | 344 |
| Total | 0 | 0 | 0 | 0 | 0 | 77 | 544 | 0 | 4 | 625 | 85 | 249 | 38 | 0 | 372 | 0 | 465 | 38 | 1 | 504 | 1501 |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 129 | 1170 | 0 | 12 | 1311 | 152 | 472 | 66 | 0 | 690 | 0 | 956 | 67 | 6 | 1029 | 3030 |
| Apprch % | 0 | 0 | 0 | 0 | | 9.8 | 89.2 | 0 | 0.9 | | 22 | 68.4 | 9.6 | 0 | | 0 | 92.9 | 6.5 | 0.6 | | |
| Total % | 0 | 0 | 0 | 0 | 0 | 4.3 | 38.6 | 0 | 0.4 | 43.3 | 5 | 15.6 | 2.2 | 0 | 22.8 | 0 | 31.6 | 2.2 | 0.2 | 34 | |
| Unshifted | 0 | 0 | 0 | 0 | 0 | 129 | 1170 | 0 | 12 | 1311 | 152 | 472 | 66 | 0 | 690 | 0 | 956 | 67 | 6 | 1029 | 3030 |
| % Unshifted | 0 | 0 | 0 | 0 | 0 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 0 | 100 | 100 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | Calvert St From North | | | | | 25th St From East | | | | | Calvert St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| **07:30 AM** | **0** | **0** | **0** | **0** | **0** | **12** | 188 | 0 | 0 | 200 | 15 | 51 | 9 | 0 | 75 | 0 | 148 | 9 | 0 | **157** | **432** |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 18 | 174 | 0 | 0 | 192 | 13 | 56 | 7 | 0 | 76 | 0 | 141 | 11 | 0 | 152 | 420 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | **24** | 155 | 0 | 0 | 179 | **20** | 63 | 9 | 0 | 92 | 0 | 111 | 7 | 0 | 118 | 389 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 16 | 154 | 0 | 0 | 170 | 16 | **73** | 8 | 0 | **97** | 0 | 128 | **13** | **1** | 142 | 409 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 70 | 671 | 0 | 0 | 741 | 64 | 243 | 33 | 0 | 340 | 0 | 528 | 40 | 1 | 569 | 1650 |
| % App. Total | 0 | 0 | 0 | 0 | | 9.4 | 90.6 | 0 | 0 | | 18.8 | 71.5 | 9.7 | 0 | | 0 | 92.8 | 7 | 0.2 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .729 | .892 | .000 | .000 | .926 | .800 | .832 | .917 | .000 | .876 | .000 | .892 | .769 | .250 | .906 | .955 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_Calvert_AM
Site Code : 00000000
Start Date : 9/1/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_Calvert_AM
Site Code : 00000000
Start Date : 9/1/2015
Page No : 3

| | Calvert St From North | | | | | 25th St From East | | | | | Calvert St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

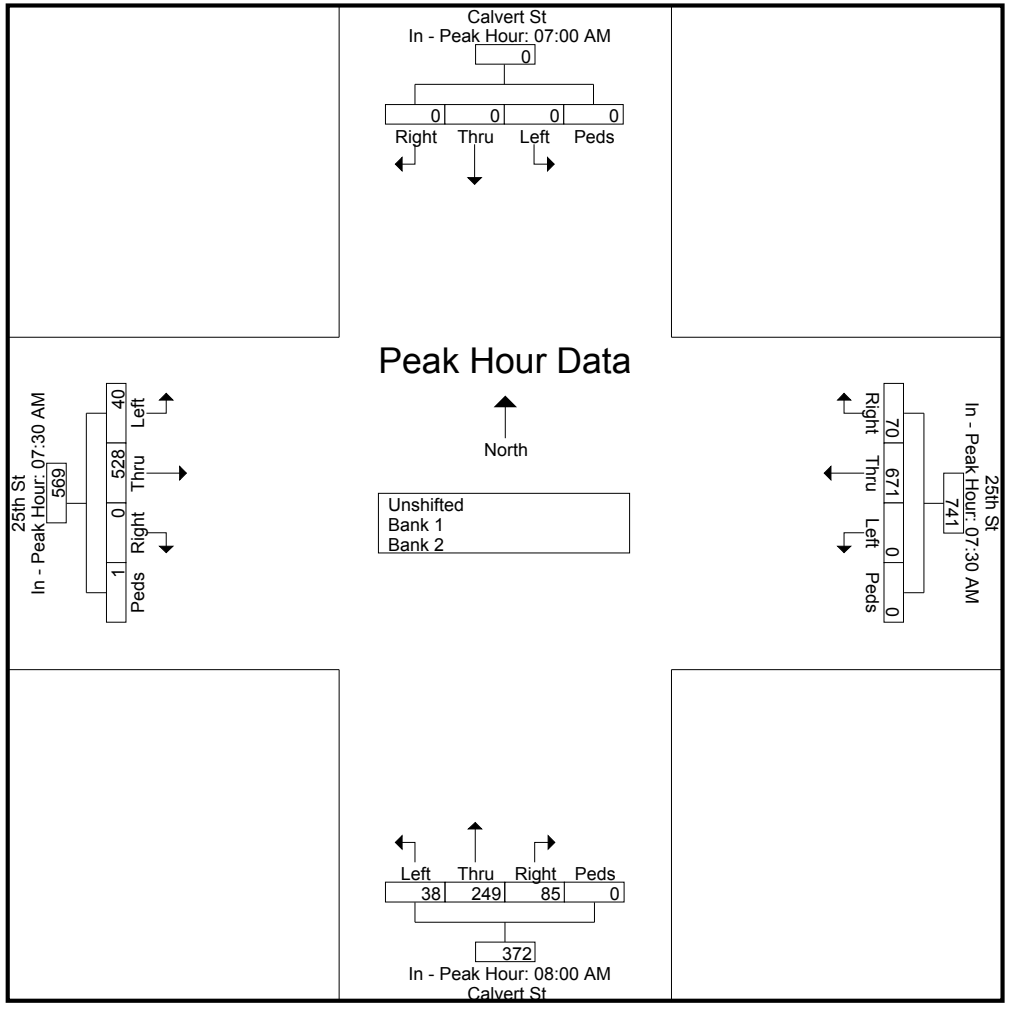
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 07:00 AM | | | | | 07:30 AM | | | | | 08:00 AM | | | | | 07:30 AM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **0** | **0** | **0** | **0** | **0** | **12** | 188 | 0 | 0 | 200 | 20 | 63 | 9 | 0 | 92 | 0 | 148 | 9 | 0 | 157 |
| +15 mins. | 0 | 0 | 0 | 0 | 0 | 18 | 174 | 0 | 0 | 192 | 16 | **73** | 8 | 0 | **97** | 0 | 141 | 11 | 0 | 152 |
| +30 mins. | 0 | 0 | 0 | 0 | 0 | **24** | 155 | 0 | 0 | 179 | 24 | 59 | **11** | 0 | 94 | 0 | 111 | 7 | 0 | 118 |
| +45 mins. | 0 | 0 | 0 | 0 | 0 | 16 | 154 | 0 | 0 | 170 | **25** | 54 | 10 | 0 | 89 | 0 | 128 | **13** | **1** | 142 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 70 | 671 | 0 | 0 | 741 | 85 | 249 | 38 | 0 | 372 | 0 | 528 | 40 | 1 | 569 |
| % App. Total | 0 | 0 | 0 | 0 | | 9.4 | 90.6 | 0 | 0 | | 22.8 | 66.9 | 10.2 | 0 | | 0 | 92.8 | 7 | 0.2 | |
| PHF | .000 | .000 | .000 | .000 | .000 | .729 | .892 | .000 | .000 | .926 | .850 | .853 | .864 | .000 | .959 | .000 | .892 | .769 | .250 | .906 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_Calvert_AM
Site Code : 00000000
Start Date : 9/1/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_Calvert_MD
Site Code : 00000000
Start Date : 9/1/2015
Page No : 1

**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | 25th St From East | | | | | Calvert St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 03:30 PM | 0 | 0 | 0 | 0 | 0 | 6 | 135 | 0 | 0 | 141 | 31 | 103 | 12 | 0 | 146 | 0 | 184 | 4 | 0 | 188 | 475 |
| 03:45 PM | 0 | 0 | 0 | 0 | 0 | 5 | 122 | 0 | 0 | 127 | 37 | 98 | 11 | 0 | 146 | 0 | 163 | 10 | 0 | 173 | 446 |
| Total | 0 | 0 | 0 | 0 | 0 | 11 | 257 | 0 | 0 | 268 | 68 | 201 | 23 | 0 | 292 | 0 | 347 | 14 | 0 | 361 | 921 |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 7 | 136 | 0 | 0 | 143 | 43 | 125 | 12 | 0 | 180 | 0 | 161 | 9 | 0 | 170 | 493 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 9 | 157 | 0 | 0 | 166 | 36 | 138 | 18 | 0 | 192 | 0 | 187 | 4 | 0 | 191 | 549 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 7 | 126 | 0 | 0 | 133 | 50 | 148 | 10 | 0 | 208 | 0 | 170 | 15 | 0 | 185 | 526 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 4 | 134 | 0 | 0 | 138 | 47 | 190 | 14 | 0 | 251 | 0 | 194 | 5 | 0 | 199 | 588 |
| Total | 0 | 0 | 0 | 0 | 0 | 27 | 553 | 0 | 0 | 580 | 176 | 601 | 54 | 0 | 831 | 0 | 712 | 33 | 0 | 745 | 2156 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 3 | 138 | 0 | 0 | 141 | 35 | 203 | 15 | 0 | 253 | 0 | 193 | 9 | 0 | 202 | 596 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 9 | 146 | 0 | 0 | 155 | 49 | 257 | 14 | 0 | 320 | 0 | 211 | 7 | 0 | 218 | 693 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 8 | 120 | 0 | 0 | 128 | 42 | 237 | 11 | 0 | 290 | 0 | 202 | 20 | 0 | 222 | 640 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 154 | 0 | 0 | 156 | 39 | 198 | 13 | 0 | 250 | 0 | 160 | 9 | 0 | 169 | 575 |
| Total | 0 | 0 | 0 | 0 | 0 | 22 | 558 | 0 | 0 | 580 | 165 | 895 | 53 | 0 | 1113 | 0 | 766 | 45 | 0 | 811 | 2504 |
| 06:00 PM | 0 | 0 | 0 | 0 | 0 | 7 | 147 | 0 | 0 | 154 | 34 | 168 | 9 | 0 | 211 | 0 | 178 | 9 | 0 | 187 | 552 |
| 06:15 PM | 0 | 0 | 0 | 0 | 0 | 7 | 110 | 0 | 0 | 117 | 24 | 112 | 6 | 0 | 142 | 0 | 164 | 5 | 0 | 169 | 428 |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 74 | 1625 | 0 | 0 | 1699 | 467 | 1977 | 145 | 0 | 2589 | 0 | 2167 | 106 | 0 | 2273 | 6561 |
| Apprch % | 0 | 0 | 0 | 0 | | 4.4 | 95.6 | 0 | 0 | | 18 | 76.4 | 5.6 | 0 | | 0 | 95.3 | 4.7 | 0 | | |
| Total % | 0 | 0 | 0 | 0 | 0 | 1.1 | 24.8 | 0 | 0 | 25.9 | 7.1 | 30.1 | 2.2 | 0 | 39.5 | 0 | 33 | 1.6 | 0 | 34.6 | |
| Unshifted | 0 | 0 | 0 | 0 | 0 | 74 | 1625 | 0 | 0 | 1699 | 467 | 1977 | 145 | 0 | 2589 | 0 | 2167 | 106 | 0 | 2273 | 6561 |
| % Unshifted | 0 | 0 | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 0 | 100 | 100 | 0 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

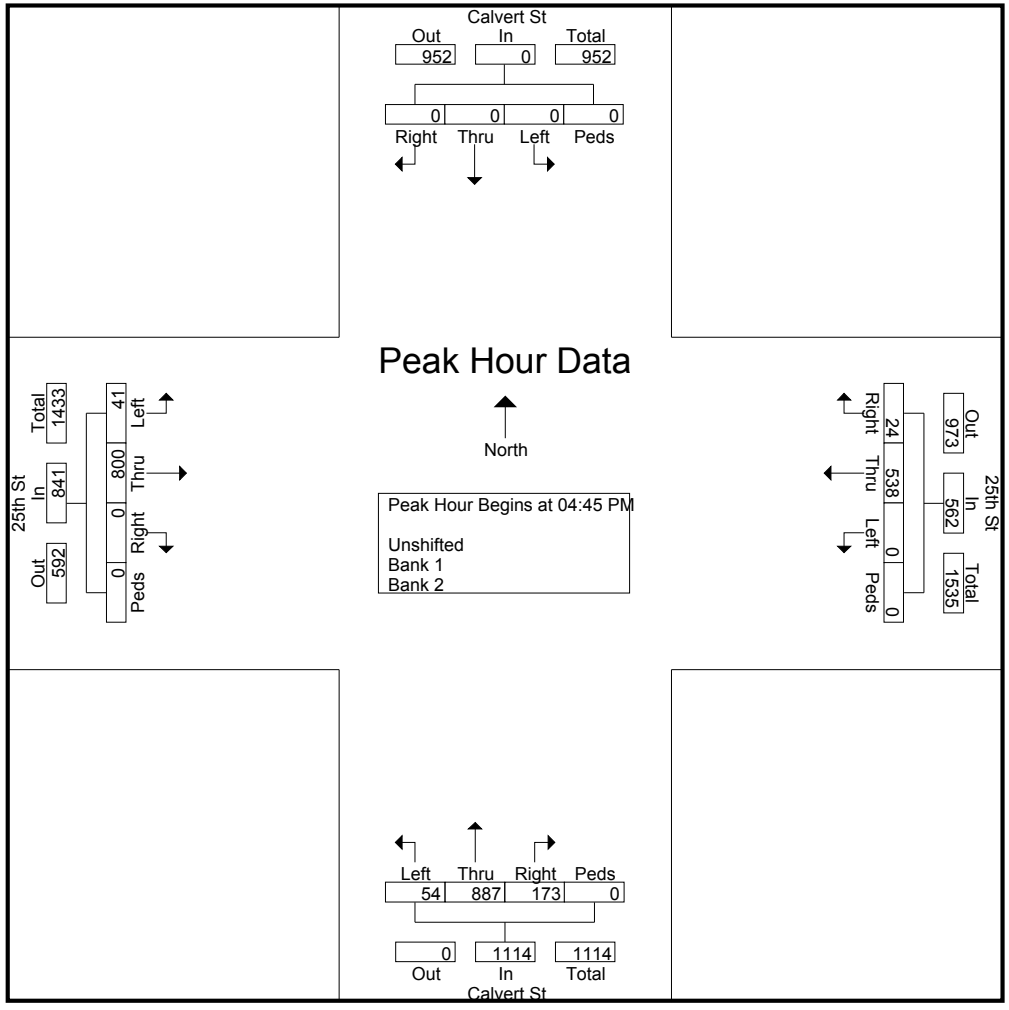
Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_Calvert_MD
Site Code : 00000000
Start Date : 9/1/2015
Page No : 2

| | Calvert St From North | | | | | 25th St From East | | | | | Calvert St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| **04:45 PM** | **0** | **0** | **0** | **0** | **0** | **4** | **134** | **0** | **0** | **138** | **47** | **190** | **14** | **0** | **251** | **0** | **194** | **5** | **0** | **199** | **588** |
| **05:00 PM** | **0** | **0** | **0** | **0** | **0** | **3** | **138** | **0** | **0** | **141** | **35** | **203** | 15 | 0 | 253 | 0 | 193 | 9 | 0 | 202 | 596 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 9 | 146 | 0 | 0 | 155 | **49** | **257** | 14 | 0 | **320** | 0 | **211** | 7 | 0 | 218 | **693** |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 8 | 120 | 0 | 0 | 128 | 42 | 237 | 11 | 0 | 290 | 0 | 202 | **20** | 0 | **222** | 640 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 24 | 538 | 0 | 0 | 562 | 173 | 887 | 54 | 0 | 1114 | 0 | 800 | 41 | 0 | 841 | 2517 |
| % App. Total | 0 | 0 | 0 | 0 | | 4.3 | 95.7 | 0 | 0 | | 15.5 | 79.6 | 4.8 | 0 | | 0 | 95.1 | 4.9 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .667 | .921 | .000 | .000 | .906 | .883 | .863 | .900 | .000 | .870 | .000 | .948 | .513 | .000 | .947 | .908 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_Calvert_MD
Site Code : 00000000
Start Date : 9/1/2015
Page No : 3



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_Calvert_MD
Site Code : 00000000
Start Date : 9/1/2015
Page No : 4

| | Calvert St From North | | | | | 25th St From East | | | | | Calvert St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

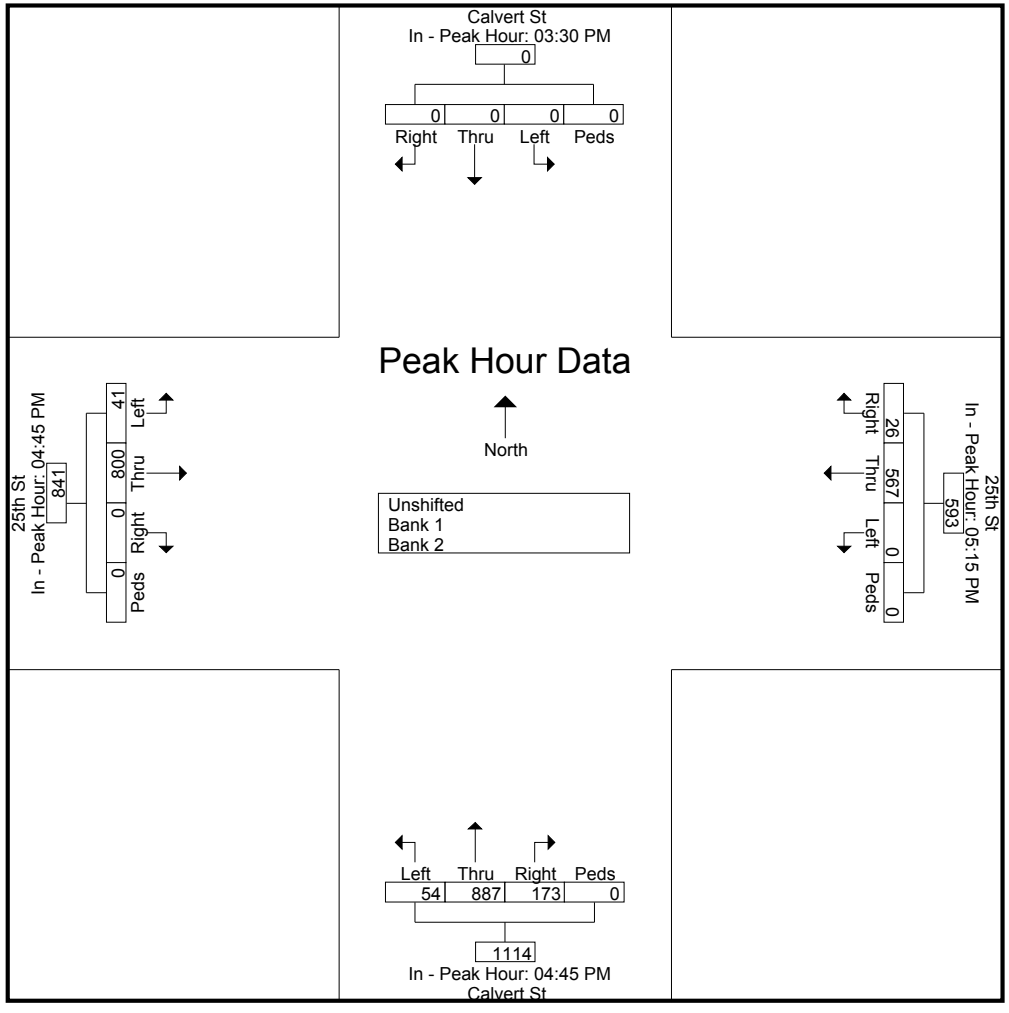
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 03:30 PM | | | | | 05:15 PM | | | | | 04:45 PM | | | | | 04:45 PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **0** | **0** | **0** | **0** | **0** | 9 | 146 | 0 | 0 | 155 | 47 | 190 | 14 | 0 | 251 | 0 | 194 | 5 | 0 | 199 |
| +15 mins. | 0 | 0 | 0 | 0 | 0 | 8 | 120 | 0 | 0 | 128 | 35 | 203 | 15 | 0 | 253 | 0 | 193 | 9 | 0 | 202 |
| +30 mins. | 0 | 0 | 0 | 0 | 0 | 2 | 154 | 0 | 0 | 156 | **49** | **257** | 14 | 0 | **320** | 0 | **211** | 7 | 0 | 218 |
| +45 mins. | 0 | 0 | 0 | 0 | 0 | 7 | 147 | 0 | 0 | 154 | 42 | 237 | 11 | 0 | 290 | 0 | 202 | **20** | 0 | **222** |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 26 | 567 | 0 | 0 | 593 | 173 | 887 | 54 | 0 | 1114 | 0 | 800 | 41 | 0 | 841 |
| % App. Total | 0 | 0 | 0 | 0 | | 4.4 | 95.6 | 0 | 0 | | 15.5 | 79.6 | 4.8 | 0 | | 0 | 95.1 | 4.9 | 0 | |
| PHF | .000 | .000 | .000 | .000 | .000 | .722 | .920 | .000 | .000 | .950 | .883 | .863 | .900 | .000 | .870 | .000 | .948 | .513 | .000 | .947 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_Calvert_MD
Site Code : 00000000
Start Date : 9/1/2015
Page No : 5



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : 25th_Calvert_PM
Site Code : 00000000
Start Date : 9/1/2015
Page No : 1

**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | 25th St From East | | | | | Calvert St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 03:30 PM | 0 | 0 | 0 | 0 | 0 | 6 | 135 | 0 | 0 | 141 | 31 | 103 | 12 | 0 | 146 | 0 | 184 | 4 | 0 | 188 | 475 |
| 03:45 PM | 0 | 0 | 0 | 0 | 0 | 5 | 122 | 0 | 0 | 127 | 37 | 98 | 11 | 0 | 146 | 0 | 163 | 10 | 0 | 173 | 446 |
| Total | 0 | 0 | 0 | 0 | 0 | 11 | 257 | 0 | 0 | 268 | 68 | 201 | 23 | 0 | 292 | 0 | 347 | 14 | 0 | 361 | 921 |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 7 | 136 | 0 | 0 | 143 | 43 | 125 | 12 | 0 | 180 | 0 | 161 | 9 | 0 | 170 | 493 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 9 | 157 | 0 | 0 | 166 | 36 | 138 | 18 | 0 | 192 | 0 | 187 | 4 | 0 | 191 | 549 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 7 | 126 | 0 | 0 | 133 | 50 | 148 | 10 | 0 | 208 | 0 | 170 | 15 | 0 | 185 | 526 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 4 | 134 | 0 | 0 | 138 | 47 | 190 | 14 | 0 | 251 | 0 | 194 | 5 | 0 | 199 | 588 |
| Total | 0 | 0 | 0 | 0 | 0 | 27 | 553 | 0 | 0 | 580 | 176 | 601 | 54 | 0 | 831 | 0 | 712 | 33 | 0 | 745 | 2156 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 3 | 138 | 0 | 0 | 141 | 35 | 203 | 15 | 0 | 253 | 0 | 193 | 9 | 0 | 202 | 596 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 9 | 146 | 0 | 0 | 155 | 49 | 257 | 14 | 0 | 320 | 0 | 211 | 7 | 0 | 218 | 693 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 8 | 120 | 0 | 0 | 128 | 42 | 237 | 11 | 0 | 290 | 0 | 202 | 20 | 0 | 222 | 640 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 154 | 0 | 0 | 156 | 39 | 198 | 13 | 0 | 250 | 0 | 160 | 9 | 0 | 169 | 575 |
| Total | 0 | 0 | 0 | 0 | 0 | 22 | 558 | 0 | 0 | 580 | 165 | 895 | 53 | 0 | 1113 | 0 | 766 | 45 | 0 | 811 | 2504 |
| 06:00 PM | 0 | 0 | 0 | 0 | 0 | 7 | 147 | 0 | 0 | 154 | 34 | 168 | 9 | 0 | 211 | 0 | 178 | 9 | 0 | 187 | 552 |
| 06:15 PM | 0 | 0 | 0 | 0 | 0 | 7 | 110 | 0 | 0 | 117 | 24 | 112 | 6 | 0 | 142 | 0 | 164 | 5 | 0 | 169 | 428 |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 74 | 1625 | 0 | 0 | 1699 | 467 | 1977 | 145 | 0 | 2589 | 0 | 2167 | 106 | 0 | 2273 | 6561 |
| Apprch % | 0 | 0 | 0 | 0 | | 4.4 | 95.6 | 0 | 0 | | 18 | 76.4 | 5.6 | 0 | | 0 | 95.3 | 4.7 | 0 | | |
| Total % | 0 | 0 | 0 | 0 | 0 | 1.1 | 24.8 | 0 | 0 | 25.9 | 7.1 | 30.1 | 2.2 | 0 | 39.5 | 0 | 33 | 1.6 | 0 | 34.6 | |
| Unshifted | 0 | 0 | 0 | 0 | 0 | 74 | 1625 | 0 | 0 | 1699 | 467 | 1977 | 145 | 0 | 2589 | 0 | 2167 | 106 | 0 | 2273 | 6561 |
| % Unshifted | 0 | 0 | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 0 | 100 | 100 | 0 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

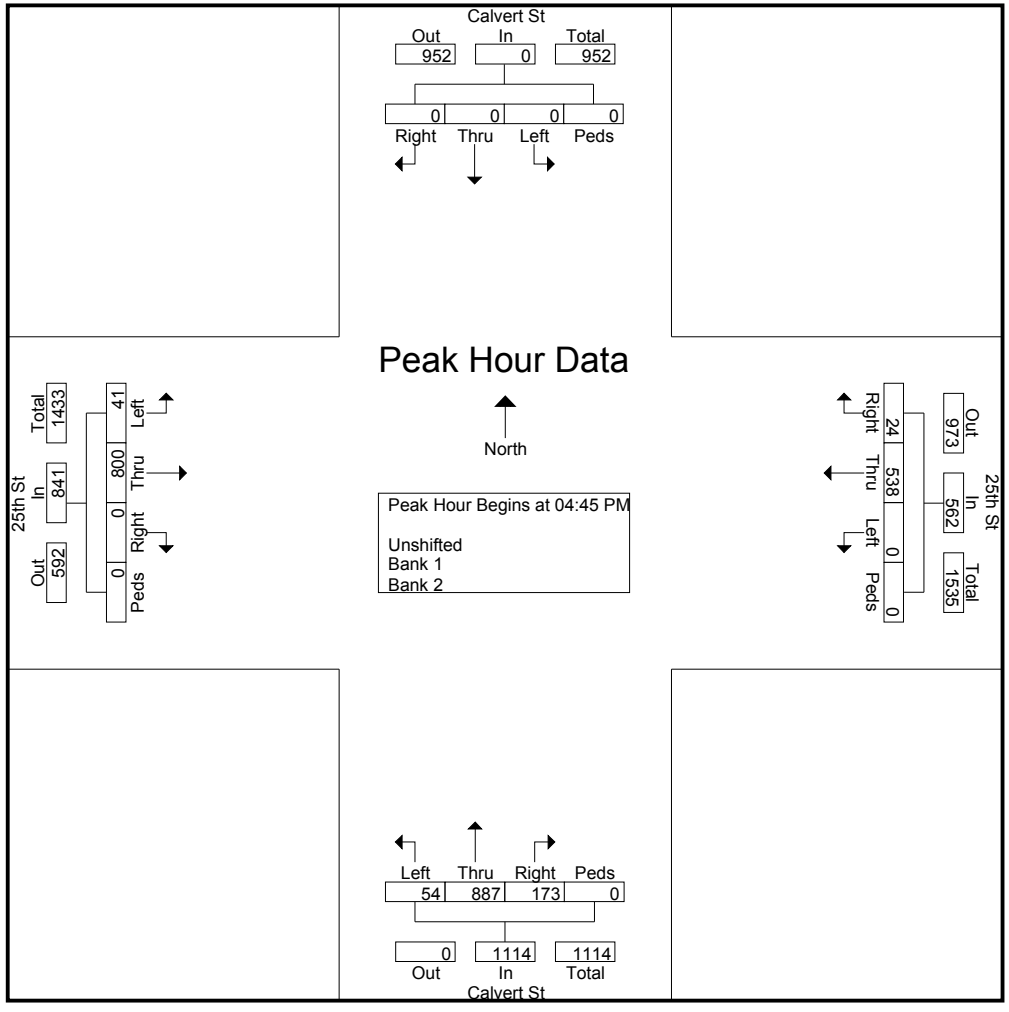
File Name : 25th_Calvert_PM
Site Code : 00000000
Start Date : 9/1/2015
Page No : 2

| | Calvert St From North | | | | | 25th St From East | | | | | Calvert St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| **04:45 PM** | **0** | **0** | **0** | **0** | **0** | **4** | **134** | **0** | **0** | **138** | **47** | **190** | **14** | **0** | **251** | **0** | **194** | **5** | **0** | **199** | **588** |
| **05:00 PM** | **0** | **0** | **0** | **0** | **0** | **3** | **138** | **0** | **0** | **141** | **35** | **203** | 15 | 0 | 253 | 0 | 193 | 9 | 0 | 202 | 596 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 9 | 146 | 0 | 0 | 155 | **49** | **257** | 14 | 0 | **320** | 0 | **211** | 7 | 0 | 218 | **693** |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 8 | 120 | 0 | 0 | 128 | 42 | 237 | 11 | 0 | 290 | 0 | 202 | **20** | 0 | **222** | 640 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 24 | 538 | 0 | 0 | 562 | 173 | 887 | 54 | 0 | 1114 | 0 | 800 | 41 | 0 | 841 | 2517 |
| % App. Total | 0 | 0 | 0 | 0 | | 4.3 | 95.7 | 0 | 0 | | 15.5 | 79.6 | 4.8 | 0 | | 0 | 95.1 | 4.9 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .667 | .921 | .000 | .000 | .906 | .883 | .863 | .900 | .000 | .870 | .000 | .948 | .513 | .000 | .947 | .908 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : 25th_Calvert_PM
Site Code : 00000000
Start Date : 9/1/2015
Page No : 3



Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : 25th_Calvert_PM
Site Code : 00000000
Start Date : 9/1/2015
Page No : 4

| | Calvert St From North | | | | | 25th St From East | | | | | Calvert St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1

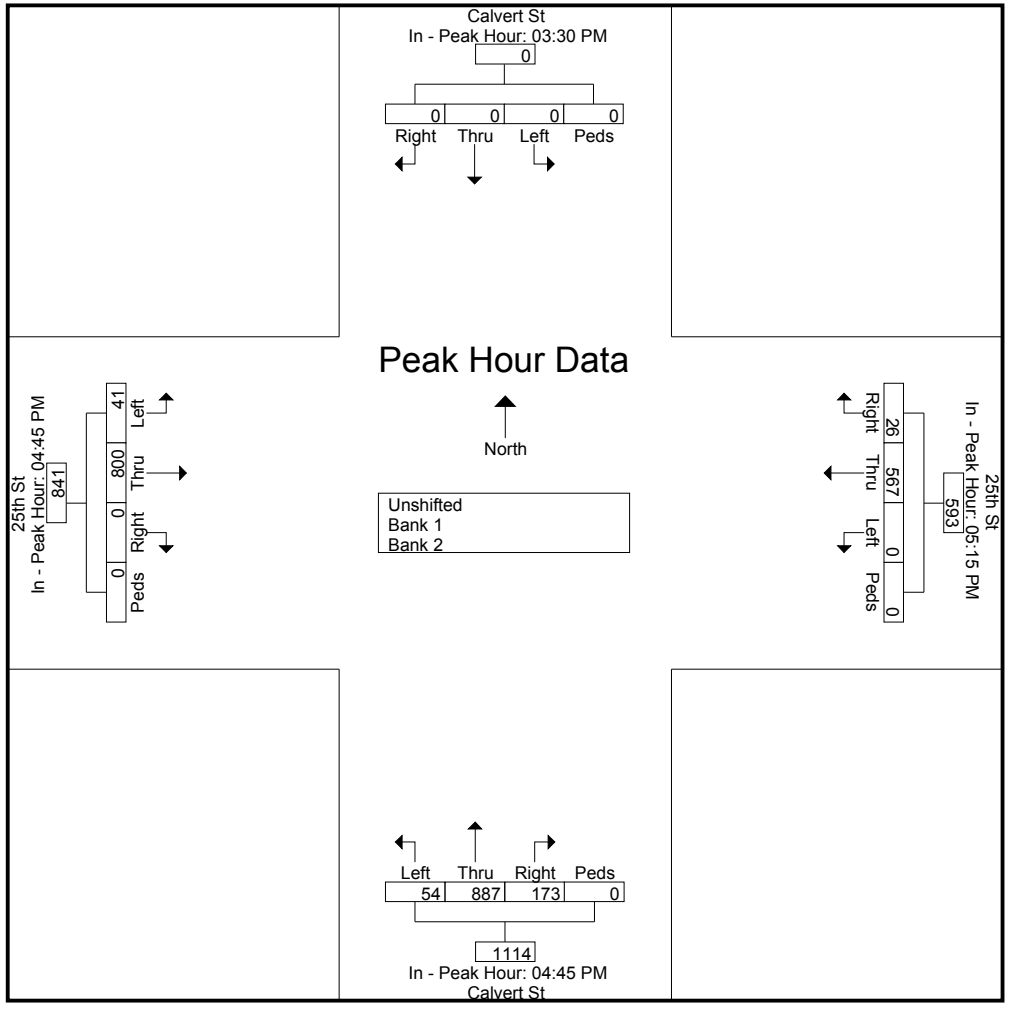
**Peak Hour for Each Approach Begins at:**

| | 03:30 PM | | | | | 05:15 PM | | | | | 04:45 PM | | | | | 04:45 PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **0** | **0** | **0** | **0** | **0** | 9 | 146 | 0 | 0 | 155 | 47 | 190 | 14 | 0 | 251 | 0 | 194 | 5 | 0 | 199 |
| +15 mins. | 0 | 0 | 0 | 0 | 0 | 8 | 120 | 0 | 0 | 128 | 35 | 203 | 15 | 0 | 253 | 0 | 193 | 9 | 0 | 202 |
| +30 mins. | 0 | 0 | 0 | 0 | 0 | 2 | 154 | 0 | 0 | 156 | **49** | **257** | 14 | 0 | **320** | 0 | **211** | 7 | 0 | 218 |
| +45 mins. | 0 | 0 | 0 | 0 | 0 | 7 | 147 | 0 | 0 | 154 | 42 | 237 | 11 | 0 | 290 | 0 | 202 | **20** | 0 | **222** |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 26 | 567 | 0 | 0 | 593 | 173 | 887 | 54 | 0 | 1114 | 0 | 800 | 41 | 0 | 841 |
| % App. Total | 0 | 0 | 0 | 0 | | 4.4 | 95.6 | 0 | 0 | | 15.5 | 79.6 | 4.8 | 0 | | 0 | 95.1 | 4.9 | 0 | |
| PHF | .000 | .000 | .000 | .000 | .000 | .722 | .920 | .000 | .000 | .950 | .883 | .863 | .900 | .000 | .870 | .000 | .948 | .513 | .000 | .947 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : 25th_Calvert_PM
Site Code : 00000000
Start Date : 9/1/2015
Page No : 5



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_Calvert_AM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 1

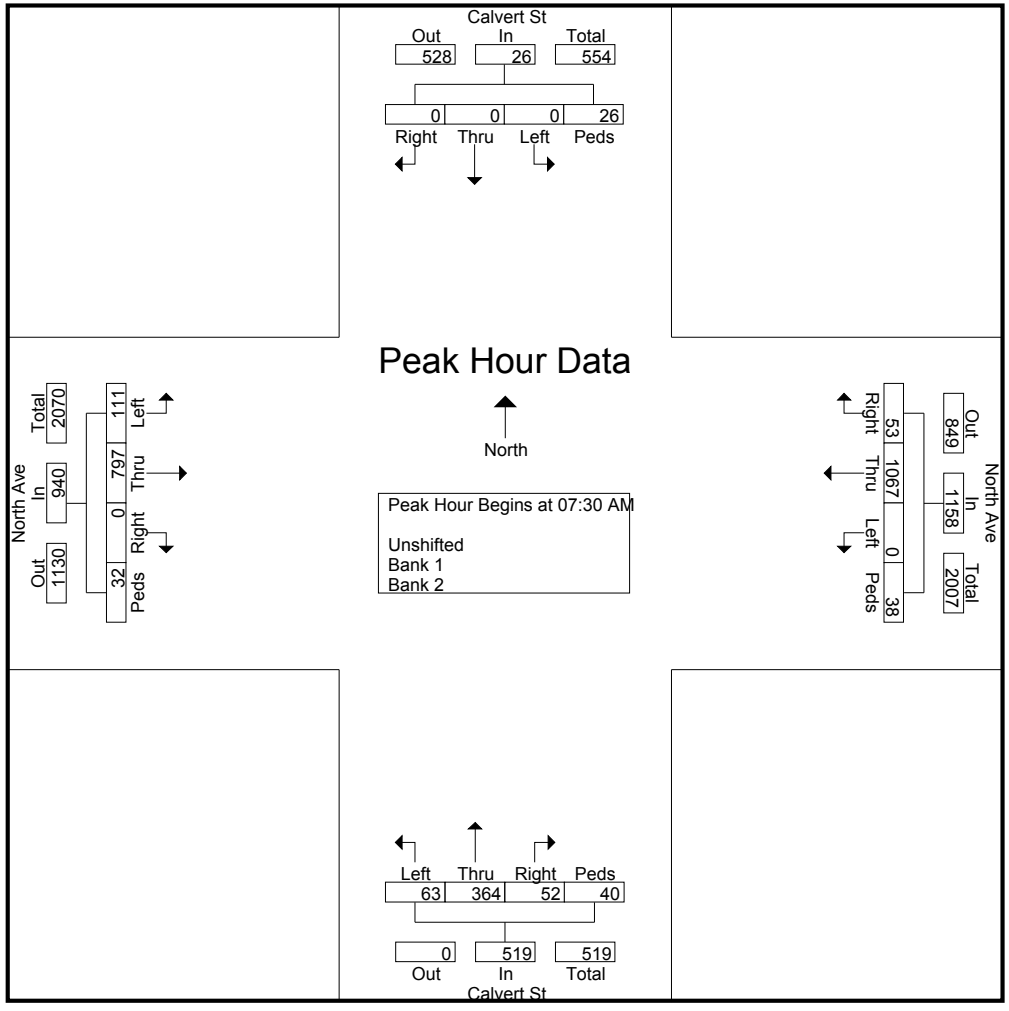
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | North Ave From East | | | | | Calvert St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 0 | 0 | 2 | 2 | 9 | 175 | 0 | 10 | 194 | 10 | 56 | 5 | 9 | 80 | 0 | 140 | 9 | 3 | 152 | 428 |
| 07:15 AM | 0 | 0 | 0 | 10 | 10 | 8 | 247 | 0 | 14 | 269 | 16 | 78 | 13 | 9 | 116 | 0 | 151 | 13 | 12 | 176 | 571 |
| 07:30 AM | 0 | 0 | 0 | 8 | 8 | 7 | 255 | 0 | 4 | 266 | 13 | 90 | 17 | 15 | 135 | 0 | 206 | 19 | 3 | 228 | 637 |
| 07:45 AM | 0 | 0 | 0 | 6 | 6 | 18 | 283 | 0 | 16 | 317 | 13 | 97 | 15 | 4 | 129 | 0 | 186 | 35 | 11 | 232 | 684 |
| Total | 0 | 0 | 0 | 26 | 26 | 42 | 960 | 0 | 44 | 1046 | 52 | 321 | 50 | 37 | 460 | 0 | 683 | 76 | 29 | 788 | 2320 |
| 08:00 AM | 0 | 0 | 0 | 5 | 5 | 11 | 283 | 0 | 8 | 302 | 13 | 77 | 12 | 4 | 106 | 0 | 206 | 33 | 6 | 245 | 658 |
| 08:15 AM | 0 | 0 | 0 | 7 | 7 | 17 | 246 | 0 | 10 | 273 | 13 | 100 | 19 | 17 | 149 | 0 | 199 | 24 | 12 | 235 | 664 |
| 08:30 AM | 0 | 0 | 0 | 6 | 6 | 12 | 206 | 0 | 3 | 221 | 14 | 88 | 8 | 4 | 114 | 0 | 181 | 34 | 6 | 221 | 562 |
| 08:45 AM | 0 | 0 | 0 | 4 | 4 | 8 | 218 | 0 | 5 | 231 | 11 | 81 | 14 | 5 | 111 | 0 | 123 | 19 | 3 | 145 | 491 |
| Total | 0 | 0 | 0 | 22 | 22 | 48 | 953 | 0 | 26 | 1027 | 51 | 346 | 53 | 30 | 480 | 0 | 709 | 110 | 27 | 846 | 2375 |
| Grand Total | 0 | 0 | 0 | 48 | 48 | 90 | 1913 | 0 | 70 | 2073 | 103 | 667 | 103 | 67 | 940 | 0 | 1392 | 186 | 56 | 1634 | 4695 |
| Apprch % | 0 | 0 | 0 | 100 | | 4.3 | 92.3 | 0 | 3.4 | | 11 | 71 | 11 | 7.1 | | 0 | 85.2 | 11.4 | 3.4 | | |
| Total % | 0 | 0 | 0 | 1 | 1 | 1.9 | 40.7 | 0 | 1.5 | 44.2 | 2.2 | 14.2 | 2.2 | 1.4 | 20 | 0 | 29.6 | 4 | 1.2 | 34.8 | |
| Unshifted | 0 | 0 | 0 | 48 | 48 | 90 | 1913 | 0 | 70 | 2073 | 103 | 667 | 103 | 67 | 940 | 0 | 1392 | 186 | 56 | 1634 | 4695 |
| % Unshifted | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | Calvert St From North | | | | | North Ave From East | | | | | Calvert St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| **07:30 AM** | **0** | **0** | **0** | 8 | 8 | 7 | 255 | 0 | 4 | 266 | 13 | 90 | 17 | 15 | 135 | 0 | 206 | 19 | 3 | 228 | 637 |
| 07:45 AM | 0 | 0 | 0 | 6 | 6 | **18** | **283** | 0 | **16** | **317** | 13 | 97 | 15 | 4 | 129 | 0 | 186 | **35** | 11 | 232 | **684** |
| 08:00 AM | 0 | 0 | 0 | 5 | 5 | 11 | 283 | 0 | 8 | 302 | 13 | 77 | 12 | 4 | 106 | 0 | 206 | 33 | 6 | **245** | 658 |
| 08:15 AM | 0 | 0 | 0 | 7 | 7 | 17 | 246 | 0 | 10 | 273 | 13 | **100** | **19** | **17** | **149** | 0 | 199 | 24 | **12** | 235 | 664 |
| Total Volume | 0 | 0 | 0 | 26 | 26 | 53 | 1067 | 0 | 38 | 1158 | 52 | 364 | 63 | 40 | 519 | 0 | 797 | 111 | 32 | 940 | 2643 |
| % App. Total | 0 | 0 | 0 | 100 | | 4.6 | 92.1 | 0 | 3.3 | | 10 | 70.1 | 12.1 | 7.7 | | 0 | 84.8 | 11.8 | 3.4 | | |
| PHF | .000 | .000 | .000 | .813 | .813 | .736 | .943 | .000 | .594 | .913 | 1.00 | .910 | .829 | .588 | .871 | .000 | .967 | .793 | .667 | .959 | .966 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_Calvert_AM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_Calvert_AM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 3

| | Calvert St From North | | | | | North Ave From East | | | | | Calvert St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

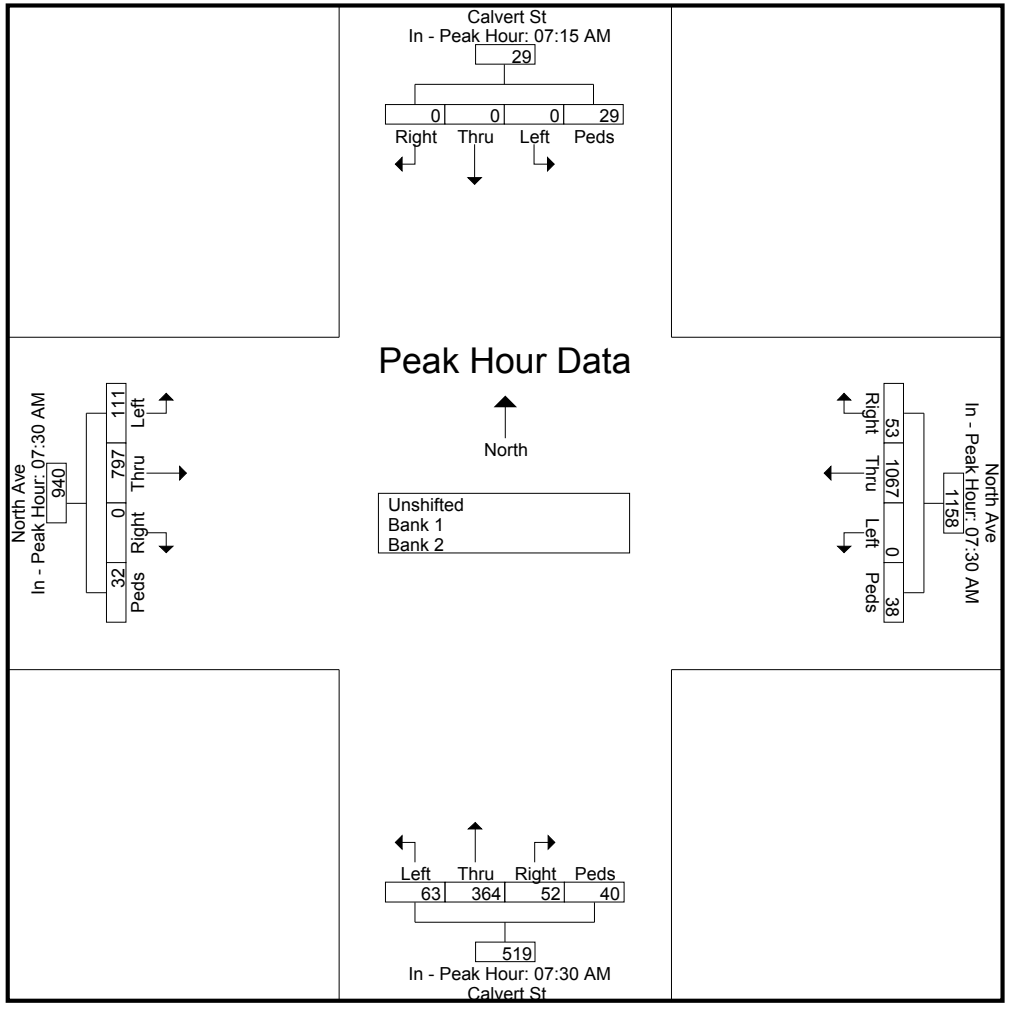
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 07:15 AM | | | | | 07:30 AM | | | | | 07:30 AM | | | | | 07:30 AM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **0** | **0** | **0** | 10 | 10 | 7 | 255 | 0 | 4 | 266 | 13 | 90 | 17 | 15 | 135 | 0 | 206 | 19 | 3 | 228 |
| +15 mins. | 0 | 0 | 0 | 8 | 8 | **18** | **283** | 0 | **16** | **317** | 13 | 97 | 15 | 4 | 129 | 0 | 186 | **35** | 11 | 232 |
| +30 mins. | 0 | 0 | 0 | 6 | 6 | 11 | 283 | 0 | 8 | 302 | 13 | 77 | 12 | 4 | 106 | 0 | 206 | 33 | 6 | **245** |
| +45 mins. | 0 | 0 | 0 | 5 | 5 | 17 | 246 | 0 | 10 | 273 | 13 | **100** | **19** | **17** | **149** | 0 | 199 | 24 | **12** | 235 |
| Total Volume | 0 | 0 | 0 | 29 | 29 | 53 | 1067 | 0 | 38 | 1158 | 52 | 364 | 63 | 40 | 519 | 0 | 797 | 111 | 32 | 940 |
| % App. Total | 0 | 0 | 0 | 100 | | 4.6 | 92.1 | 0 | 3.3 | | 10 | 70.1 | 12.1 | 7.7 | | 0 | 84.8 | 11.8 | 3.4 | |
| PHF | .000 | .000 | .000 | .725 | .725 | .736 | .943 | .000 | .594 | .913 | 1.000 | .910 | .829 | .588 | .871 | .000 | .967 | .793 | .667 | .959 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_Calvert_AM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_Calvert_MD
Site Code : 00000000
Start Date : 9/9/2015
Page No : 1

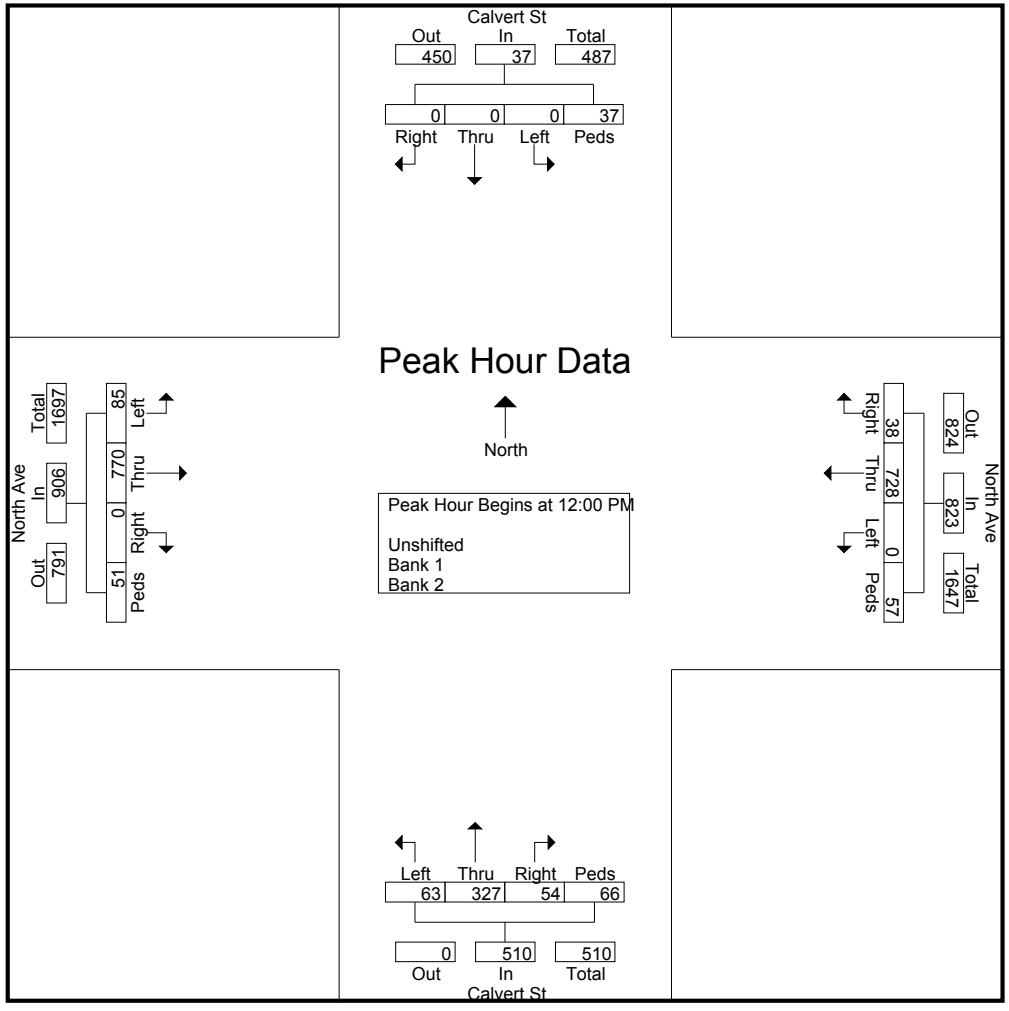
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | North Ave From East | | | | | Calvert St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 11:00 AM | 0 | 0 | 0 | 2 | 2 | 11 | 171 | 0 | 3 | 185 | 10 | 62 | 13 | 12 | 97 | 0 | 195 | 14 | 13 | 222 | 506 |
| 11:15 AM | 0 | 0 | 0 | 4 | 4 | 10 | 141 | 0 | 11 | 162 | 11 | 51 | 5 | 12 | 79 | 0 | 151 | 10 | 15 | 176 | 421 |
| 11:30 AM | 0 | 0 | 0 | 7 | 7 | 13 | 170 | 0 | 7 | 190 | 11 | 59 | 13 | 6 | 89 | 0 | 164 | 31 | 14 | 209 | 495 |
| 11:45 AM | 0 | 0 | 0 | 10 | 10 | 6 | 148 | 0 | 10 | 164 | 12 | 61 | 14 | 15 | 102 | 0 | 176 | 26 | 14 | 216 | 492 |
| Total | 0 | 0 | 0 | 23 | 23 | 40 | 630 | 0 | 31 | 701 | 44 | 233 | 45 | 45 | 367 | 0 | 686 | 81 | 56 | 823 | 1914 |
| 12:00 PM | 0 | 0 | 0 | 16 | 16 | 3 | 161 | 0 | 9 | 173 | 7 | 72 | 16 | 7 | 102 | 0 | 184 | 21 | 11 | 216 | 507 |
| 12:15 PM | 0 | 0 | 0 | 7 | 7 | 13 | 195 | 0 | 11 | 219 | 14 | 85 | 14 | 22 | 135 | 0 | 182 | 15 | 15 | 212 | 573 |
| 12:30 PM | 0 | 0 | 0 | 7 | 7 | 10 | 199 | 0 | 28 | 237 | 12 | 84 | 12 | 12 | 120 | 0 | 200 | 25 | 15 | 240 | 604 |
| 12:45 PM | 0 | 0 | 0 | 7 | 7 | 12 | 173 | 0 | 9 | 194 | 21 | 86 | 21 | 25 | 153 | 0 | 204 | 24 | 10 | 238 | 592 |
| Total | 0 | 0 | 0 | 37 | 37 | 38 | 728 | 0 | 57 | 823 | 54 | 327 | 63 | 66 | 510 | 0 | 770 | 85 | 51 | 906 | 2276 |
| Grand Total | 0 | 0 | 0 | 60 | 60 | 78 | 1358 | 0 | 88 | 1524 | 98 | 560 | 108 | 111 | 877 | 0 | 1456 | 166 | 107 | 1729 | 4190 |
| Apprch % | 0 | 0 | 0 | 100 | | 5.1 | 89.1 | 0 | 5.8 | | 11.2 | 63.9 | 12.3 | 12.7 | | 0 | 84.2 | 9.6 | 6.2 | | |
| Total % | 0 | 0 | 0 | 1.4 | 1.4 | 1.9 | 32.4 | 0 | 2.1 | 36.4 | 2.3 | 13.4 | 2.6 | 2.6 | 20.9 | 0 | 34.7 | 4 | 2.6 | 41.3 | |
| Unshifted | 0 | 0 | 0 | 60 | 60 | 78 | 1358 | 0 | 88 | 1524 | 98 | 560 | 108 | 111 | 877 | 0 | 1456 | 166 | 107 | 1729 | 4190 |
| % Unshifted | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | Calvert St From North | | | | | North Ave From East | | | | | Calvert St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| **12:00 PM** | **0** | **0** | **0** | 16 | 16 | 3 | 161 | 0 | 9 | 173 | 7 | 72 | 16 | 7 | 102 | 0 | 184 | 21 | 11 | 216 | 507 |
| 12:15 PM | 0 | 0 | 0 | 7 | 7 | 13 | 195 | 0 | 11 | 219 | 14 | 85 | 14 | 22 | 135 | 0 | 182 | 15 | 15 | 212 | 573 |
| 12:30 PM | 0 | 0 | 0 | 7 | 7 | 10 | **199** | 0 | **28** | **237** | 12 | 84 | 12 | 12 | 120 | 0 | 200 | **25** | 15 | **240** | **604** |
| 12:45 PM | 0 | 0 | 0 | 7 | 7 | 12 | 173 | 0 | 9 | 194 | **21** | **86** | **21** | **25** | **153** | 0 | **204** | 24 | 10 | 238 | 592 |
| Total Volume | 0 | 0 | 0 | 37 | 37 | 38 | 728 | 0 | 57 | 823 | 54 | 327 | 63 | 66 | 510 | 0 | 770 | 85 | 51 | 906 | 2276 |
| % App. Total | 0 | 0 | 0 | 100 | | 4.6 | 88.5 | 0 | 6.9 | | 10.6 | 64.1 | 12.4 | 12.9 | | 0 | 85 | 9.4 | 5.6 | | |
| PHF | .000 | .000 | .000 | .578 | .578 | .731 | .915 | .000 | .509 | .868 | .643 | .951 | .750 | .660 | .833 | .000 | .944 | .850 | .850 | .944 | .942 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_Calvert_MD
Site Code : 00000000
Start Date : 9/9/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_Calvert_MD
Site Code : 00000000
Start Date : 9/9/2015
Page No : 3

| | Calvert St From North | | | | | North Ave From East | | | | | Calvert St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

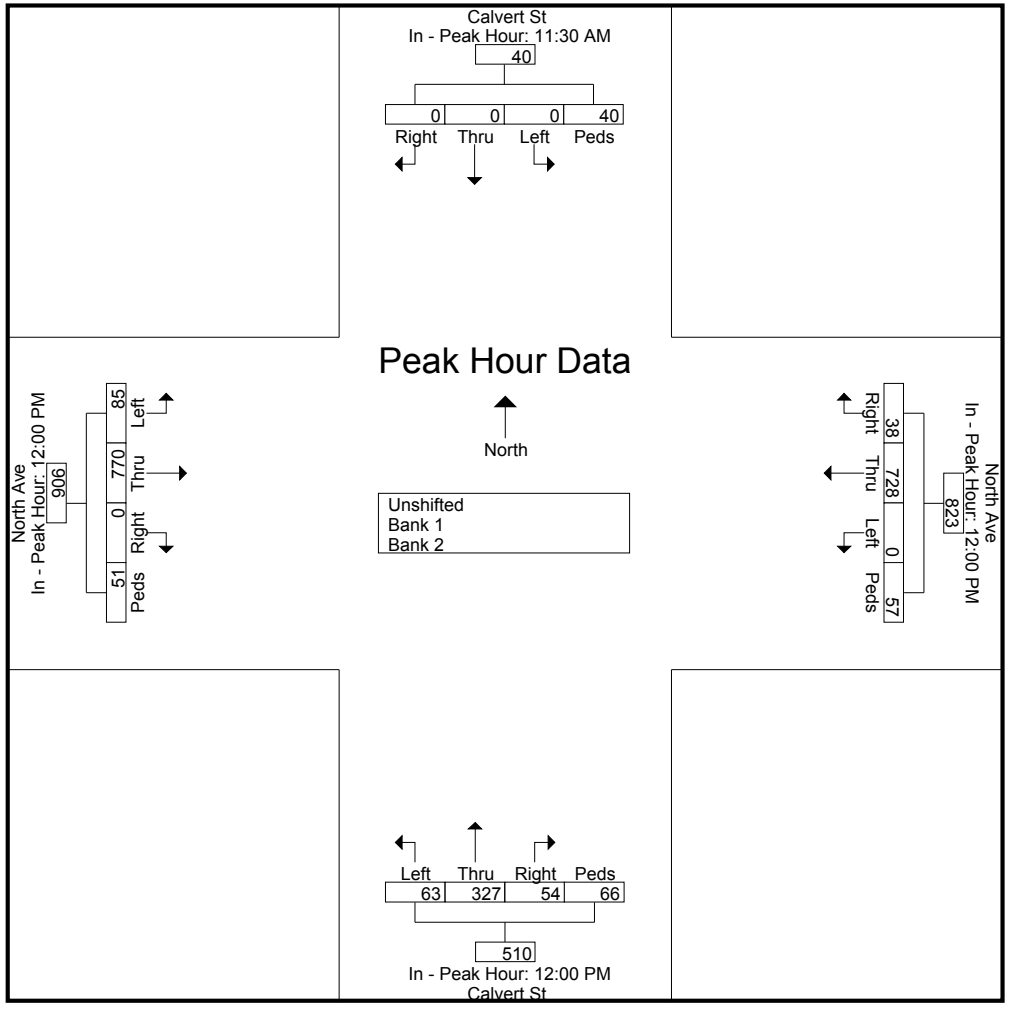
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **11:30 AM** | | | | | **12:00 PM** | | | | | **12:00 PM** | | | | | **12:00 PM** | | | | | |
| **+0 mins.** | **0** | **0** | **0** | **7** | **7** | **3** | **161** | **0** | **9** | **173** | **7** | **72** | **16** | **7** | **102** | **0** | **184** | **21** | **11** | **216** | |
| **+15 mins.** | **0** | **0** | **0** | **10** | **10** | 13 | 195 | 0 | 11 | 219 | 14 | 85 | 14 | 22 | 135 | 0 | 182 | 15 | 15 | 212 | |
| +30 mins. | 0 | 0 | 0 | 16 | 16 | 10 | **199** | 0 | **28** | **237** | 12 | 84 | 12 | 12 | 120 | 0 | 200 | **25** | 15 | **240** | |
| +45 mins. | 0 | 0 | 0 | 7 | 7 | 12 | 173 | 0 | 9 | 194 | **21** | **86** | **21** | **25** | **153** | 0 | **204** | 24 | 10 | 238 | |
| Total Volume | 0 | 0 | 0 | 40 | 40 | 38 | 728 | 0 | 57 | 823 | 54 | 327 | 63 | 66 | 510 | 0 | 770 | 85 | 51 | 906 | |
| % App. Total | 0 | 0 | 0 | 100 | | 4.6 | 88.5 | 0 | 6.9 | | 10.6 | 64.1 | 12.4 | 12.9 | | 0 | 85 | 9.4 | 5.6 | | |
| PHF | .000 | .000 | .000 | .625 | .625 | .731 | .915 | .000 | .509 | .868 | .643 | .951 | .750 | .660 | .833 | .000 | .944 | .850 | .850 | .944 | |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_Calvert_MD
Site Code : 00000000
Start Date : 9/9/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_Calvert_PM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 1

**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | North Ave From East | | | | | Calvert St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 03:30 PM | 0 | 0 | 0 | 4 | 4 | 15 | 202 | 0 | 14 | 231 | 48 | 126 | 12 | 15 | 201 | 0 | 177 | 8 | 4 | 189 | 625 |
| 03:45 PM | 0 | 0 | 0 | 7 | 7 | 16 | 220 | 0 | 19 | 255 | 41 | 161 | 13 | 13 | 228 | 0 | 185 | 16 | 3 | 204 | 694 |
| Total | 0 | 0 | 0 | 11 | 11 | 31 | 422 | 0 | 33 | 486 | 89 | 287 | 25 | 28 | 429 | 0 | 362 | 24 | 7 | 393 | 1319 |
| 04:00 PM | 0 | 0 | 0 | 13 | 13 | 20 | 227 | 0 | 13 | 260 | 44 | 137 | 18 | 8 | 207 | 0 | 168 | 22 | 5 | 195 | 675 |
| 04:15 PM | 0 | 0 | 0 | 8 | 8 | 25 | 226 | 0 | 9 | 260 | 38 | 132 | 15 | 14 | 199 | 0 | 192 | 14 | 6 | 212 | 679 |
| 04:30 PM | 0 | 0 | 0 | 6 | 6 | 14 | 249 | 0 | 16 | 279 | 45 | 126 | 13 | 10 | 194 | 0 | 217 | 14 | 7 | 238 | 717 |
| 04:45 PM | 0 | 0 | 0 | 7 | 7 | 18 | 248 | 0 | 10 | 276 | 29 | 141 | 19 | 6 | 195 | 0 | 191 | 18 | 4 | 213 | 691 |
| Total | 0 | 0 | 0 | 34 | 34 | 77 | 950 | 0 | 48 | 1075 | 156 | 536 | 65 | 38 | 795 | 0 | 768 | 68 | 22 | 858 | 2762 |
| 05:00 PM | 0 | 0 | 0 | 7 | 7 | 26 | 241 | 0 | 4 | 271 | 44 | 136 | 12 | 16 | 208 | 0 | 224 | 15 | 13 | 252 | 738 |
| 05:15 PM | 0 | 0 | 0 | 6 | 6 | 22 | 259 | 0 | 9 | 290 | 25 | 107 | 8 | 11 | 151 | 0 | 191 | 9 | 13 | 213 | 660 |
| 05:30 PM | 0 | 0 | 0 | 4 | 4 | 20 | 229 | 0 | 3 | 252 | 30 | 136 | 11 | 8 | 185 | 0 | 233 | 19 | 8 | 260 | 701 |
| 05:45 PM | 0 | 0 | 0 | 20 | 20 | 18 | 229 | 0 | 14 | 261 | 49 | 140 | 10 | 9 | 208 | 0 | 178 | 17 | 21 | 216 | 705 |
| Total | 0 | 0 | 0 | 37 | 37 | 86 | 958 | 0 | 30 | 1074 | 148 | 519 | 41 | 44 | 752 | 0 | 826 | 60 | 55 | 941 | 2804 |
| 06:00 PM | 0 | 0 | 0 | 13 | 13 | 22 | 229 | 0 | 13 | 264 | 36 | 172 | 19 | 12 | 239 | 0 | 178 | 19 | 10 | 207 | 723 |
| 06:15 PM | 0 | 0 | 0 | 11 | 11 | 26 | 217 | 0 | 17 | 260 | 39 | 135 | 6 | 26 | 206 | 0 | 172 | 15 | 5 | 192 | 669 |
| Grand Total | 0 | 0 | 0 | 106 | 106 | 242 | 2776 | 0 | 141 | 3159 | 468 | 1649 | 156 | 148 | 2421 | 0 | 2306 | 186 | 99 | 2591 | 8277 |
| Apprch % | 0 | 0 | 0 | 100 | | 7.7 | 87.9 | 0 | 4.5 | | 19.3 | 68.1 | 6.4 | 6.1 | | 0 | 89 | 7.2 | 3.8 | | |
| Total % | 0 | 0 | 0 | 1.3 | 1.3 | 2.9 | 33.5 | 0 | 1.7 | 38.2 | 5.7 | 19.9 | 1.9 | 1.8 | 29.2 | 0 | 27.9 | 2.2 | 1.2 | 31.3 | |
| Unshifted | 0 | 0 | 0 | 106 | 106 | 242 | 2776 | 0 | 141 | 3159 | 468 | 1649 | 156 | 148 | 2421 | 0 | 2306 | 186 | 99 | 2591 | 8277 |
| % Unshifted | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

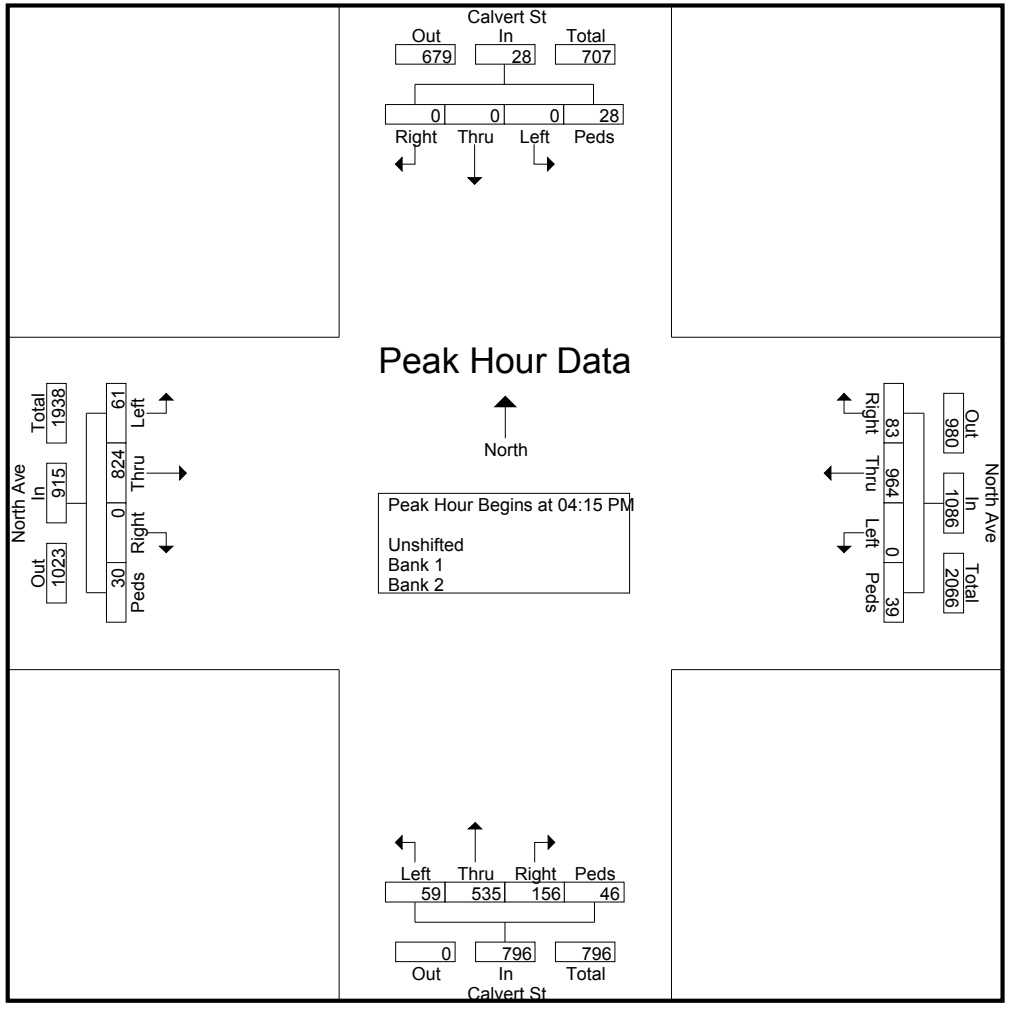
Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_Calvert_PM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 2

| | Calvert St From North | | | | | North Ave From East | | | | | Calvert St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:15 PM | | | | | | | | | | | | | | | | | | | | | |
| **04:15 PM** | **0** | **0** | **0** | 8 | 8 | 25 | 226 | 0 | 9 | 260 | 38 | 132 | 15 | 14 | 199 | 0 | 192 | 14 | 6 | 212 | 679 |
| 04:30 PM | 0 | 0 | 0 | 6 | 6 | 14 | 249 | 0 | 16 | **279** | **45** | 126 | 13 | 10 | 194 | 0 | 217 | 14 | 7 | 238 | 717 |
| 04:45 PM | 0 | 0 | 0 | 7 | 7 | 18 | 248 | 0 | 10 | 276 | 29 | **141** | **19** | 6 | 195 | 0 | 191 | **18** | 4 | 213 | 691 |
| 05:00 PM | 0 | 0 | 0 | 7 | 7 | **26** | 241 | 0 | 4 | 271 | 44 | 136 | 12 | **16** | **208** | 0 | **224** | 15 | **13** | **252** | **738** |
| Total Volume | 0 | 0 | 0 | 28 | 28 | 83 | 964 | 0 | 39 | 1086 | 156 | 535 | 59 | 46 | 796 | 0 | 824 | 61 | 30 | 915 | 2825 |
| % App. Total | 0 | 0 | 0 | 100 | | 7.6 | 88.8 | 0 | 3.6 | | 19.6 | 67.2 | 7.4 | 5.8 | | 0 | 90.1 | 6.7 | 3.3 | | |
| PHF | .000 | .000 | .000 | .875 | .875 | .798 | .968 | .000 | .609 | .973 | .867 | .949 | .776 | .719 | .957 | .000 | .920 | .847 | .577 | .908 | .957 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_Calvert_PM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 3



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_Calvert_PM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 4

| | Calvert St From North | | | | | North Ave From East | | | | | Calvert St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

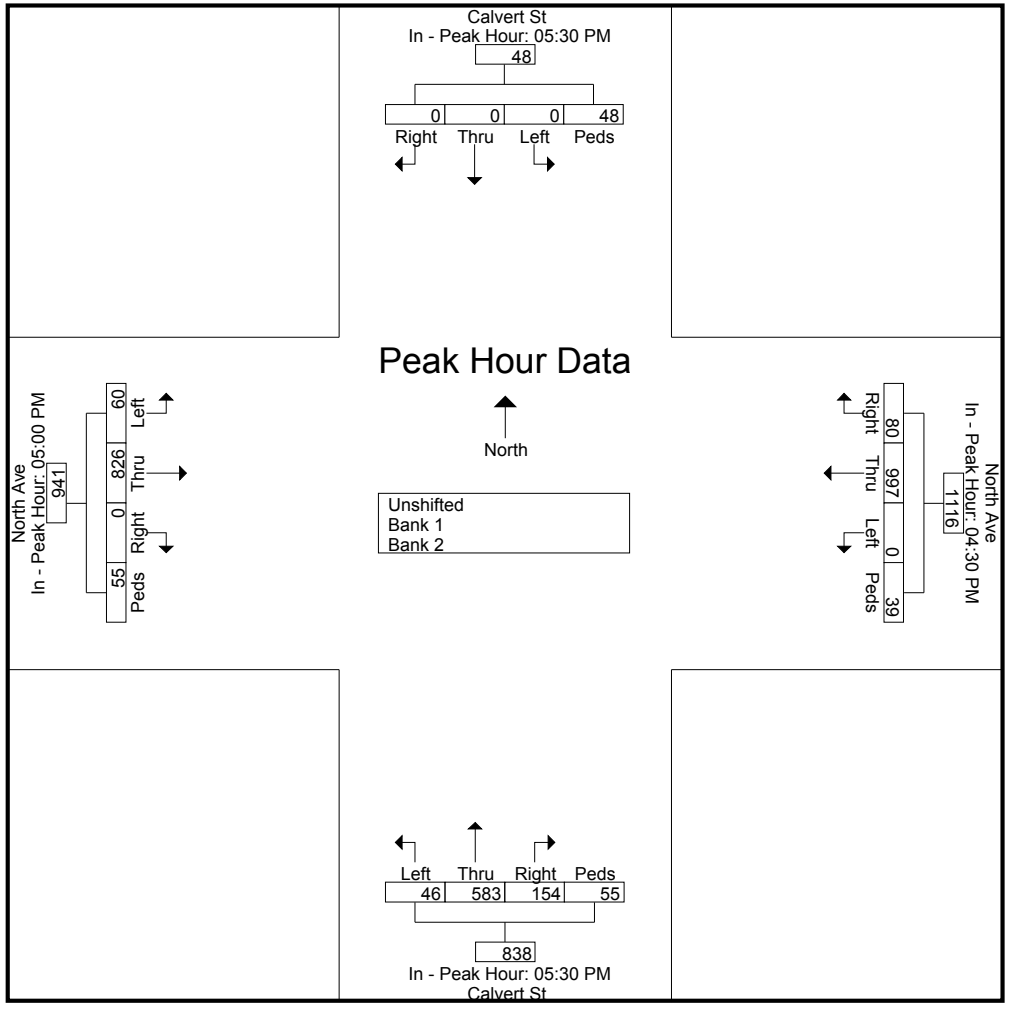
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 05:30 PM | | | | | 04:30 PM | | | | | 05:30 PM | | | | | 05:00 PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **0** | **0** | **0** | **4** | **4** | **14** | **249** | **0** | 16 | 279 | 30 | 136 | 11 | 8 | 185 | 0 | 224 | 15 | 13 | 252 |
| +15 mins. | 0 | 0 | 0 | 20 | 20 | 18 | 248 | 0 | 10 | 276 | 49 | 140 | 10 | 9 | 208 | 0 | 191 | 9 | 13 | 213 |
| +30 mins. | 0 | 0 | 0 | 13 | 13 | **26** | 241 | 0 | 4 | 271 | 36 | **172** | **19** | 12 | **239** | 0 | **233** | **19** | 8 | **260** |
| +45 mins. | 0 | 0 | 0 | 11 | 11 | 22 | **259** | 0 | 9 | **290** | 39 | 135 | 6 | **26** | 206 | 0 | 178 | 17 | **21** | 216 |
| Total Volume | 0 | 0 | 0 | 48 | 48 | 80 | 997 | 0 | 39 | 1116 | 154 | 583 | 46 | 55 | 838 | 0 | 826 | 60 | 55 | 941 |
| % App. Total | 0 | 0 | 0 | 100 | | 7.2 | 89.3 | 0 | 3.5 | | 18.4 | 69.6 | 5.5 | 6.6 | | 0 | 87.8 | 6.4 | 5.8 | |
| PHF | .000 | .000 | .000 | .600 | .600 | .769 | .962 | .000 | .609 | .962 | .786 | .847 | .605 | .529 | .877 | .000 | .886 | .789 | .655 | .905 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_Calvert_PM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 5



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : MountRoyal_Calvert_AM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 1

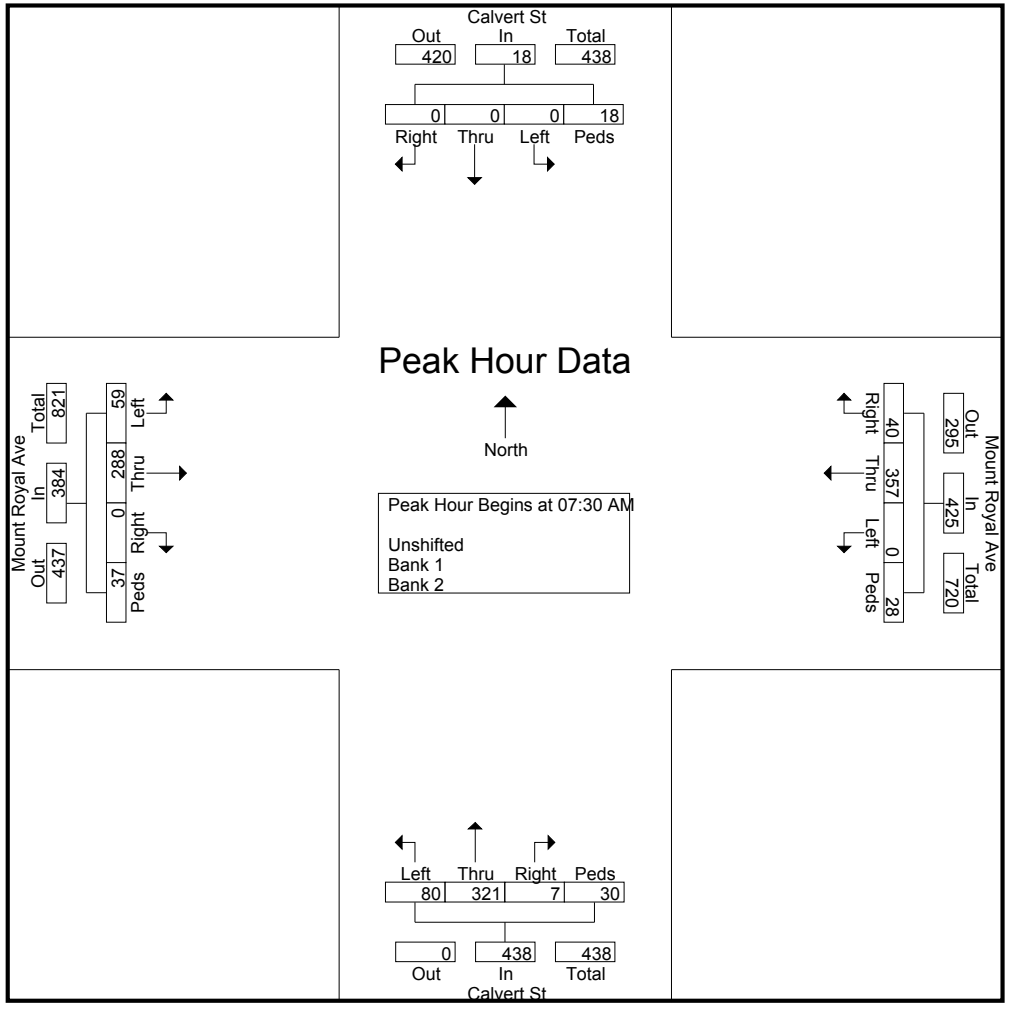
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | Mount Royal Ave From East | | | | | Calvert St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 0 | 0 | 4 | 4 | 7 | 52 | 0 | 8 | 67 | 0 | 60 | 23 | 7 | 90 | 0 | 30 | 4 | 9 | 43 | 204 |
| 07:15 AM | 0 | 0 | 0 | 4 | 4 | 6 | 61 | 0 | 2 | 69 | 1 | 69 | 26 | 4 | 100 | 0 | 37 | 11 | 8 | 56 | 229 |
| 07:30 AM | 0 | 0 | 0 | 6 | 6 | 12 | 82 | 0 | 4 | 98 | 2 | 98 | 18 | 9 | 127 | 0 | 54 | 17 | 18 | 89 | 320 |
| 07:45 AM | 0 | 0 | 0 | 4 | 4 | 8 | 98 | 0 | 12 | 118 | 1 | 84 | 21 | 5 | 111 | 0 | 68 | 14 | 8 | 90 | 323 |
| Total | 0 | 0 | 0 | 18 | 18 | 33 | 293 | 0 | 26 | 352 | 4 | 311 | 88 | 25 | 428 | 0 | 189 | 46 | 43 | 278 | 1076 |
| 08:00 AM | 0 | 0 | 0 | 5 | 5 | 13 | 105 | 0 | 7 | 125 | 1 | 57 | 19 | 10 | 87 | 0 | 77 | 16 | 9 | 102 | 319 |
| 08:15 AM | 0 | 0 | 0 | 3 | 3 | 7 | 72 | 0 | 5 | 84 | 3 | 82 | 22 | 6 | 113 | 0 | 89 | 12 | 2 | 103 | 303 |
| 08:30 AM | 0 | 0 | 0 | 4 | 4 | 16 | 85 | 0 | 12 | 113 | 5 | 64 | 15 | 5 | 89 | 0 | 83 | 5 | 8 | 96 | 302 |
| 08:45 AM | 0 | 0 | 0 | 5 | 5 | 15 | 86 | 0 | 7 | 108 | 3 | 64 | 27 | 7 | 101 | 0 | 60 | 8 | 7 | 75 | 289 |
| Total | 0 | 0 | 0 | 17 | 17 | 51 | 348 | 0 | 31 | 430 | 12 | 267 | 83 | 28 | 390 | 0 | 309 | 41 | 26 | 376 | 1213 |
| Grand Total | 0 | 0 | 0 | 35 | 35 | 84 | 641 | 0 | 57 | 782 | 16 | 578 | 171 | 53 | 818 | 0 | 498 | 87 | 69 | 654 | 2289 |
| Apprch % | 0 | 0 | 0 | 100 | | 10.7 | 82 | 0 | 7.3 | | 2 | 70.7 | 20.9 | 6.5 | | 0 | 76.1 | 13.3 | 10.6 | | |
| Total % | 0 | 0 | 0 | 1.5 | 1.5 | 3.7 | 28 | 0 | 2.5 | 34.2 | 0.7 | 25.3 | 7.5 | 2.3 | 35.7 | 0 | 21.8 | 3.8 | 3 | 28.6 | |
| Unshifted | 0 | 0 | 0 | 35 | 35 | 84 | 641 | 0 | 57 | 782 | 16 | 578 | 171 | 53 | 818 | 0 | 498 | 87 | 69 | 654 | 2289 |
| % Unshifted | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | Calvert St From North | | | | | Mount Royal Ave From East | | | | | Calvert St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| **07:30 AM** | **0** | **0** | **0** | 6 | 6 | 12 | 82 | 0 | 4 | 98 | 2 | 98 | 18 | 9 | 127 | 0 | 54 | **17** | **18** | 89 | 320 |
| 07:45 AM | 0 | 0 | 0 | 4 | 4 | 8 | 98 | 0 | **12** | 118 | 1 | 84 | 21 | 5 | 111 | 0 | 68 | 14 | 8 | 90 | **323** |
| 08:00 AM | 0 | 0 | 0 | 5 | 5 | **13** | **105** | 0 | 7 | **125** | 1 | 57 | 19 | **10** | 87 | 0 | 77 | 16 | 9 | 102 | 319 |
| 08:15 AM | 0 | 0 | 0 | 3 | 3 | 7 | 72 | 0 | 5 | 84 | **3** | 82 | **22** | 6 | 113 | 0 | **89** | 12 | 2 | **103** | 303 |
| Total Volume | 0 | 0 | 0 | 18 | 18 | 40 | 357 | 0 | 28 | 425 | 7 | 321 | 80 | 30 | 438 | 0 | 288 | 59 | 37 | 384 | 1265 |
| % App. Total | 0 | 0 | 0 | 100 | | 9.4 | 84 | 0 | 6.6 | | 1.6 | 73.3 | 18.3 | 6.8 | | 0 | 75 | 15.4 | 9.6 | | |
| PHF | .000 | .000 | .000 | .750 | .750 | .769 | .850 | .000 | .583 | .850 | .583 | .819 | .909 | .750 | .862 | .000 | .809 | .868 | .514 | .932 | .979 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : MountRoyal_Calvert_AM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : MountRoyal_Calvert_AM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 3

| | Calvert St From North | | | | | Mount Royal Ave From East | | | | | Calvert St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

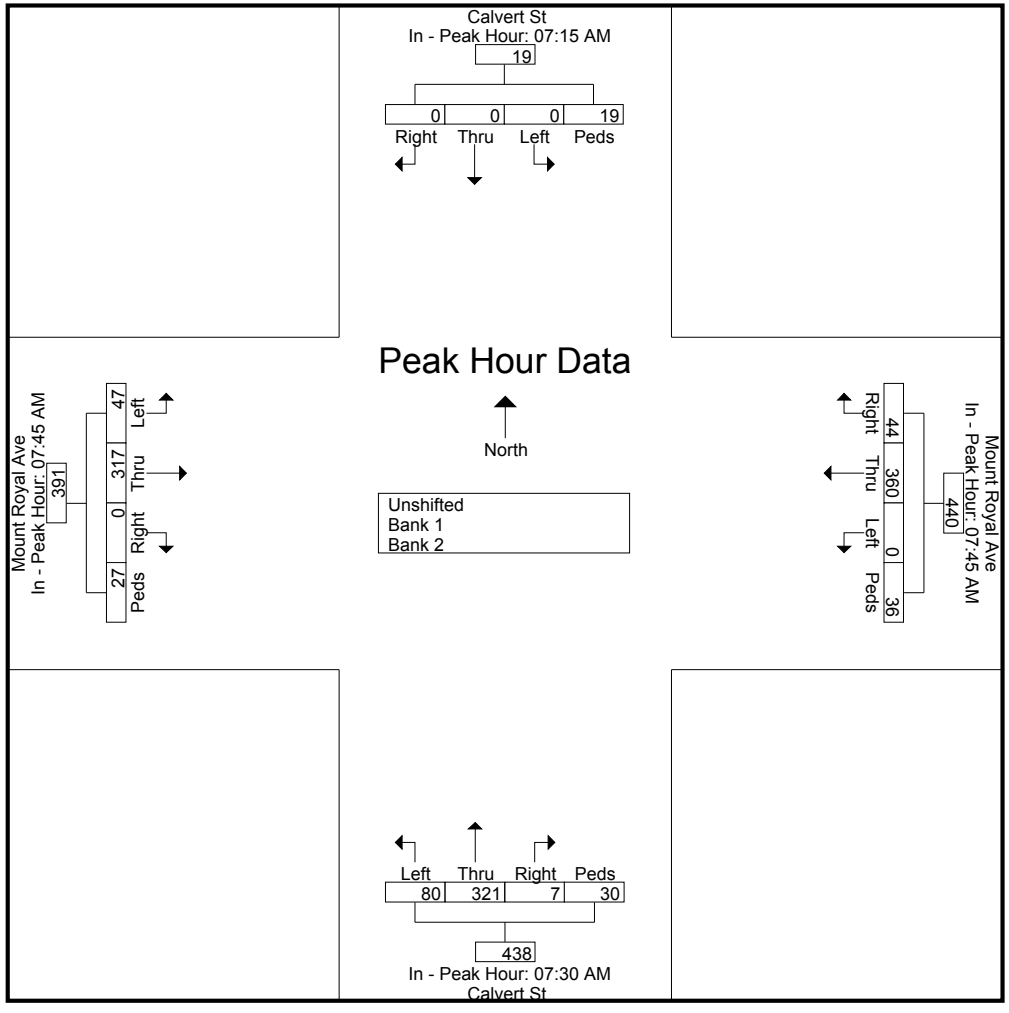
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 07:15 AM | | | | | 07:45 AM | | | | | 07:30 AM | | | | | 07:45 AM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **0** | **0** | **0** | **4** | **4** | **8** | **98** | **0** | 12 | 118 | 2 | 98 | 18 | 9 | 127 | 0 | 68 | 14 | 8 | 90 |
| +15 mins. | 0 | 0 | 0 | 6 | **6** | 13 | **105** | 0 | 7 | **125** | 1 | 84 | 21 | 5 | 111 | 0 | 77 | **16** | **9** | 102 |
| +30 mins. | 0 | 0 | 0 | 4 | 4 | 7 | 72 | 0 | 5 | 84 | 1 | 57 | 19 | **10** | 87 | 0 | **89** | 12 | 2 | **103** |
| +45 mins. | 0 | 0 | 0 | 5 | 5 | **16** | 85 | 0 | 12 | 113 | **3** | 82 | **22** | 6 | 113 | 0 | 83 | 5 | 8 | 96 |
| Total Volume | 0 | 0 | 0 | 19 | 19 | 44 | 360 | 0 | 36 | 440 | 7 | 321 | 80 | 30 | 438 | 0 | 317 | 47 | 27 | 391 |
| % App. Total | 0 | 0 | 0 | 100 | | 10 | 81.8 | 0 | 8.2 | | 1.6 | 73.3 | 18.3 | 6.8 | | 0 | 81.1 | 12 | 6.9 | |
| PHF | .000 | .000 | .000 | .792 | .792 | .688 | .857 | .000 | .750 | .880 | .583 | .819 | .909 | .750 | .862 | .000 | .890 | .734 | .750 | .949 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : MountRoyal_Calvert_AM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : MountRoyal_Calvert_MD
Site Code : 00000000
Start Date : 9/3/2015
Page No : 1

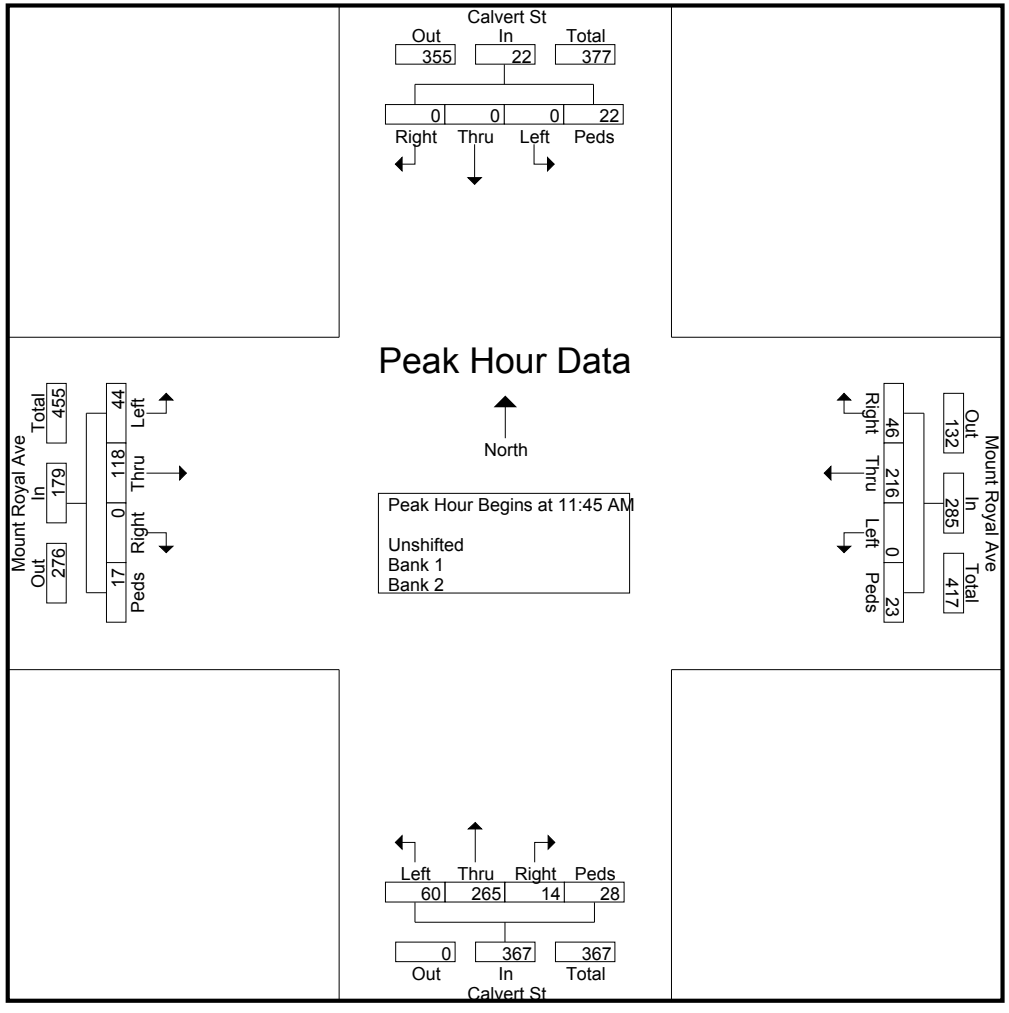
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | Mount Royal Ave From East | | | | | Calvert St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 11:00 AM | 0 | 0 | 0 | 3 | 3 | 11 | 38 | 0 | 2 | 51 | 3 | 61 | 16 | 7 | 87 | 0 | 46 | 11 | 8 | 65 | 206 |
| 11:15 AM | 0 | 0 | 0 | 0 | 0 | 4 | 37 | 0 | 2 | 43 | 2 | 57 | 17 | 6 | 82 | 0 | 21 | 10 | 5 | 36 | 161 |
| 11:30 AM | 0 | 0 | 0 | 5 | 5 | 6 | 38 | 0 | 8 | 52 | 1 | 45 | 14 | 8 | 68 | 0 | 27 | 10 | 6 | 43 | 168 |
| 11:45 AM | 0 | 0 | 0 | 9 | 9 | 8 | 47 | 0 | 6 | 61 | 1 | 70 | 20 | 16 | 107 | 0 | 34 | 9 | 6 | 49 | 226 |
| Total | 0 | 0 | 0 | 17 | 17 | 29 | 160 | 0 | 18 | 207 | 7 | 233 | 67 | 37 | 344 | 0 | 128 | 40 | 25 | 193 | 761 |
| 12:00 PM | 0 | 0 | 0 | 6 | 6 | 14 | 61 | 0 | 4 | 79 | 5 | 64 | 15 | 4 | 88 | 0 | 29 | 16 | 3 | 48 | 221 |
| 12:15 PM | 0 | 0 | 0 | 2 | 2 | 10 | 59 | 0 | 6 | 75 | 7 | 75 | 13 | 7 | 102 | 0 | 33 | 9 | 4 | 46 | 225 |
| 12:30 PM | 0 | 0 | 0 | 5 | 5 | 14 | 49 | 0 | 7 | 70 | 1 | 56 | 12 | 1 | 70 | 0 | 22 | 10 | 4 | 36 | 181 |
| 12:45 PM | 0 | 0 | 0 | 5 | 5 | 9 | 43 | 0 | 6 | 58 | 7 | 65 | 10 | 0 | 82 | 0 | 19 | 8 | 6 | 33 | 178 |
| Total | 0 | 0 | 0 | 18 | 18 | 47 | 212 | 0 | 23 | 282 | 20 | 260 | 50 | 12 | 342 | 0 | 103 | 43 | 17 | 163 | 805 |
| Grand Total | 0 | 0 | 0 | 35 | 35 | 76 | 372 | 0 | 41 | 489 | 27 | 493 | 117 | 49 | 686 | 0 | 231 | 83 | 42 | 356 | 1566 |
| Apprch % | 0 | 0 | 0 | 100 | | 15.5 | 76.1 | 0 | 8.4 | | 3.9 | 71.9 | 17.1 | 7.1 | | 0 | 64.9 | 23.3 | 11.8 | | |
| Total % | 0 | 0 | 0 | 2.2 | 2.2 | 4.9 | 23.8 | 0 | 2.6 | 31.2 | 1.7 | 31.5 | 7.5 | 3.1 | 43.8 | 0 | 14.8 | 5.3 | 2.7 | 22.7 | |
| Unshifted | 0 | 0 | 0 | 35 | 35 | 76 | 372 | 0 | 41 | 489 | 27 | 493 | 117 | 49 | 686 | 0 | 231 | 83 | 42 | 356 | 1566 |
| % Unshifted | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | Calvert St From North | | | | | Mount Royal Ave From East | | | | | Calvert St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 11:45 AM | | | | | | | | | | | | | | | | | | | | | |
| **11:45 AM** | **0** | **0** | **0** | 9 | 9 | 8 | 47 | 0 | 6 | 61 | 1 | 70 | 20 | 16 | **107** | 0 | **34** | 9 | **6** | **49** | **226** |
| 12:00 PM | 0 | 0 | 0 | 6 | 6 | **14** | **61** | 0 | 4 | **79** | 5 | 64 | 15 | 4 | 88 | 0 | 29 | **16** | 3 | 48 | 221 |
| 12:15 PM | 0 | 0 | 0 | 2 | 2 | 10 | 59 | 0 | 6 | 75 | **7** | **75** | 13 | 7 | 102 | 0 | 33 | 9 | 4 | 46 | 225 |
| 12:30 PM | 0 | 0 | 0 | 5 | 5 | 14 | 49 | 0 | **7** | 70 | 1 | 56 | 12 | 1 | 70 | 0 | 22 | 10 | 4 | 36 | 181 |
| Total Volume | 0 | 0 | 0 | 22 | 22 | 46 | 216 | 0 | 23 | 285 | 14 | 265 | 60 | 28 | 367 | 0 | 118 | 44 | 17 | 179 | 853 |
| % App. Total | 0 | 0 | 0 | 100 | | 16.1 | 75.8 | 0 | 8.1 | | 3.8 | 72.2 | 16.3 | 7.6 | | 0 | 65.9 | 24.6 | 9.5 | | |
| PHF | .000 | .000 | .000 | .611 | .611 | .821 | .885 | .000 | .821 | .902 | .500 | .883 | .750 | .438 | .857 | .000 | .868 | .688 | .708 | .913 | .944 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : MountRoyal_Calvert_MD
Site Code : 00000000
Start Date : 9/3/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : MountRoyal_Calvert_MD
Site Code : 00000000
Start Date : 9/3/2015
Page No : 3

| | Calvert St From North | | | | | Mount Royal Ave From East | | | | | Calvert St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

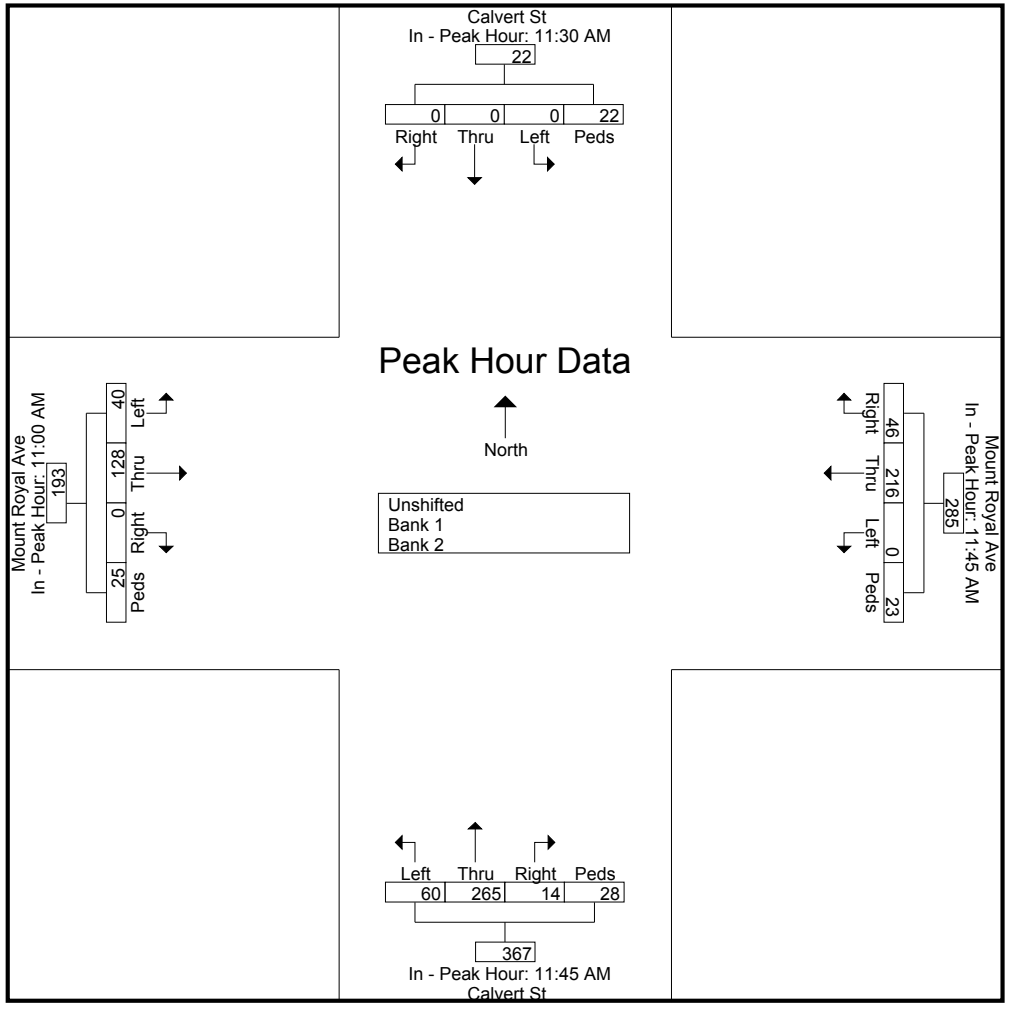
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 11:30 AM | | | | | 11:45 AM | | | | | 11:45 AM | | | | | 11:00 AM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **0** | **0** | **0** | **5** | **5** | **8** | **47** | **0** | **6** | **61** | **1** | **70** | 20 | 16 | 107 | 0 | 46 | **11** | **8** | **65** |
| +15 mins. | 0 | 0 | 0 | **9** | **9** | **14** | **61** | 0 | 4 | **79** | 5 | 64 | 15 | 4 | 88 | 0 | 21 | 10 | 5 | 36 |
| +30 mins. | 0 | 0 | 0 | 6 | 6 | 10 | 59 | 0 | 6 | 75 | **7** | **75** | 13 | 7 | 102 | 0 | 27 | 10 | 6 | 43 |
| +45 mins. | 0 | 0 | 0 | 2 | 2 | 14 | 49 | 0 | **7** | 70 | 1 | 56 | 12 | 1 | 70 | 0 | 34 | 9 | 6 | 49 |
| Total Volume | 0 | 0 | 0 | 22 | 22 | 46 | 216 | 0 | 23 | 285 | 14 | 265 | 60 | 28 | 367 | 0 | 128 | 40 | 25 | 193 |
| % App. Total | 0 | 0 | 0 | 100 | | 16.1 | 75.8 | 0 | 8.1 | | 3.8 | 72.2 | 16.3 | 7.6 | | 0 | 66.3 | 20.7 | 13 | |
| PHF | .000 | .000 | .000 | .611 | .611 | .821 | .885 | .000 | .821 | .902 | .500 | .883 | .750 | .438 | .857 | .000 | .696 | .909 | .781 | .742 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : MountRoyal_Calvert_MD
Site Code : 00000000
Start Date : 9/3/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : MountRoyal_Calvert_PM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 1

**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | Mount Royal Ave From East | | | | | Calvert St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 03:30 PM | 0 | 0 | 0 | 2 | 2 | 9 | 108 | 0 | 3 | 120 | 2 | 99 | 38 | 4 | 143 | 0 | 50 | 9 | 3 | 62 | 327 |
| 03:45 PM | 0 | 0 | 0 | 3 | 3 | 19 | 102 | 0 | 5 | 126 | 3 | 166 | 28 | 2 | 199 | 0 | 43 | 16 | 4 | 63 | 391 |
| Total | 0 | 0 | 0 | 5 | 5 | 28 | 210 | 0 | 8 | 246 | 5 | 265 | 66 | 6 | 342 | 0 | 93 | 25 | 7 | 125 | 718 |
| 04:00 PM | 0 | 0 | 0 | 5 | 5 | 16 | 101 | 0 | 5 | 122 | 3 | 126 | 24 | 2 | 155 | 0 | 44 | 19 | 4 | 67 | 349 |
| 04:15 PM | 0 | 0 | 0 | 9 | 9 | 13 | 105 | 0 | 8 | 126 | 1 | 171 | 40 | 7 | 219 | 0 | 44 | 19 | 17 | 80 | 434 |
| 04:30 PM | 0 | 0 | 0 | 6 | 6 | 23 | 112 | 0 | 7 | 142 | 0 | 164 | 41 | 3 | 208 | 0 | 53 | 18 | 5 | 76 | 432 |
| 04:45 PM | 0 | 0 | 0 | 8 | 8 | 42 | 91 | 0 | 6 | 139 | 9 | 188 | 39 | 5 | 241 | 0 | 43 | 15 | 7 | 65 | 453 |
| Total | 0 | 0 | 0 | 28 | 28 | 94 | 409 | 0 | 26 | 529 | 13 | 649 | 144 | 17 | 823 | 0 | 184 | 71 | 33 | 288 | 1668 |
| 05:00 PM | 0 | 0 | 0 | 11 | 11 | 52 | 126 | 0 | 9 | 187 | 5 | 194 | 30 | 4 | 233 | 0 | 56 | 15 | 2 | 73 | 504 |
| 05:15 PM | 0 | 0 | 0 | 14 | 14 | 43 | 128 | 0 | 7 | 178 | 3 | 274 | 28 | 10 | 315 | 0 | 35 | 24 | 8 | 67 | 574 |
| 05:30 PM | 0 | 0 | 0 | 7 | 7 | 52 | 152 | 0 | 2 | 206 | 7 | 213 | 29 | 5 | 254 | 0 | 56 | 18 | 8 | 82 | 549 |
| 05:45 PM | 0 | 0 | 0 | 14 | 14 | 40 | 94 | 0 | 2 | 136 | 9 | 183 | 24 | 5 | 221 | 0 | 46 | 14 | 9 | 69 | 440 |
| Total | 0 | 0 | 0 | 46 | 46 | 187 | 500 | 0 | 20 | 707 | 24 | 864 | 111 | 24 | 1023 | 0 | 193 | 71 | 27 | 291 | 2067 |
| 06:00 PM | 0 | 0 | 0 | 15 | 15 | 16 | 69 | 0 | 7 | 92 | 11 | 118 | 30 | 6 | 165 | 0 | 37 | 29 | 10 | 76 | 348 |
| 06:15 PM | 0 | 0 | 0 | 10 | 10 | 27 | 120 | 0 | 4 | 151 | 7 | 111 | 27 | 6 | 151 | 0 | 43 | 19 | 7 | 69 | 381 |
| Grand Total | 0 | 0 | 0 | 104 | 104 | 352 | 1308 | 0 | 65 | 1725 | 60 | 2007 | 378 | 59 | 2504 | 0 | 550 | 215 | 84 | 849 | 5182 |
| Apprch % | 0 | 0 | 0 | 100 | | 20.4 | 75.8 | 0 | 3.8 | | 2.4 | 80.2 | 15.1 | 2.4 | | 0 | 64.8 | 25.3 | 9.9 | | |
| Total % | 0 | 0 | 0 | 2 | 2 | 6.8 | 25.2 | 0 | 1.3 | 33.3 | 1.2 | 38.7 | 7.3 | 1.1 | 48.3 | 0 | 10.6 | 4.1 | 1.6 | 16.4 | |
| Unshifted | 0 | 0 | 0 | 104 | 104 | 352 | 1308 | 0 | 65 | 1725 | 60 | 2007 | 378 | 59 | 2504 | 0 | 550 | 215 | 84 | 849 | 5182 |
| % Unshifted | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

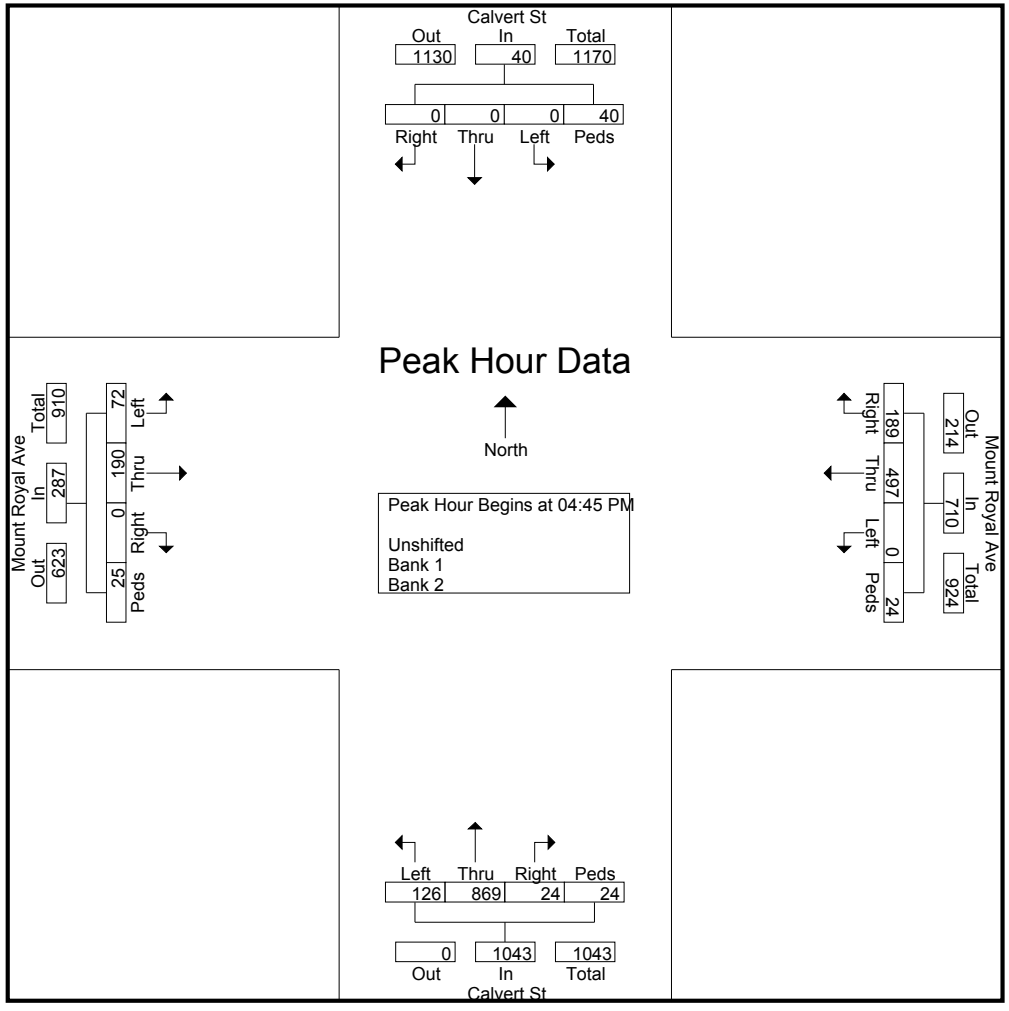
Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : MountRoyal_Calvert_PM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 2

| | Calvert St From North | | | | | Mount Royal Ave From East | | | | | Calvert St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:30 PM to 06:00 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| **04:45 PM** | **0** | **0** | **0** | **8** | **8** | **42** | **91** | **0** | **6** | **139** | 9 | 188 | 39 | 5 | 241 | 0 | 43 | 15 | 7 | 65 | 453 |
| 05:00 PM | 0 | 0 | 0 | 11 | 11 | 52 | 126 | 0 | 9 | 187 | 5 | 194 | 30 | 4 | 233 | 0 | **56** | 15 | 2 | 73 | 504 |
| 05:15 PM | 0 | 0 | 0 | **14** | **14** | 43 | 128 | 0 | 7 | 178 | 3 | **274** | 28 | **10** | **315** | 0 | 35 | **24** | **8** | 67 | **574** |
| 05:30 PM | 0 | 0 | 0 | 7 | 7 | 52 | **152** | 0 | 2 | **206** | 7 | 213 | 29 | 5 | 254 | 0 | 56 | 18 | 8 | **82** | 549 |
| Total Volume | 0 | 0 | 0 | 40 | 40 | 189 | 497 | 0 | 24 | 710 | 24 | 869 | 126 | 24 | 1043 | 0 | 190 | 72 | 25 | 287 | 2080 |
| % App. Total | 0 | 0 | 0 | 100 | | 26.6 | 70 | 0 | 3.4 | | 2.3 | 83.3 | 12.1 | 2.3 | | 0 | 66.2 | 25.1 | 8.7 | | |
| PHF | .000 | .000 | .000 | .714 | .714 | .909 | .817 | .000 | .667 | .862 | .667 | .793 | .808 | .600 | .828 | .000 | .848 | .750 | .781 | .875 | .906 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : MountRoyal_Calvert_PM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 3



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : MountRoyal_Calvert_PM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 4

| | Calvert St From North | | | | | Mount Royal Ave From East | | | | | Calvert St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

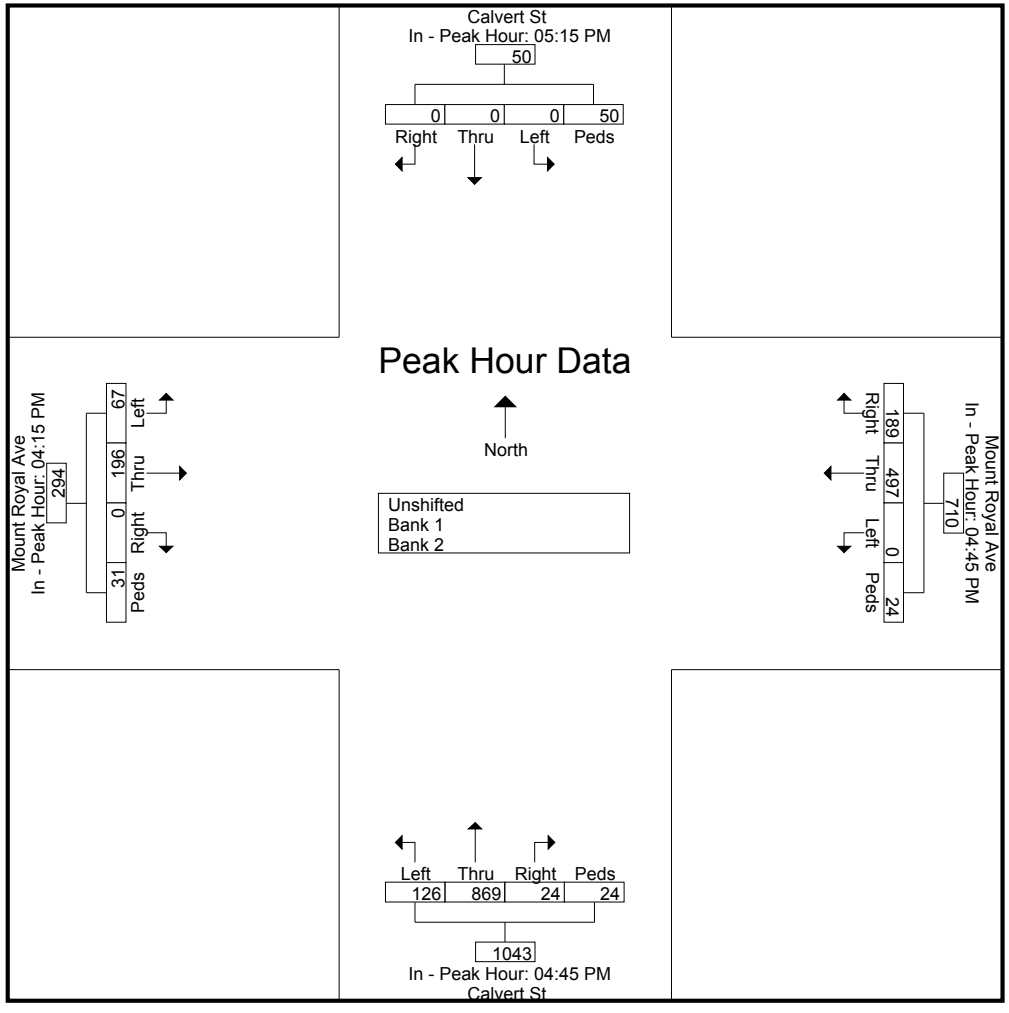
Peak Hour Analysis From 03:30 PM to 06:00 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 05:15 PM | | | | | 04:45 PM | | | | | 04:45 PM | | | | | 04:15 PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **0** | **0** | **0** | **14** | **14** | **42** | **91** | **0** | **6** | **139** | 9 | 188 | 39 | 5 | 241 | 0 | 44 | 19 | 17 | **80** |
| +15 mins. | 0 | 0 | 0 | 7 | 7 | **52** | 126 | 0 | **9** | 187 | 5 | 194 | 30 | 4 | 233 | 0 | 53 | 18 | 5 | 76 |
| +30 mins. | 0 | 0 | 0 | 14 | 14 | 43 | 128 | 0 | 7 | 178 | 3 | **274** | 28 | **10** | **315** | 0 | 43 | 15 | 7 | 65 |
| +45 mins. | 0 | 0 | 0 | **15** | **15** | 52 | **152** | 0 | 2 | **206** | 7 | 213 | 29 | 5 | 254 | 0 | **56** | 15 | 2 | 73 |
| Total Volume | 0 | 0 | 0 | 50 | 50 | 189 | 497 | 0 | 24 | 710 | 24 | 869 | 126 | 24 | 1043 | 0 | 196 | 67 | 31 | 294 |
| % App. Total | 0 | 0 | 0 | 100 | | 26.6 | 70 | 0 | 3.4 | | 2.3 | 83.3 | 12.1 | 2.3 | | 0 | 66.7 | 22.8 | 10.5 | |
| PHF | .000 | .000 | .000 | .833 | .833 | .909 | .817 | .000 | .667 | .862 | .667 | .793 | .808 | .600 | .828 | .000 | .875 | .882 | .456 | .919 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : MountRoyal_Calvert_PM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 5



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_Calvert_AM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 1

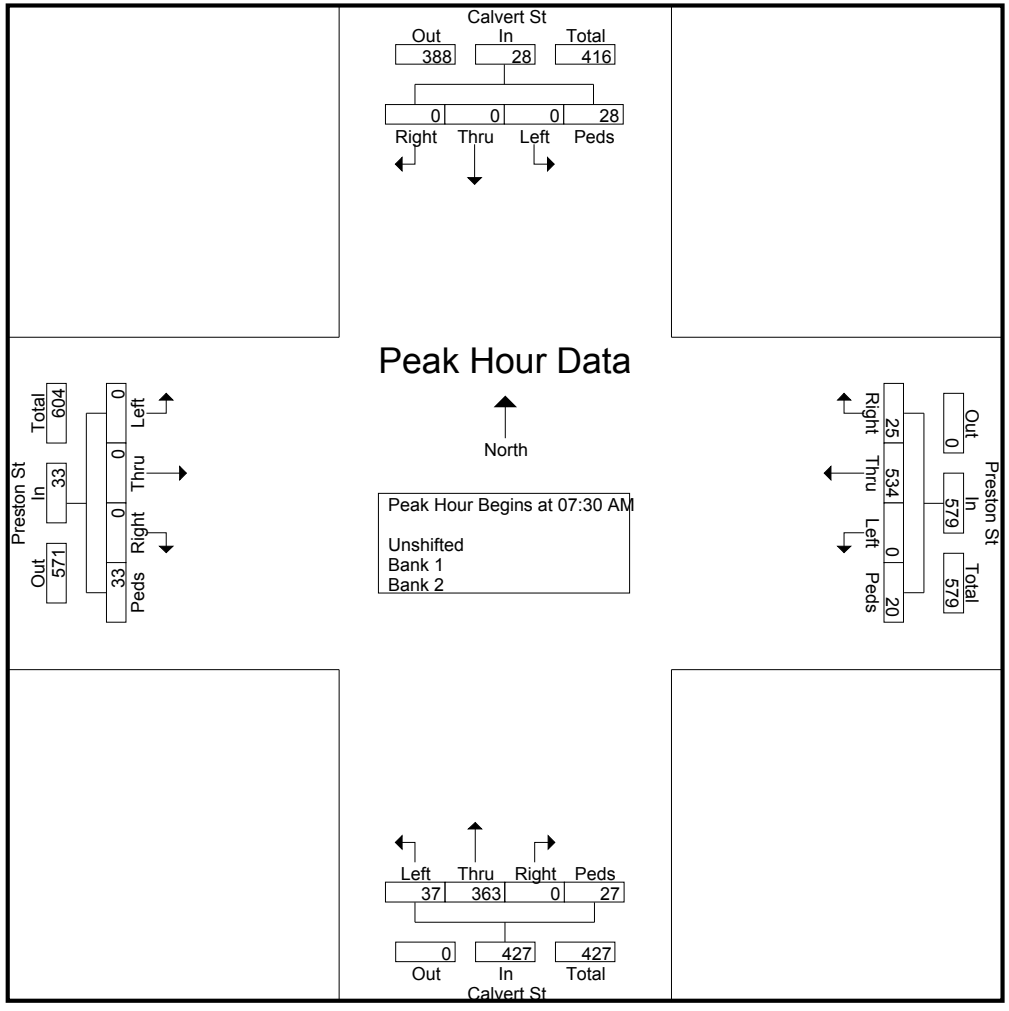
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | Preston St From East | | | | | Calvert St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 0 | 0 | 4 | 4 | 0 | 109 | 0 | 3 | 112 | 0 | 82 | 3 | 6 | 91 | 0 | 0 | 0 | 5 | 5 | 212 |
| 07:15 AM | 0 | 0 | 0 | 4 | 4 | 4 | 111 | 0 | 6 | 121 | 0 | 97 | 6 | 4 | 107 | 0 | 0 | 0 | 8 | 8 | 240 |
| 07:30 AM | 0 | 0 | 0 | 3 | 3 | 5 | 136 | 0 | 4 | 145 | 0 | 95 | 7 | 5 | 107 | 0 | 0 | 0 | 5 | 5 | 260 |
| 07:45 AM | 0 | 0 | 0 | 9 | 9 | 9 | 138 | 0 | 4 | 151 | 0 | 85 | 11 | 9 | 105 | 0 | 0 | 0 | 10 | 10 | 275 |
| Total | 0 | 0 | 0 | 20 | 20 | 18 | 494 | 0 | 17 | 529 | 0 | 359 | 27 | 24 | 410 | 0 | 0 | 0 | 28 | 28 | 987 |
| 08:00 AM | 0 | 0 | 0 | 9 | 9 | 3 | 135 | 0 | 6 | 144 | 0 | 82 | 6 | 5 | 93 | 0 | 0 | 0 | 13 | 13 | 259 |
| 08:15 AM | 0 | 0 | 0 | 7 | 7 | 8 | 125 | 0 | 6 | 139 | 0 | 101 | 13 | 8 | 122 | 0 | 0 | 0 | 5 | 5 | 273 |
| 08:30 AM | 0 | 0 | 0 | 8 | 8 | 5 | 138 | 0 | 4 | 147 | 0 | 78 | 8 | 11 | 97 | 0 | 0 | 0 | 7 | 7 | 259 |
| 08:45 AM | 0 | 0 | 0 | 5 | 5 | 3 | 111 | 0 | 12 | 126 | 0 | 57 | 13 | 5 | 75 | 0 | 0 | 0 | 10 | 10 | 216 |
| Total | 0 | 0 | 0 | 29 | 29 | 19 | 509 | 0 | 28 | 556 | 0 | 318 | 40 | 29 | 387 | 0 | 0 | 0 | 35 | 35 | 1007 |
| Grand Total | 0 | 0 | 0 | 49 | 49 | 37 | 1003 | 0 | 45 | 1085 | 0 | 677 | 67 | 53 | 797 | 0 | 0 | 0 | 63 | 63 | 1994 |
| Apprch % | 0 | 0 | 0 | 100 | | 3.4 | 92.4 | 0 | 4.1 | | 0 | 84.9 | 8.4 | 6.6 | | 0 | 0 | 0 | 100 | | |
| Total % | 0 | 0 | 0 | 2.5 | 2.5 | 1.9 | 50.3 | 0 | 2.3 | 54.4 | 0 | 34 | 3.4 | 2.7 | 40 | 0 | 0 | 0 | 3.2 | 3.2 | |
| Unshifted | 0 | 0 | 0 | 49 | 49 | 37 | 1003 | 0 | 45 | 1085 | 0 | 677 | 67 | 53 | 797 | 0 | 0 | 0 | 63 | 63 | 1994 |
| % Unshifted | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | Calvert St From North | | | | | Preston St From East | | | | | Calvert St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| **07:30 AM** | **0** | **0** | **0** | **3** | **3** | **5** | **136** | **0** | **4** | **145** | **0** | **95** | **7** | **5** | **107** | **0** | **0** | **0** | **5** | **5** | **260** |
| **07:45 AM** | **0** | **0** | **0** | 9 | 9 | 9 | 138 | 0 | 4 | **151** | 0 | 85 | 11 | **9** | 105 | 0 | 0 | 0 | 10 | 10 | **275** |
| 08:00 AM | 0 | 0 | 0 | 9 | 9 | 3 | 135 | 0 | **6** | 144 | 0 | 82 | 6 | 5 | 93 | 0 | 0 | 0 | **13** | **13** | 259 |
| 08:15 AM | 0 | 0 | 0 | 7 | 7 | 8 | 125 | 0 | 6 | 139 | 0 | **101** | **13** | 8 | **122** | 0 | 0 | 0 | 5 | 5 | 273 |
| Total Volume | 0 | 0 | 0 | 28 | 28 | 25 | 534 | 0 | 20 | 579 | 0 | 363 | 37 | 27 | 427 | 0 | 0 | 0 | 33 | 33 | 1067 |
| % App. Total | 0 | 0 | 0 | 100 | | 4.3 | 92.2 | 0 | 3.5 | | 0 | 85 | 8.7 | 6.3 | | 0 | 0 | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .778 | .778 | .694 | .967 | .000 | .833 | .959 | .000 | .899 | .712 | .750 | .875 | .000 | .000 | .000 | .635 | .635 | .970 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_Calvert_AM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_Calvert_AM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 3

| | Calvert St From North | | | | | Preston St From East | | | | | Calvert St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

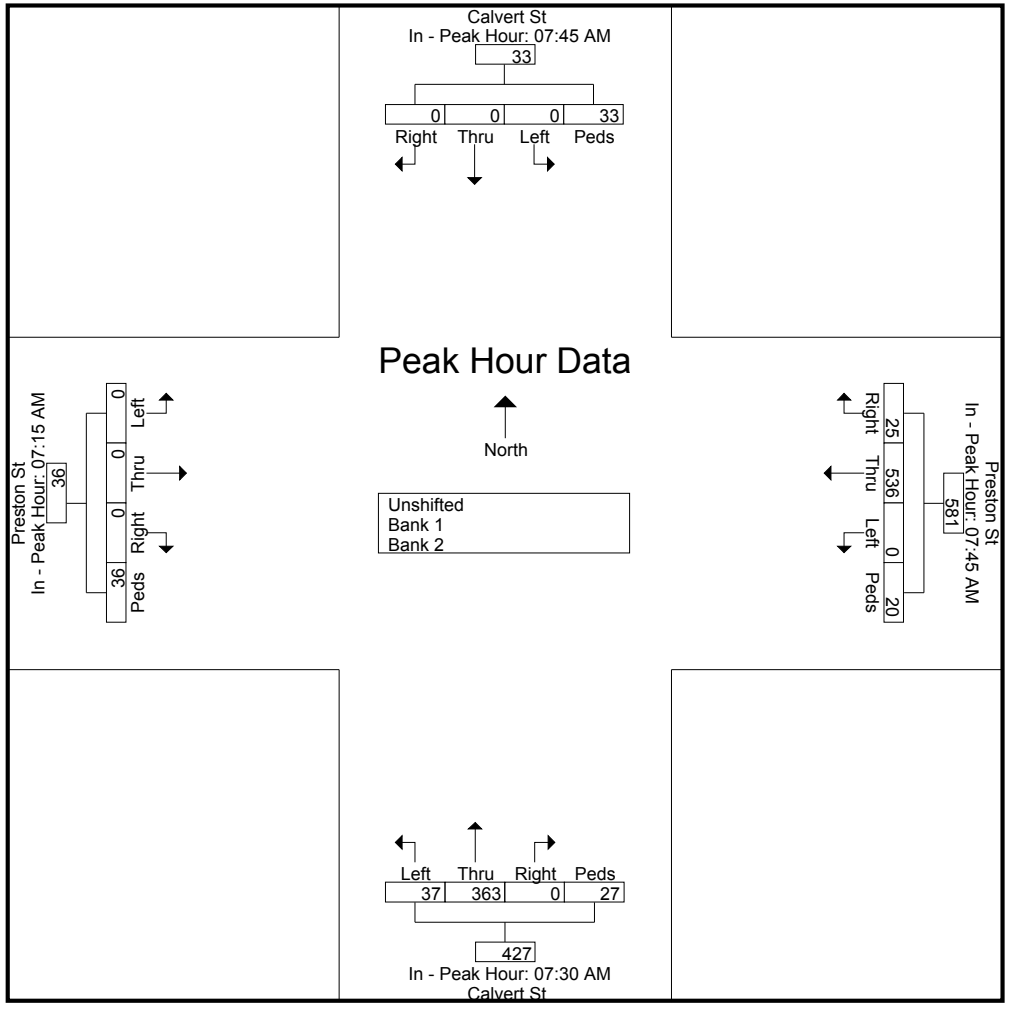
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 07:45 AM | | | | | 07:45 AM | | | | | 07:30 AM | | | | | 07:15 AM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **0** | **0** | **0** | 9 | 9 | 9 | 138 | 0 | 4 | **151** | 0 | 95 | 7 | 5 | 107 | 0 | 0 | 0 | 8 | 8 |
| +15 mins. | 0 | 0 | 0 | 9 | 9 | 3 | 135 | 0 | **6** | 144 | 0 | 85 | 11 | **9** | 105 | 0 | 0 | 0 | 5 | 5 |
| +30 mins. | 0 | 0 | 0 | 7 | 7 | 8 | 125 | 0 | 6 | 139 | 0 | 82 | 6 | 5 | 93 | 0 | 0 | 0 | 10 | 10 |
| +45 mins. | 0 | 0 | 0 | 8 | 8 | 5 | 138 | 0 | 4 | 147 | 0 | **101** | **13** | 8 | **122** | 0 | 0 | 0 | **13** | **13** |
| Total Volume | 0 | 0 | 0 | 33 | 33 | 25 | 536 | 0 | 20 | 581 | 0 | 363 | 37 | 27 | 427 | 0 | 0 | 0 | 36 | 36 |
| % App. Total | 0 | 0 | 0 | 100 | | 4.3 | 92.3 | 0 | 3.4 | | 0 | 85 | 8.7 | 6.3 | | 0 | 0 | 0 | 100 | |
| PHF | .000 | .000 | .000 | .917 | .917 | .694 | .971 | .000 | .833 | .962 | .000 | .899 | .712 | .750 | .875 | .000 | .000 | .000 | .692 | .692 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_Calvert_AM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_Calvert_MD
Site Code : 00000000
Start Date : 9/10/2015
Page No : 1

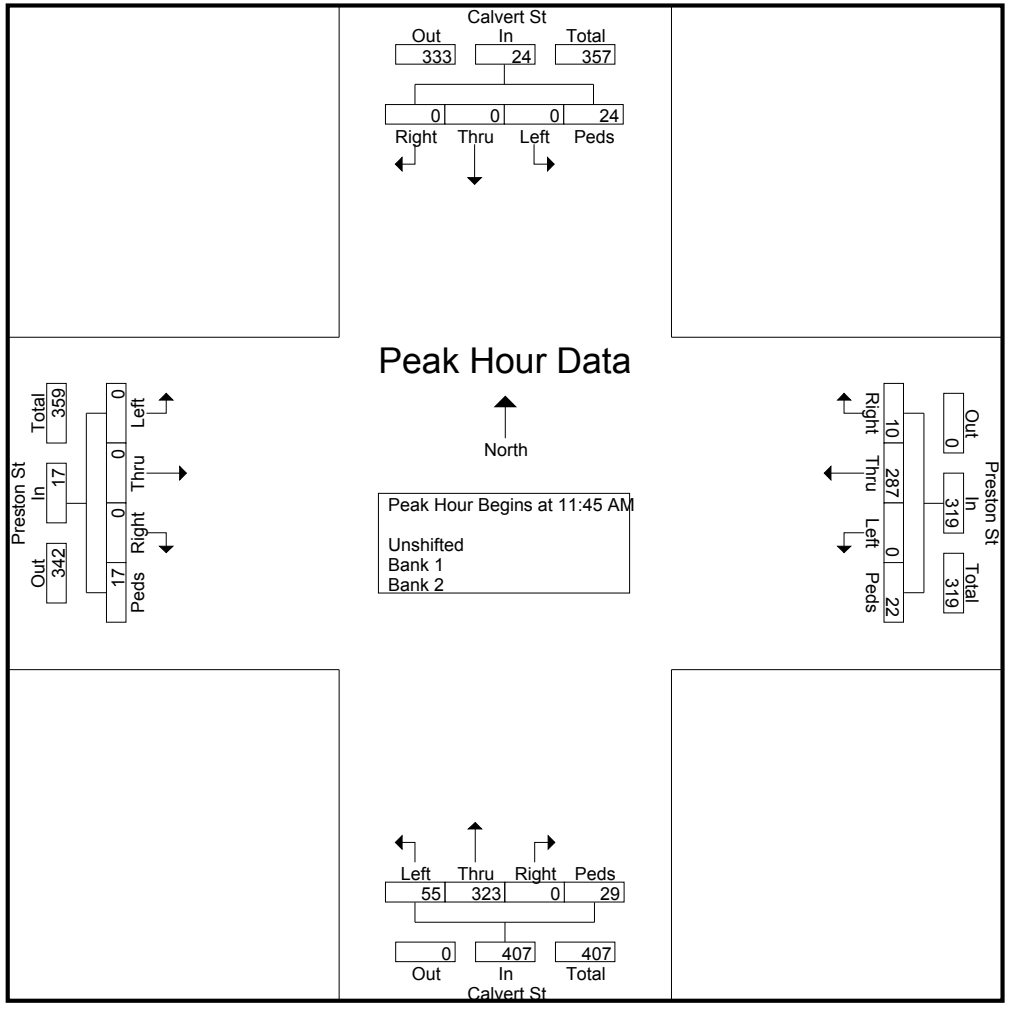
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | Preston St From East | | | | | Calvert St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 11:00 AM | 0 | 0 | 0 | 2 | 2 | 5 | 76 | 0 | 1 | 82 | 0 | 62 | 8 | 3 | 73 | 0 | 0 | 0 | 5 | 5 | 162 |
| 11:15 AM | 0 | 0 | 0 | 2 | 2 | 1 | 66 | 0 | 2 | 69 | 0 | 65 | 7 | 2 | 74 | 0 | 0 | 0 | 2 | 2 | 147 |
| 11:30 AM | 0 | 0 | 0 | 4 | 4 | 4 | 50 | 0 | 2 | 56 | 0 | 64 | 10 | 3 | 77 | 0 | 0 | 0 | 10 | 10 | 147 |
| 11:45 AM | 0 | 0 | 0 | 3 | 3 | 4 | 57 | 0 | 6 | 67 | 0 | 85 | 16 | 7 | 108 | 0 | 0 | 0 | 6 | 6 | 184 |
| Total | 0 | 0 | 0 | 11 | 11 | 14 | 249 | 0 | 11 | 274 | 0 | 276 | 41 | 15 | 332 | 0 | 0 | 0 | 23 | 23 | 640 |
| 12:00 PM | 0 | 0 | 0 | 5 | 5 | 3 | 79 | 0 | 6 | 88 | 0 | 81 | 10 | 5 | 96 | 0 | 0 | 0 | 1 | 1 | 190 |
| 12:15 PM | 0 | 0 | 0 | 9 | 9 | 3 | 74 | 0 | 4 | 81 | 0 | 67 | 14 | 9 | 90 | 0 | 0 | 0 | 4 | 4 | 184 |
| 12:30 PM | 0 | 0 | 0 | 7 | 7 | 0 | 77 | 0 | 6 | 83 | 0 | 90 | 15 | 8 | 113 | 0 | 0 | 0 | 6 | 6 | 209 |
| 12:45 PM | 0 | 0 | 0 | 4 | 4 | 0 | 69 | 0 | 2 | 71 | 0 | 84 | 7 | 6 | 97 | 0 | 0 | 0 | 7 | 7 | 179 |
| Total | 0 | 0 | 0 | 25 | 25 | 6 | 299 | 0 | 18 | 323 | 0 | 322 | 46 | 28 | 396 | 0 | 0 | 0 | 18 | 18 | 762 |
| Grand Total | 0 | 0 | 0 | 36 | 36 | 20 | 548 | 0 | 29 | 597 | 0 | 598 | 87 | 43 | 728 | 0 | 0 | 0 | 41 | 41 | 1402 |
| Apprch % | 0 | 0 | 0 | 100 | | 3.4 | 91.8 | 0 | 4.9 | | 0 | 82.1 | 12 | 5.9 | | 0 | 0 | 0 | 100 | | |
| Total % | 0 | 0 | 0 | 2.6 | 2.6 | 1.4 | 39.1 | 0 | 2.1 | 42.6 | 0 | 42.7 | 6.2 | 3.1 | 51.9 | 0 | 0 | 0 | 2.9 | 2.9 | |
| Unshifted | 0 | 0 | 0 | 36 | 36 | 20 | 548 | 0 | 29 | 597 | 0 | 598 | 87 | 43 | 728 | 0 | 0 | 0 | 41 | 41 | 1402 |
| % Unshifted | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | Calvert St From North | | | | | Preston St From East | | | | | Calvert St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 11:45 AM | | | | | | | | | | | | | | | | | | | | | |
| **11:45 AM** | **0** | **0** | **0** | **3** | **3** | 4 | 57 | 0 | 6 | 67 | 0 | 85 | 16 | 7 | 108 | 0 | 0 | 0 | 6 | **6** | 184 |
| 12:00 PM | 0 | 0 | 0 | 5 | 5 | 3 | **79** | 0 | 6 | **88** | 0 | 81 | 10 | 5 | 96 | 0 | 0 | 0 | 1 | 1 | 190 |
| 12:15 PM | 0 | 0 | 0 | **9** | **9** | 3 | 74 | 0 | 4 | 81 | 0 | 67 | 14 | **9** | 90 | 0 | 0 | 0 | 4 | 4 | 184 |
| 12:30 PM | 0 | 0 | 0 | 7 | 7 | 0 | 77 | 0 | 6 | 83 | 0 | **90** | 15 | 8 | **113** | 0 | 0 | 0 | 6 | 6 | **209** |
| Total Volume | 0 | 0 | 0 | 24 | 24 | 10 | 287 | 0 | 22 | 319 | 0 | 323 | 55 | 29 | 407 | 0 | 0 | 0 | 17 | 17 | 767 |
| % App. Total | 0 | 0 | 0 | 100 | | 3.1 | 90 | 0 | 6.9 | | 0 | 79.4 | 13.5 | 7.1 | | 0 | 0 | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .667 | .667 | .625 | .908 | .000 | .917 | .906 | .000 | .897 | .859 | .806 | .900 | .000 | .000 | .000 | .708 | .708 | .917 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_Calvert_MD
Site Code : 00000000
Start Date : 9/10/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_Calvert_MD
Site Code : 00000000
Start Date : 9/10/2015
Page No : 3

| | Calvert St From North | | | | | Preston St From East | | | | | Calvert St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

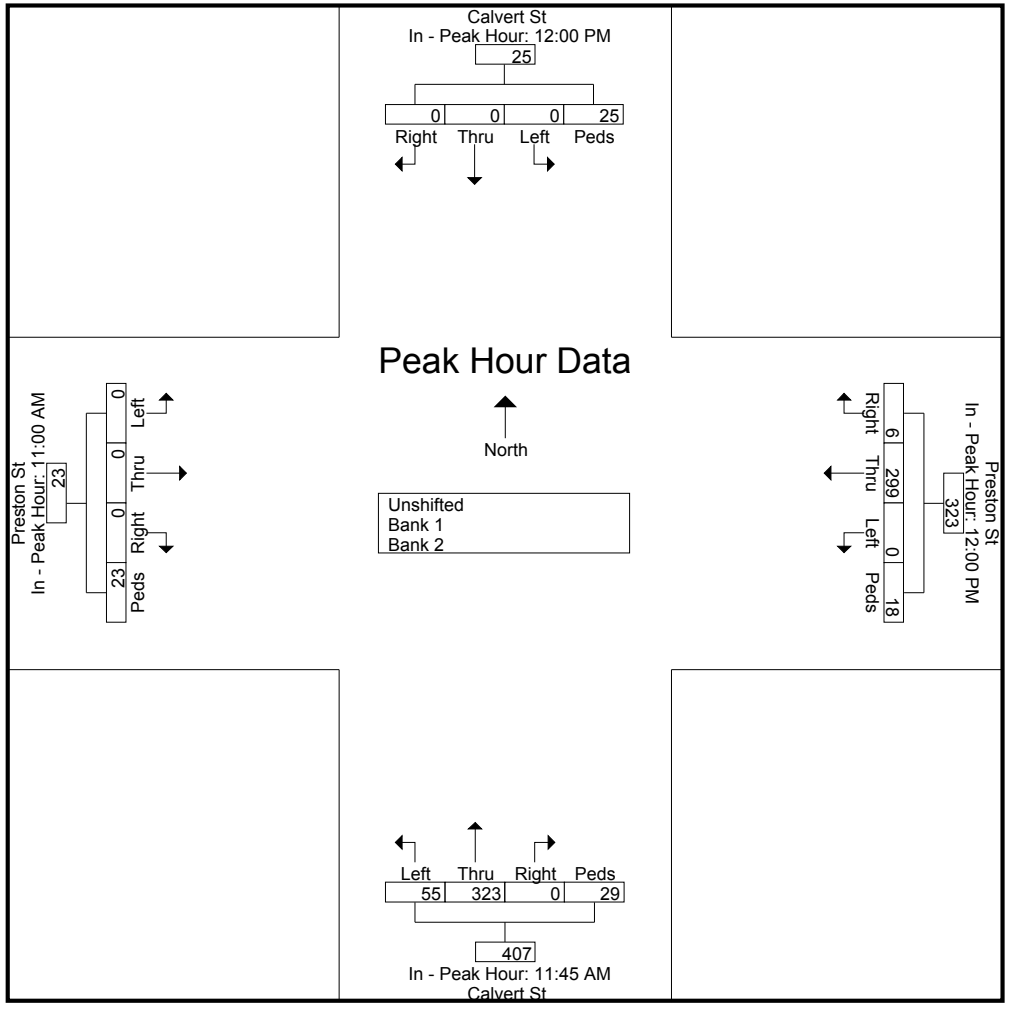
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **12:00 PM** | | | | | **12:00 PM** | | | | | **11:45 AM** | | | | | **11:00 AM** | | | | | |
| **+0 mins.** | **0** | **0** | **0** | **5** | **5** | 3 | 79 | 0 | 6 | 88 | 0 | 85 | **16** | 7 | 108 | 0 | 0 | 0 | 5 | 5 | |
| +15 mins. | 0 | 0 | 0 | **9** | **9** | 3 | 74 | 0 | 4 | 81 | 0 | 81 | 10 | 5 | 96 | 0 | 0 | 0 | 2 | 2 | |
| +30 mins. | 0 | 0 | 0 | 7 | 7 | 0 | 77 | 0 | 6 | 83 | 0 | 67 | 14 | **9** | 90 | 0 | 0 | 0 | **10** | **10** | |
| +45 mins. | 0 | 0 | 0 | 4 | 4 | 0 | 69 | 0 | 2 | 71 | 0 | **90** | 15 | 8 | **113** | 0 | 0 | 0 | 6 | 6 | |
| Total Volume | 0 | 0 | 0 | 25 | 25 | 6 | 299 | 0 | 18 | 323 | 0 | 323 | 55 | 29 | 407 | 0 | 0 | 0 | 23 | 23 | |
| % App. Total | 0 | 0 | 0 | 100 | | 1.9 | 92.6 | 0 | 5.6 | | 0 | 79.4 | 13.5 | 7.1 | | 0 | 0 | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .694 | .694 | .500 | .946 | .000 | .750 | .918 | .000 | .897 | .859 | .806 | .900 | .000 | .000 | .000 | .575 | .575 | |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_Calvert_MD
Site Code : 00000000
Start Date : 9/10/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_Calvert_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 1

**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | Preston St From East | | | | | Calvert St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 03:30 PM | 0 | 0 | 0 | 5 | 5 | 9 | 93 | 0 | 4 | 106 | 0 | 213 | 22 | 4 | 239 | 0 | 0 | 0 | 9 | 9 | 359 |
| 03:45 PM | 0 | 0 | 0 | 8 | 8 | 3 | 78 | 0 | 7 | 88 | 0 | 203 | 30 | 5 | 238 | 0 | 0 | 0 | 5 | 5 | 339 |
| Total | 0 | 0 | 0 | 13 | 13 | 12 | 171 | 0 | 11 | 194 | 0 | 416 | 52 | 9 | 477 | 0 | 0 | 0 | 14 | 14 | 698 |
| 04:00 PM | 0 | 0 | 0 | 6 | 6 | 4 | 116 | 0 | 5 | 125 | 0 | 213 | 25 | 5 | 243 | 0 | 0 | 0 | 7 | 7 | 381 |
| 04:15 PM | 0 | 0 | 0 | 18 | 18 | 5 | 74 | 0 | 5 | 84 | 0 | 226 | 24 | 3 | 253 | 0 | 0 | 0 | 9 | 9 | 364 |
| 04:30 PM | 0 | 0 | 0 | 8 | 8 | 8 | 123 | 0 | 4 | 135 | 0 | 212 | 18 | 3 | 233 | 0 | 0 | 0 | 5 | 5 | 381 |
| 04:45 PM | 0 | 0 | 0 | 3 | 3 | 3 | 88 | 0 | 4 | 95 | 0 | 222 | 26 | 9 | 257 | 0 | 0 | 0 | 3 | 3 | 358 |
| Total | 0 | 0 | 0 | 35 | 35 | 20 | 401 | 0 | 18 | 439 | 0 | 873 | 93 | 20 | 986 | 0 | 0 | 0 | 24 | 24 | 1484 |
| 05:00 PM | 0 | 0 | 0 | 10 | 10 | 5 | 114 | 0 | 3 | 122 | 0 | 206 | 20 | 8 | 234 | 0 | 0 | 0 | 6 | 6 | 372 |
| 05:15 PM | 0 | 0 | 0 | 6 | 6 | 7 | 83 | 0 | 9 | 99 | 0 | 229 | 35 | 11 | 275 | 0 | 0 | 0 | 5 | 5 | 385 |
| 05:30 PM | 0 | 0 | 0 | 11 | 11 | 13 | 97 | 0 | 7 | 117 | 0 | 211 | 28 | 11 | 250 | 0 | 0 | 0 | 17 | 17 | 395 |
| 05:45 PM | 0 | 0 | 0 | 13 | 13 | 13 | 95 | 0 | 13 | 121 | 0 | 231 | 32 | 6 | 269 | 0 | 0 | 0 | 12 | 12 | 415 |
| Total | 0 | 0 | 0 | 40 | 40 | 38 | 389 | 0 | 32 | 459 | 0 | 877 | 115 | 36 | 1028 | 0 | 0 | 0 | 40 | 40 | 1567 |
| 06:00 PM | 0 | 0 | 0 | 14 | 14 | 8 | 88 | 0 | 11 | 107 | 0 | 202 | 30 | 12 | 244 | 0 | 0 | 0 | 11 | 11 | 376 |
| 06:15 PM | 0 | 0 | 0 | 10 | 10 | 5 | 77 | 0 | 5 | 87 | 0 | 173 | 40 | 3 | 216 | 0 | 0 | 0 | 9 | 9 | 322 |
| Grand Total | 0 | 0 | 0 | 112 | 112 | 83 | 1126 | 0 | 77 | 1286 | 0 | 2541 | 330 | 80 | 2951 | 0 | 0 | 0 | 98 | 98 | 4447 |
| Apprch % | 0 | 0 | 0 | 100 | | 6.5 | 87.6 | 0 | 6 | | 0 | 86.1 | 11.2 | 2.7 | | 0 | 0 | 0 | 100 | | |
| Total % | 0 | 0 | 0 | 2.5 | 2.5 | 1.9 | 25.3 | 0 | 1.7 | 28.9 | 0 | 57.1 | 7.4 | 1.8 | 66.4 | 0 | 0 | 0 | 2.2 | 2.2 | |
| Unshifted | 0 | 0 | 0 | 112 | 112 | 83 | 1126 | 0 | 77 | 1286 | 0 | 2541 | 330 | 80 | 2951 | 0 | 0 | 0 | 98 | 98 | 4447 |
| % Unshifted | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

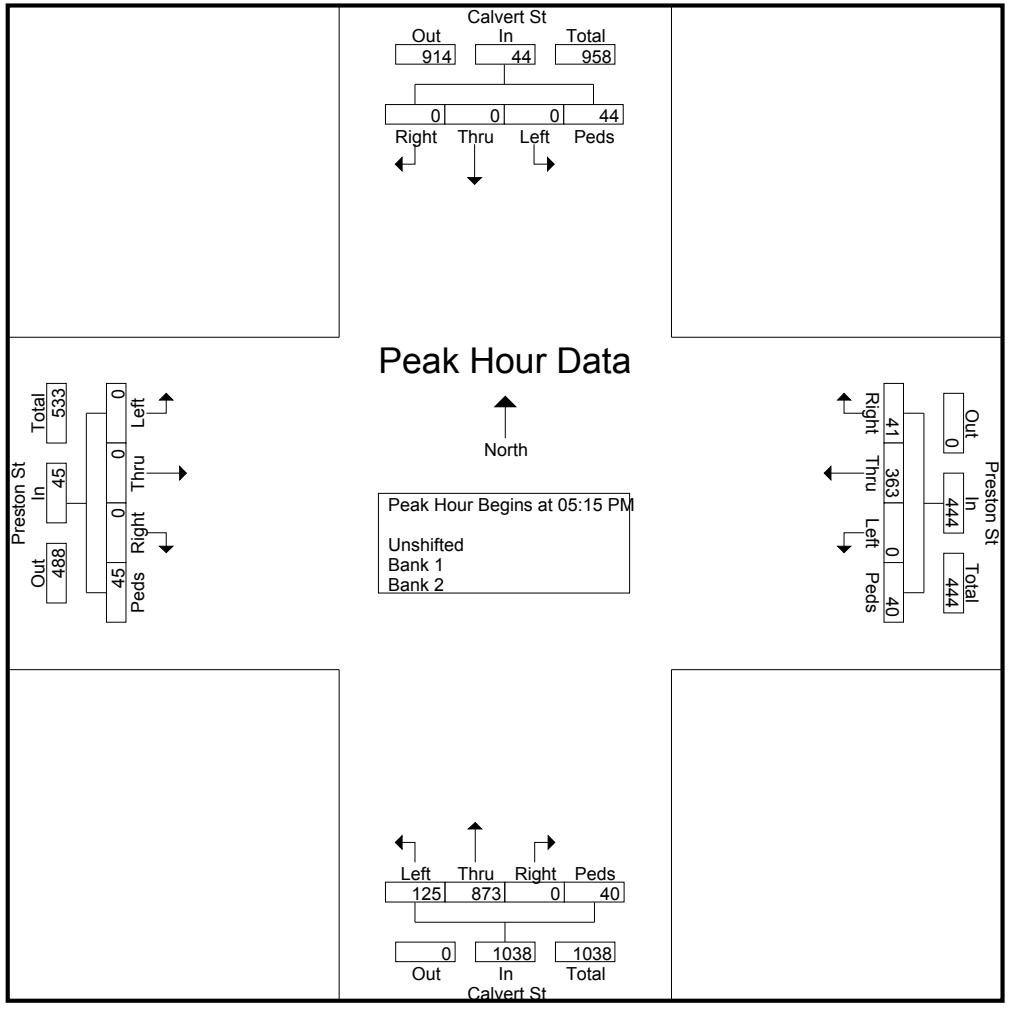
Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_Calvert_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 2

| | Calvert St From North | | | | | Preston St From East | | | | | Calvert St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 05:15 PM | | | | | | | | | | | | | | | | | | | | | |
| **05:15 PM** | **0** | **0** | **0** | **6** | **6** | **7** | **83** | **0** | **9** | **99** | **0** | **229** | 35 | 11 | 275 | 0 | 0 | 0 | 5 | 5 | 385 |
| 05:30 PM | 0 | 0 | 0 | 11 | 11 | 13 | 97 | 0 | 7 | 117 | 0 | 211 | 28 | 11 | 250 | 0 | 0 | 0 | **17** | **17** | 395 |
| 05:45 PM | 0 | 0 | 0 | 13 | 13 | 13 | 95 | 0 | **13** | **121** | 0 | **231** | 32 | 6 | 269 | 0 | 0 | 0 | 12 | 12 | **415** |
| 06:00 PM | 0 | 0 | 0 | **14** | **14** | 8 | 88 | 0 | 11 | 107 | 0 | 202 | 30 | **12** | 244 | 0 | 0 | 0 | 11 | 11 | 376 |
| Total Volume | 0 | 0 | 0 | 44 | 44 | 41 | 363 | 0 | 40 | 444 | 0 | 873 | 125 | 40 | 1038 | 0 | 0 | 0 | 45 | 45 | 1571 |
| % App. Total | 0 | 0 | 0 | 100 | | 9.2 | 81.8 | 0 | 9 | | 0 | 84.1 | 12 | 3.9 | | 0 | 0 | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .786 | .786 | .788 | .936 | .000 | .769 | .917 | .000 | .945 | .893 | .833 | .944 | .000 | .000 | .000 | .662 | .662 | .946 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_Calvert_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 3



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_Calvert_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 4

| | Calvert St From North | | | | | Preston St From East | | | | | Calvert St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

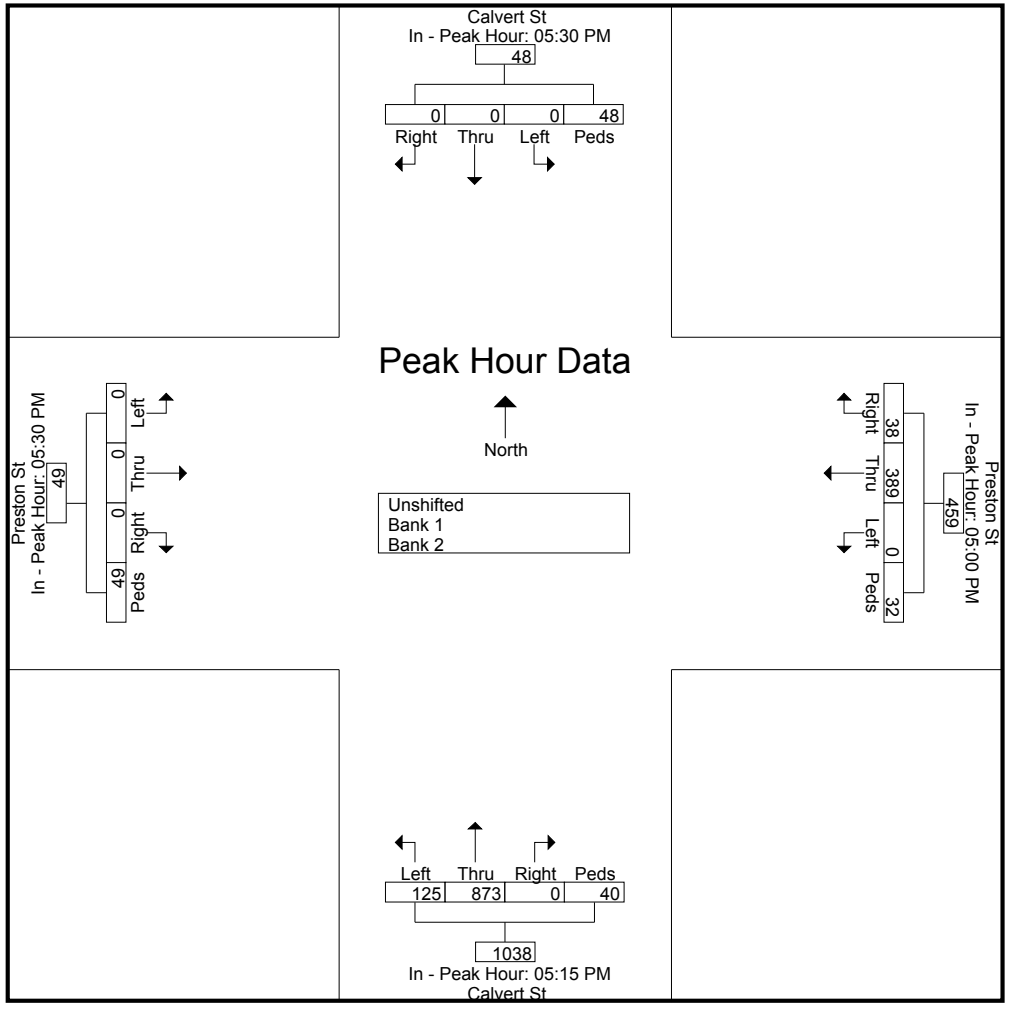
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **05:30 PM** | | | | | **05:00 PM** | | | | | **05:15 PM** | | | | | **05:30 PM** | | | | | |
| **+0 mins.** | **0** | **0** | **0** | **11** | **11** | **5** | 114 | 0 | 3 | 122 | 0 | 229 | 35 | 11 | 275 | 0 | 0 | 0 | **17** | **17** | |
| +15 mins. | 0 | 0 | 0 | 13 | 13 | 7 | 83 | 0 | 9 | 99 | 0 | 211 | 28 | 11 | 250 | 0 | 0 | 0 | 12 | 12 | |
| +30 mins. | 0 | 0 | 0 | **14** | **14** | **13** | 97 | 0 | 7 | 117 | 0 | **231** | 32 | 6 | 269 | 0 | 0 | 0 | 11 | 11 | |
| +45 mins. | 0 | 0 | 0 | 10 | 10 | 13 | 95 | 0 | **13** | 121 | 0 | 202 | 30 | **12** | 244 | 0 | 0 | 0 | 9 | 9 | |
| Total Volume | 0 | 0 | 0 | 48 | 48 | 38 | 389 | 0 | 32 | 459 | 0 | 873 | 125 | 40 | 1038 | 0 | 0 | 0 | 49 | 49 | |
| % App. Total | 0 | 0 | 0 | 100 | | 8.3 | 84.7 | 0 | 7 | | 0 | 84.1 | 12 | 3.9 | | 0 | 0 | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .857 | .857 | .731 | .853 | .000 | .615 | .941 | .000 | .945 | .893 | .833 | .944 | .000 | .000 | .000 | .721 | .721 | |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_Calvert_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 5



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_Calvert_AM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 1

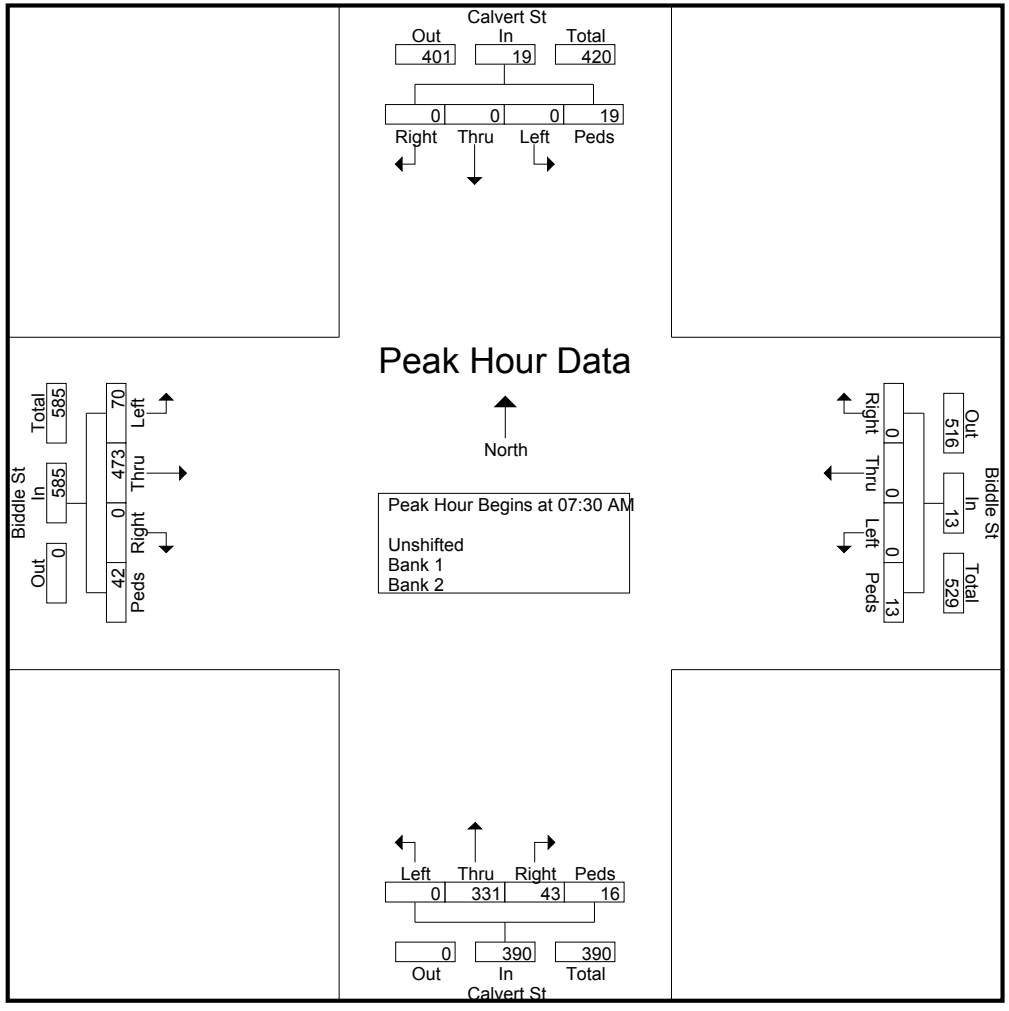
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | Biddle St From East | | | | | Calvert St From South | | | | | Biddle St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 8 | 8 | 5 | 82 | 0 | 0 | 87 | 0 | 60 | 10 | 9 | 79 | 179 |
| 07:15 AM | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 5 | 5 | 14 | 76 | 0 | 1 | 91 | 0 | 128 | 10 | 10 | 148 | 249 |
| 07:30 AM | 0 | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 2 | 2 | 9 | 109 | 0 | 6 | 124 | 0 | 105 | 7 | 11 | 123 | 256 |
| 07:45 AM | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 3 | 3 | 17 | 66 | 0 | 4 | 87 | 0 | 105 | 23 | 10 | 138 | 232 |
| Total | 0 | 0 | 0 | 21 | 21 | 0 | 0 | 0 | 18 | 18 | 45 | 333 | 0 | 11 | 389 | 0 | 398 | 50 | 40 | 488 | 916 |
| 08:00 AM | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 5 | 5 | 11 | 77 | 0 | 4 | 92 | 0 | 113 | 15 | 14 | 142 | 244 |
| 08:15 AM | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 3 | 3 | 6 | 79 | 0 | 2 | 87 | 0 | 150 | 25 | 7 | 182 | 275 |
| 08:30 AM | 0 | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 2 | 2 | 20 | 84 | 0 | 2 | 106 | 0 | 93 | 8 | 6 | 107 | 222 |
| 08:45 AM | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 3 | 3 | 13 | 59 | 0 | 7 | 79 | 0 | 113 | 6 | 10 | 129 | 217 |
| Total | 0 | 0 | 0 | 21 | 21 | 0 | 0 | 0 | 13 | 13 | 50 | 299 | 0 | 15 | 364 | 0 | 469 | 54 | 37 | 560 | 958 |
| Grand Total | 0 | 0 | 0 | 42 | 42 | 0 | 0 | 0 | 31 | 31 | 95 | 632 | 0 | 26 | 753 | 0 | 867 | 104 | 77 | 1048 | 1874 |
| Apprch % | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 12.6 | 83.9 | 0 | 3.5 | | 0 | 82.7 | 9.9 | 7.3 | | |
| Total % | 0 | 0 | 0 | 2.2 | 2.2 | 0 | 0 | 0 | 1.7 | 1.7 | 5.1 | 33.7 | 0 | 1.4 | 40.2 | 0 | 46.3 | 5.5 | 4.1 | 55.9 | |
| Unshifted | 0 | 0 | 0 | 42 | 42 | 0 | 0 | 0 | 31 | 31 | 95 | 632 | 0 | 26 | 753 | 0 | 867 | 104 | 77 | 1048 | 1874 |
| % Unshifted | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | Calvert St From North | | | | | Biddle St From East | | | | | Calvert St From South | | | | | Biddle St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| **07:30 AM** | **0** | **0** | **0** | 7 | 7 | 0 | 0 | 0 | 2 | 2 | 9 | 109 | 0 | 6 | **124** | 0 | 105 | 7 | 11 | 123 | 256 |
| 07:45 AM | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 3 | 3 | **17** | 66 | 0 | 4 | 87 | 0 | 105 | 23 | 10 | 138 | 232 |
| 08:00 AM | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | **5** | **5** | 11 | 77 | 0 | 4 | 92 | 0 | 113 | 15 | **14** | 142 | 244 |
| 08:15 AM | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 3 | 3 | 6 | 79 | 0 | 2 | 87 | 0 | **150** | **25** | 7 | **182** | **275** |
| Total Volume | 0 | 0 | 0 | 19 | 19 | 0 | 0 | 0 | 13 | 13 | 43 | 331 | 0 | 16 | 390 | 0 | 473 | 70 | 42 | 585 | 1007 |
| % App. Total | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 11 | 84.9 | 0 | 4.1 | | 0 | 80.9 | 12 | 7.2 | | |
| PHF | .000 | .000 | .000 | .679 | .679 | .000 | .000 | .000 | .650 | .650 | .632 | .759 | .000 | .667 | .786 | .000 | .788 | .700 | .750 | .804 | .915 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_Calvert_AM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_Calvert_AM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 3

| | Calvert St From North | | | | | Biddle St From East | | | | | Calvert St From South | | | | | Biddle St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

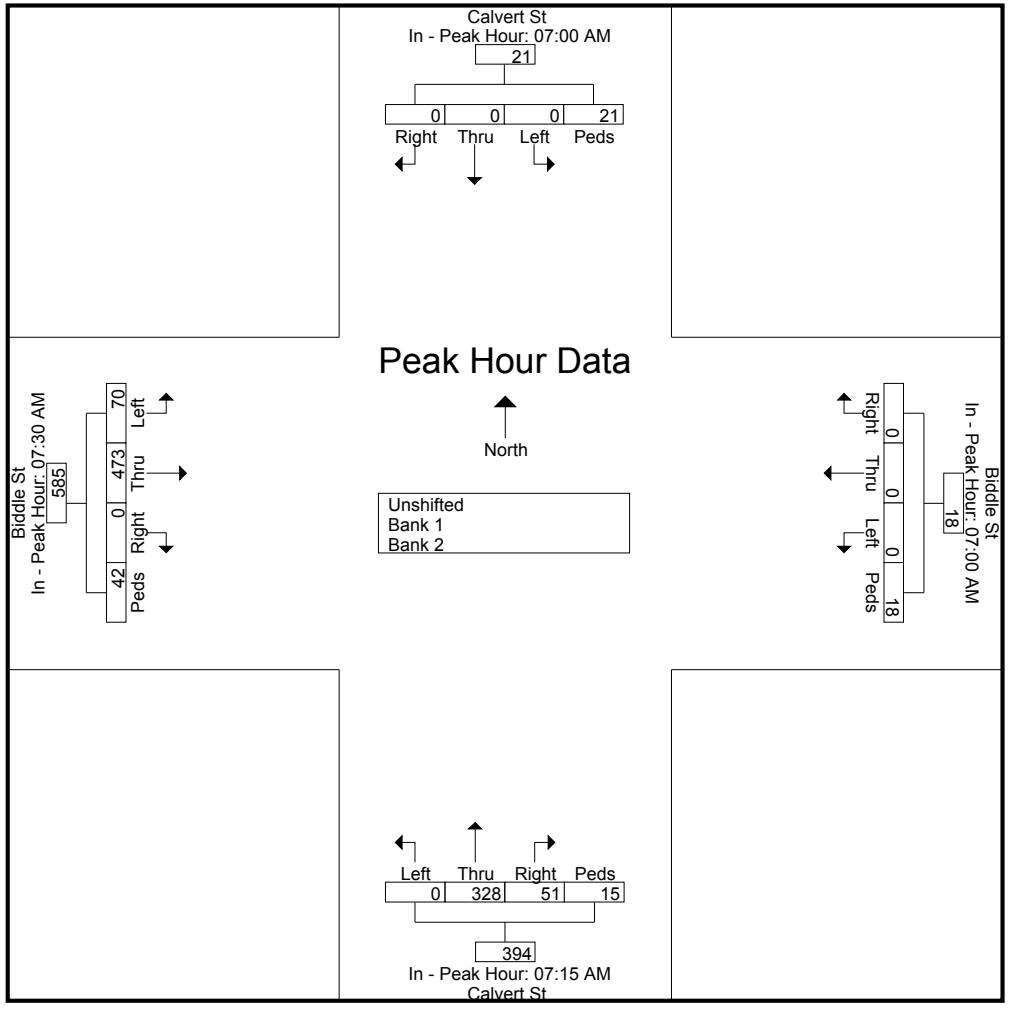
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 07:00 AM | | | | | 07:00 AM | | | | | 07:15 AM | | | | | 07:30 AM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **0** | **0** | **0** | **5** | **5** | **0** | **0** | **0** | 8 | 8 | 14 | 76 | 0 | 1 | 91 | 0 | 105 | 7 | 11 | 123 |
| +15 mins. | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 5 | 5 | 9 | 109 | 0 | 6 | **124** | 0 | 105 | 23 | 10 | 138 |
| +30 mins. | 0 | 0 | 0 | **7** | **7** | 0 | 0 | 0 | 2 | 2 | **17** | 66 | 0 | 4 | 87 | 0 | 113 | 15 | **14** | 142 |
| +45 mins. | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 3 | 3 | 11 | 77 | 0 | 4 | 92 | 0 | **150** | **25** | 7 | **182** |
| Total Volume | 0 | 0 | 0 | 21 | 21 | 0 | 0 | 0 | 18 | 18 | 51 | 328 | 0 | 15 | 394 | 0 | 473 | 70 | 42 | 585 |
| % App. Total | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 12.9 | 83.2 | 0 | 3.8 | | 0 | 80.9 | 12 | 7.2 | |
| PHF | .000 | .000 | .000 | .750 | .750 | .000 | .000 | .000 | .563 | .563 | .750 | .752 | .000 | .625 | .794 | .000 | .788 | .700 | .750 | .804 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_Calvert_AM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_Calvert_AM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 1

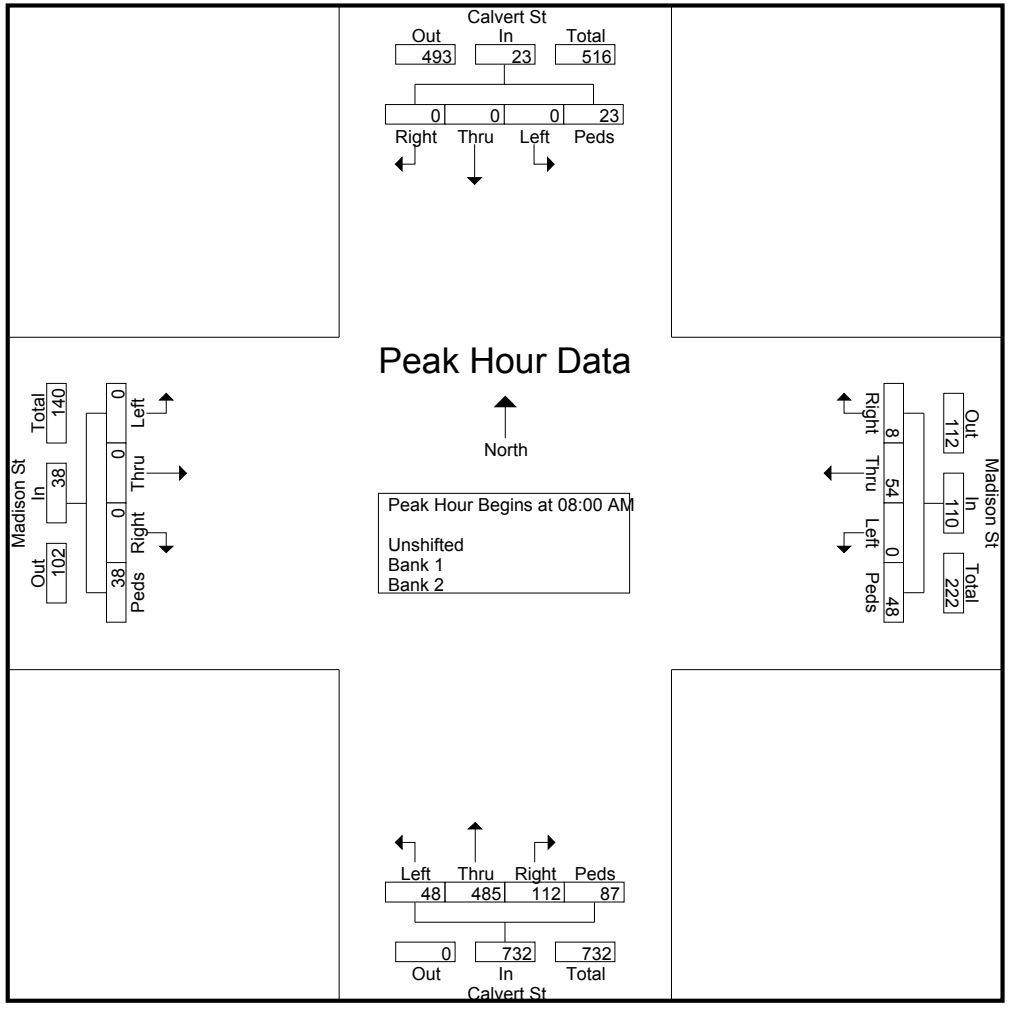
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | Madison St From East | | | | | Calvert St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 0 | 0 | 3 | 3 | 2 | 5 | 0 | 6 | 13 | 31 | 81 | 5 | 13 | 130 | 0 | 0 | 0 | 3 | 3 | 149 |
| 07:15 AM | 0 | 0 | 0 | 5 | 5 | 5 | 9 | 0 | 7 | 21 | 36 | 86 | 6 | 11 | 139 | 0 | 0 | 0 | 8 | 8 | 173 |
| 07:30 AM | 0 | 0 | 0 | 2 | 2 | 4 | 11 | 0 | 12 | 27 | 31 | 94 | 15 | 22 | 162 | 0 | 0 | 0 | 5 | 5 | 196 |
| 07:45 AM | 0 | 0 | 0 | 10 | 10 | 7 | 12 | 0 | 6 | 25 | 22 | 107 | 17 | 18 | 164 | 0 | 0 | 0 | 10 | 10 | 209 |
| Total | 0 | 0 | 0 | 20 | 20 | 18 | 37 | 0 | 31 | 86 | 120 | 368 | 43 | 64 | 595 | 0 | 0 | 0 | 26 | 26 | 727 |
| 08:00 AM | 0 | 0 | 0 | 10 | 10 | 1 | 15 | 0 | 12 | 28 | 23 | 131 | 14 | 12 | 180 | 0 | 0 | 0 | 9 | 9 | 227 |
| 08:15 AM | 0 | 0 | 0 | 7 | 7 | 1 | 17 | 0 | 9 | 27 | 24 | 128 | 14 | 22 | 188 | 0 | 0 | 0 | 10 | 10 | 232 |
| 08:30 AM | 0 | 0 | 0 | 2 | 2 | 0 | 11 | 0 | 15 | 26 | 35 | 120 | 9 | 18 | 182 | 0 | 0 | 0 | 6 | 6 | 216 |
| 08:45 AM | 0 | 0 | 0 | 4 | 4 | 6 | 11 | 0 | 12 | 29 | 30 | 106 | 11 | 35 | 182 | 0 | 0 | 0 | 13 | 13 | 228 |
| Total | 0 | 0 | 0 | 23 | 23 | 8 | 54 | 0 | 48 | 110 | 112 | 485 | 48 | 87 | 732 | 0 | 0 | 0 | 38 | 38 | 903 |
| Grand Total | 0 | 0 | 0 | 43 | 43 | 26 | 91 | 0 | 79 | 196 | 232 | 853 | 91 | 151 | 1327 | 0 | 0 | 0 | 64 | 64 | 1630 |
| Apprch % | 0 | 0 | 0 | 100 | | 13.3 | 46.4 | 0 | 40.3 | | 17.5 | 64.3 | 6.9 | 11.4 | | 0 | 0 | 0 | 100 | | |
| Total % | 0 | 0 | 0 | 2.6 | 2.6 | 1.6 | 5.6 | 0 | 4.8 | 12 | 14.2 | 52.3 | 5.6 | 9.3 | 81.4 | 0 | 0 | 0 | 3.9 | 3.9 | |
| Unshifted | 0 | 0 | 0 | 43 | 43 | 26 | 91 | 0 | 79 | 196 | 232 | 853 | 91 | 151 | 1327 | 0 | 0 | 0 | 64 | 64 | 1630 |
| % Unshifted | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | Calvert St From North | | | | | Madison St From East | | | | | Calvert St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 08:00 AM | | | | | | | | | | | | | | | | | | | | | |
| **08:00 AM** | **0** | **0** | **0** | 10 | 10 | 1 | 15 | 0 | 12 | 28 | 23 | 131 | 14 | 12 | 180 | 0 | 0 | 0 | 9 | 9 | 227 |
| 08:15 AM | 0 | 0 | 0 | 7 | 7 | 1 | **17** | 0 | 9 | 27 | 24 | 128 | 14 | 22 | **188** | 0 | 0 | 0 | 10 | 10 | **232** |
| 08:30 AM | 0 | 0 | 0 | 2 | 2 | 0 | 11 | 0 | **15** | 26 | **35** | 120 | 9 | 18 | 182 | 0 | 0 | 0 | 6 | 6 | 216 |
| 08:45 AM | 0 | 0 | 0 | 4 | 4 | **6** | 11 | 0 | 12 | **29** | 30 | 106 | 11 | **35** | 182 | 0 | 0 | 0 | **13** | **13** | 228 |
| Total Volume | 0 | 0 | 0 | 23 | 23 | 8 | 54 | 0 | 48 | 110 | 112 | 485 | 48 | 87 | 732 | 0 | 0 | 0 | 38 | 38 | 903 |
| % App. Total | 0 | 0 | 0 | 100 | | 7.3 | 49.1 | 0 | 43.6 | | 15.3 | 66.3 | 6.6 | 11.9 | | 0 | 0 | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .575 | .575 | .333 | .794 | .000 | .800 | .948 | .800 | .926 | .857 | .621 | .973 | .000 | .000 | .000 | .731 | .731 | .973 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_Calvert_AM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_Calvert_AM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 3

| | Calvert St From North | | | | | Madison St From East | | | | | Calvert St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

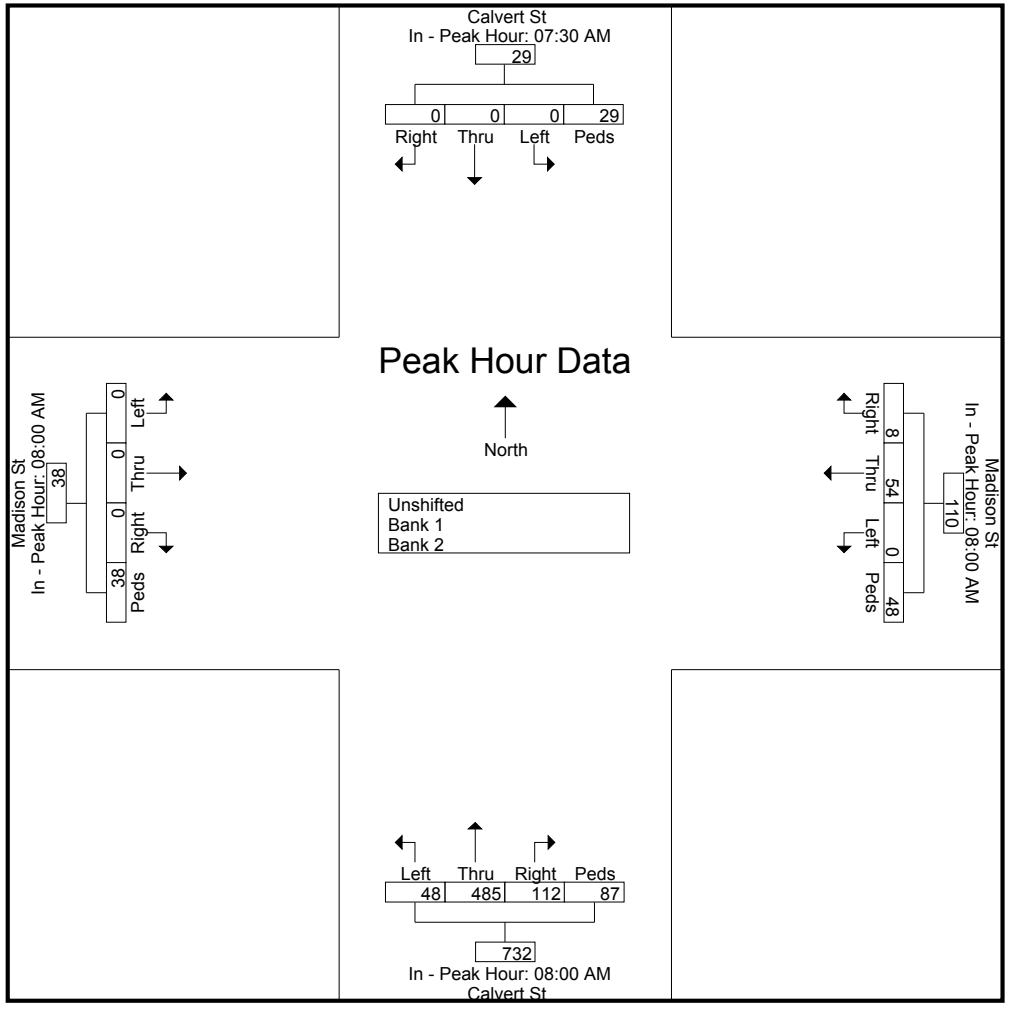
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **07:30 AM** | | | | | **08:00 AM** | | | | | **08:00 AM** | | | | | **08:00 AM** | | | | | |
| **+0 mins.** | **0** | **0** | **0** | **2** | **2** | **1** | **15** | **0** | **12** | **28** | **23** | 131 | 14 | 12 | 180 | 0 | 0 | 0 | 9 | 9 | |
| +15 mins. | 0 | 0 | 0 | 10 | 10 | 1 | **17** | 0 | 9 | 27 | 24 | 128 | 14 | 22 | **188** | 0 | 0 | 0 | 10 | 10 | |
| +30 mins. | 0 | 0 | 0 | 10 | 10 | 0 | 11 | 0 | **15** | 26 | **35** | 120 | 9 | 18 | 182 | 0 | 0 | 0 | 6 | 6 | |
| +45 mins. | 0 | 0 | 0 | 7 | 7 | **6** | 11 | 0 | 12 | **29** | 30 | 106 | 11 | **35** | 182 | 0 | 0 | 0 | **13** | **13** | |
| Total Volume | 0 | 0 | 0 | 29 | 29 | 8 | 54 | 0 | 48 | 110 | 112 | 485 | 48 | 87 | 732 | 0 | 0 | 0 | 38 | 38 | |
| % App. Total | 0 | 0 | 0 | 100 | | 7.3 | 49.1 | 0 | 43.6 | | 15.3 | 66.3 | 6.6 | 11.9 | | 0 | 0 | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .725 | .725 | .333 | .794 | .000 | .800 | .948 | .800 | .926 | .857 | .621 | .973 | .000 | .000 | .000 | .731 | .731 | |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_Calvert_AM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_Calvert_MD
Site Code : 00000000
Start Date : 9/15/2015
Page No : 1

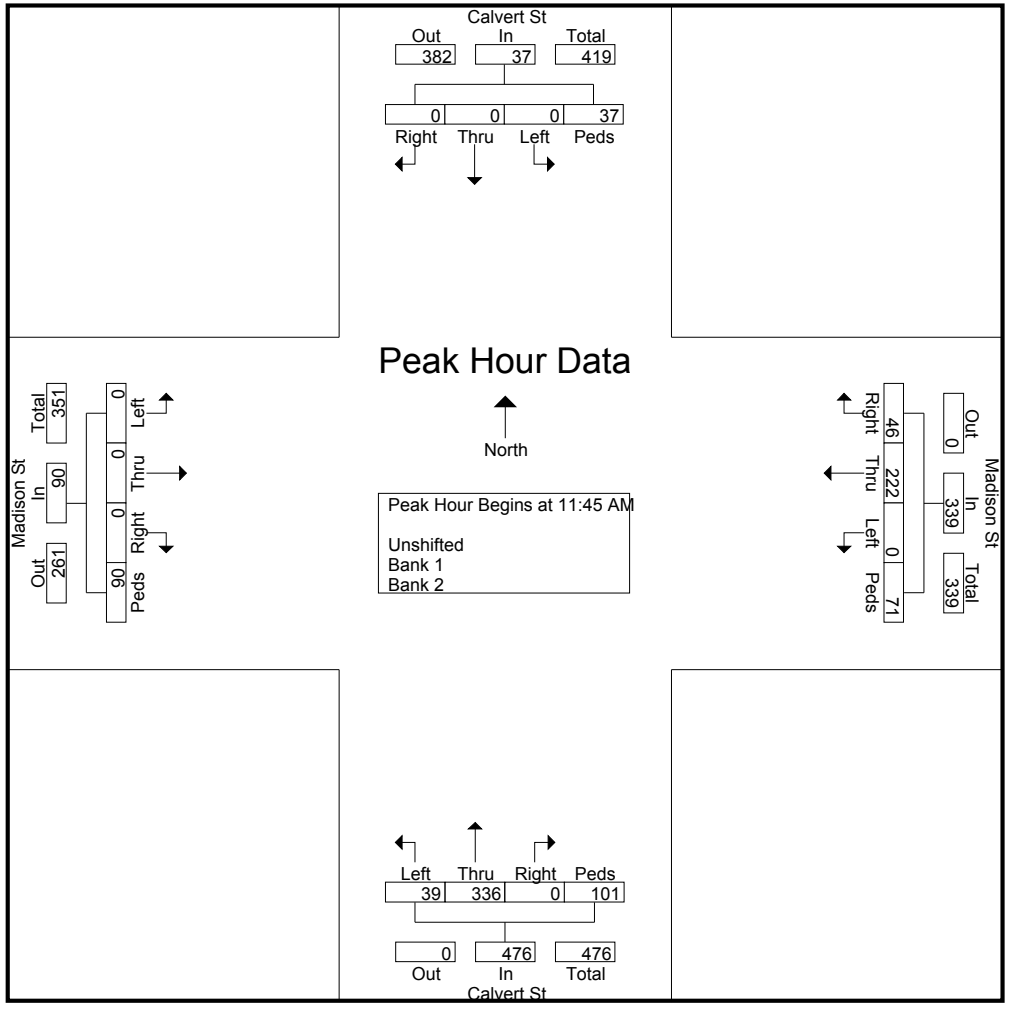
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | Madison St From East | | | | | Calvert St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 11:00 AM | 0 | 0 | 0 | 8 | 8 | 10 | 46 | 0 | 8 | 64 | 0 | 74 | 3 | 9 | 86 | 0 | 0 | 0 | 12 | 12 | 170 |
| 11:15 AM | 0 | 0 | 0 | 5 | 5 | 12 | 65 | 0 | 5 | 82 | 0 | 75 | 10 | 8 | 93 | 0 | 0 | 0 | 17 | 17 | 197 |
| 11:30 AM | 0 | 0 | 0 | 2 | 2 | 8 | 54 | 0 | 11 | 73 | 0 | 78 | 7 | 27 | 112 | 0 | 0 | 0 | 9 | 9 | 196 |
| 11:45 AM | 0 | 0 | 0 | 11 | 11 | 10 | 49 | 0 | 13 | 72 | 0 | 89 | 12 | 28 | 129 | 0 | 0 | 0 | 26 | 26 | 238 |
| Total | 0 | 0 | 0 | 26 | 26 | 40 | 214 | 0 | 37 | 291 | 0 | 316 | 32 | 72 | 420 | 0 | 0 | 0 | 64 | 64 | 801 |
| 12:00 PM | 0 | 0 | 0 | 12 | 12 | 7 | 60 | 0 | 17 | 84 | 0 | 86 | 2 | 47 | 135 | 0 | 0 | 0 | 23 | 23 | 254 |
| 12:15 PM | 0 | 0 | 0 | 4 | 4 | 14 | 62 | 0 | 19 | 95 | 0 | 86 | 10 | 14 | 110 | 0 | 0 | 0 | 20 | 20 | 229 |
| 12:30 PM | 0 | 0 | 0 | 10 | 10 | 15 | 51 | 0 | 22 | 88 | 0 | 75 | 15 | 12 | 102 | 0 | 0 | 0 | 21 | 21 | 221 |
| 12:45 PM | 0 | 0 | 0 | 10 | 10 | 9 | 57 | 0 | 11 | 77 | 0 | 76 | 14 | 11 | 101 | 0 | 0 | 0 | 18 | 18 | 206 |
| Total | 0 | 0 | 0 | 36 | 36 | 45 | 230 | 0 | 69 | 344 | 0 | 323 | 41 | 84 | 448 | 0 | 0 | 0 | 82 | 82 | 910 |
| Grand Total | 0 | 0 | 0 | 62 | 62 | 85 | 444 | 0 | 106 | 635 | 0 | 639 | 73 | 156 | 868 | 0 | 0 | 0 | 146 | 146 | 1711 |
| Apprch % | 0 | 0 | 0 | 100 | | 13.4 | 69.9 | 0 | 16.7 | | 0 | 73.6 | 8.4 | 18 | | 0 | 0 | 0 | 100 | | |
| Total % | 0 | 0 | 0 | 3.6 | 3.6 | 5 | 25.9 | 0 | 6.2 | 37.1 | 0 | 37.3 | 4.3 | 9.1 | 50.7 | 0 | 0 | 0 | 8.5 | 8.5 | |
| Unshifted | 0 | 0 | 0 | 62 | 62 | 85 | 444 | 0 | 106 | 635 | 0 | 639 | 73 | 156 | 868 | 0 | 0 | 0 | 146 | 146 | 1711 |
| % Unshifted | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | Calvert St From North | | | | | Madison St From East | | | | | Calvert St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 11:45 AM | | | | | | | | | | | | | | | | | | | | | |
| **11:45 AM** | **0** | **0** | **0** | **11** | **11** | **10** | **49** | **0** | **13** | **72** | **0** | 89 | 12 | 28 | 129 | 0 | 0 | 0 | 26 | 26 | 238 |
| 12:00 PM | 0 | 0 | 0 | 12 | **12** | 7 | 60 | 0 | 17 | 84 | 0 | 86 | 2 | **47** | **135** | 0 | 0 | 0 | 23 | 23 | **254** |
| 12:15 PM | 0 | 0 | 0 | 4 | 4 | 14 | **62** | 0 | 19 | **95** | 0 | 86 | 10 | 14 | 110 | 0 | 0 | 0 | 20 | 20 | 229 |
| 12:30 PM | 0 | 0 | 0 | 10 | 10 | **15** | 51 | 0 | **22** | 88 | 0 | 75 | **15** | 12 | 102 | 0 | 0 | 0 | 21 | 21 | 221 |
| Total Volume | 0 | 0 | 0 | 37 | 37 | 46 | 222 | 0 | 71 | 339 | 0 | 336 | 39 | 101 | 476 | 0 | 0 | 0 | 90 | 90 | 942 |
| % App. Total | 0 | 0 | 0 | 100 | | 13.6 | 65.5 | 0 | 20.9 | | 0 | 70.6 | 8.2 | 21.2 | | 0 | 0 | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .771 | .771 | .767 | .895 | .000 | .807 | .892 | .000 | .944 | .650 | .537 | .881 | .000 | .000 | .000 | .865 | .865 | .927 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_Calvert_MD
Site Code : 00000000
Start Date : 9/15/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_Calvert_MD
Site Code : 00000000
Start Date : 9/15/2015
Page No : 3

| | Calvert St From North | | | | | Madison St From East | | | | | Calvert St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

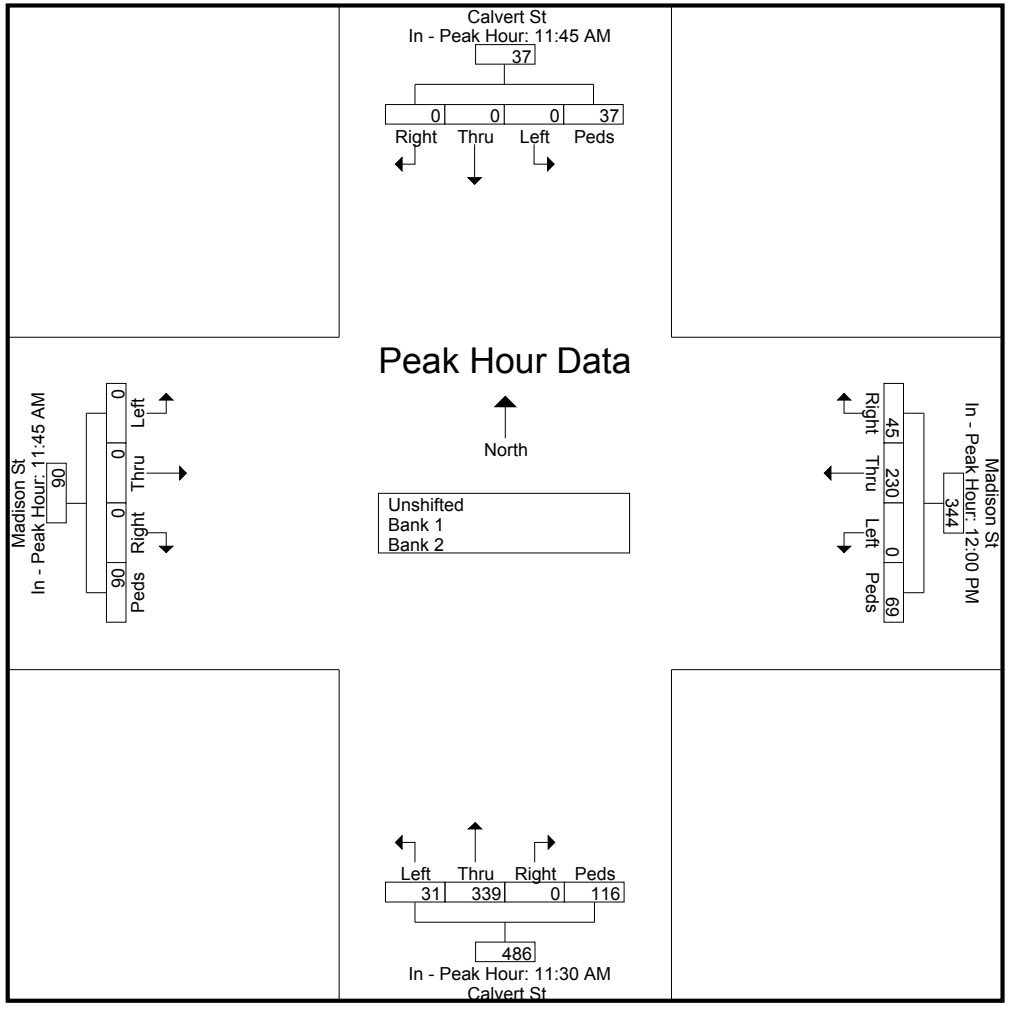
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **11:45 AM** | | | | | **12:00 PM** | | | | | **11:30 AM** | | | | | **11:45 AM** | | | | | |
| **+0 mins.** | **0** | **0** | **0** | **11** | **11** | **7** | **60** | **0** | **17** | **84** | **0** | **78** | **7** | **27** | **112** | **0** | **0** | **0** | 26 | 26 | |
| +15 mins. | 0 | 0 | 0 | 12 | 12 | 14 | **62** | 0 | 19 | **95** | 0 | **89** | **12** | 28 | 129 | 0 | 0 | 0 | 23 | 23 | |
| +30 mins. | 0 | 0 | 0 | 4 | 4 | **15** | 51 | 0 | **22** | 88 | 0 | 86 | 2 | **47** | **135** | 0 | 0 | 0 | 20 | 20 | |
| +45 mins. | 0 | 0 | 0 | 10 | 10 | 9 | 57 | 0 | 11 | 77 | 0 | 86 | 10 | 14 | 110 | 0 | 0 | 0 | 21 | 21 | |
| Total Volume | 0 | 0 | 0 | 37 | 37 | 45 | 230 | 0 | 69 | 344 | 0 | 339 | 31 | 116 | 486 | 0 | 0 | 0 | 90 | 90 | |
| % App. Total | 0 | 0 | 0 | 100 | | 13.1 | 66.9 | 0 | 20.1 | | 0 | 69.8 | 6.4 | 23.9 | | 0 | 0 | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .771 | .771 | .750 | .927 | .000 | .784 | .905 | .000 | .952 | .646 | .617 | .900 | .000 | .000 | .000 | .865 | .865 | |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_Calvert_MD
Site Code : 00000000
Start Date : 9/15/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_Calvert_PM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 1

**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | Madison St From East | | | | | Calvert St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 03:30 PM | 0 | 0 | 0 | 5 | 5 | 20 | 77 | 0 | 7 | 104 | 0 | 164 | 10 | 9 | 183 | 0 | 0 | 0 | 4 | 4 | 296 |
| 03:45 PM | 0 | 0 | 0 | 4 | 4 | 17 | 72 | 0 | 6 | 95 | 0 | 161 | 4 | 7 | 172 | 0 | 0 | 0 | 6 | 6 | 277 |
| Total | 0 | 0 | 0 | 9 | 9 | 37 | 149 | 0 | 13 | 199 | 0 | 325 | 14 | 16 | 355 | 0 | 0 | 0 | 10 | 10 | 573 |
| 04:00 PM | 0 | 0 | 0 | 8 | 8 | 20 | 91 | 0 | 9 | 120 | 0 | 224 | 17 | 8 | 249 | 0 | 0 | 0 | 3 | 3 | 380 |
| 04:15 PM | 0 | 0 | 0 | 5 | 5 | 22 | 80 | 0 | 5 | 107 | 0 | 208 | 12 | 9 | 229 | 0 | 0 | 0 | 9 | 9 | 350 |
| 04:30 PM | 0 | 0 | 0 | 7 | 7 | 20 | 104 | 0 | 9 | 133 | 0 | 250 | 10 | 15 | 275 | 0 | 0 | 0 | 19 | 19 | 434 |
| 04:45 PM | 0 | 0 | 0 | 12 | 12 | 13 | 107 | 0 | 6 | 126 | 0 | 230 | 17 | 18 | 265 | 0 | 0 | 0 | 7 | 7 | 410 |
| Total | 0 | 0 | 0 | 32 | 32 | 75 | 382 | 0 | 29 | 486 | 0 | 912 | 56 | 50 | 1018 | 0 | 0 | 0 | 38 | 38 | 1574 |
| 05:00 PM | 0 | 0 | 0 | 17 | 17 | 17 | 83 | 0 | 11 | 111 | 0 | 282 | 11 | 13 | 306 | 0 | 0 | 0 | 31 | 31 | 465 |
| 05:15 PM | 0 | 0 | 0 | 9 | 9 | 20 | 104 | 0 | 10 | 134 | 0 | 231 | 6 | 15 | 252 | 0 | 0 | 0 | 15 | 15 | 410 |
| 05:30 PM | 0 | 0 | 0 | 11 | 11 | 14 | 73 | 0 | 6 | 93 | 0 | 197 | 17 | 9 | 223 | 0 | 0 | 0 | 10 | 10 | 337 |
| 05:45 PM | 0 | 0 | 0 | 8 | 8 | 13 | 84 | 0 | 5 | 102 | 0 | 200 | 12 | 15 | 227 | 0 | 0 | 0 | 14 | 14 | 351 |
| Total | 0 | 0 | 0 | 45 | 45 | 64 | 344 | 0 | 32 | 440 | 0 | 910 | 46 | 52 | 1008 | 0 | 0 | 0 | 70 | 70 | 1563 |
| 06:00 PM | 0 | 0 | 0 | 6 | 6 | 20 | 77 | 0 | 7 | 104 | 0 | 180 | 13 | 11 | 204 | 0 | 0 | 0 | 9 | 9 | 323 |
| 06:15 PM | 0 | 0 | 0 | 9 | 9 | 14 | 66 | 0 | 19 | 99 | 0 | 134 | 9 | 16 | 159 | 0 | 0 | 0 | 18 | 18 | 285 |
| Grand Total | 0 | 0 | 0 | 101 | 101 | 210 | 1018 | 0 | 100 | 1328 | 0 | 2461 | 138 | 145 | 2744 | 0 | 0 | 0 | 145 | 145 | 4318 |
| Apprch % | 0 | 0 | 0 | 100 | | 15.8 | 76.7 | 0 | 7.5 | | 0 | 89.7 | 5 | 5.3 | | 0 | 0 | 0 | 100 | | |
| Total % | 0 | 0 | 0 | 2.3 | 2.3 | 4.9 | 23.6 | 0 | 2.3 | 30.8 | 0 | 57 | 3.2 | 3.4 | 63.5 | 0 | 0 | 0 | 3.4 | 3.4 | |
| Unshifted | 0 | 0 | 0 | 101 | 101 | 210 | 1018 | 0 | 100 | 1328 | 0 | 2461 | 138 | 145 | 2744 | 0 | 0 | 0 | 145 | 145 | 4318 |
| % Unshifted | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

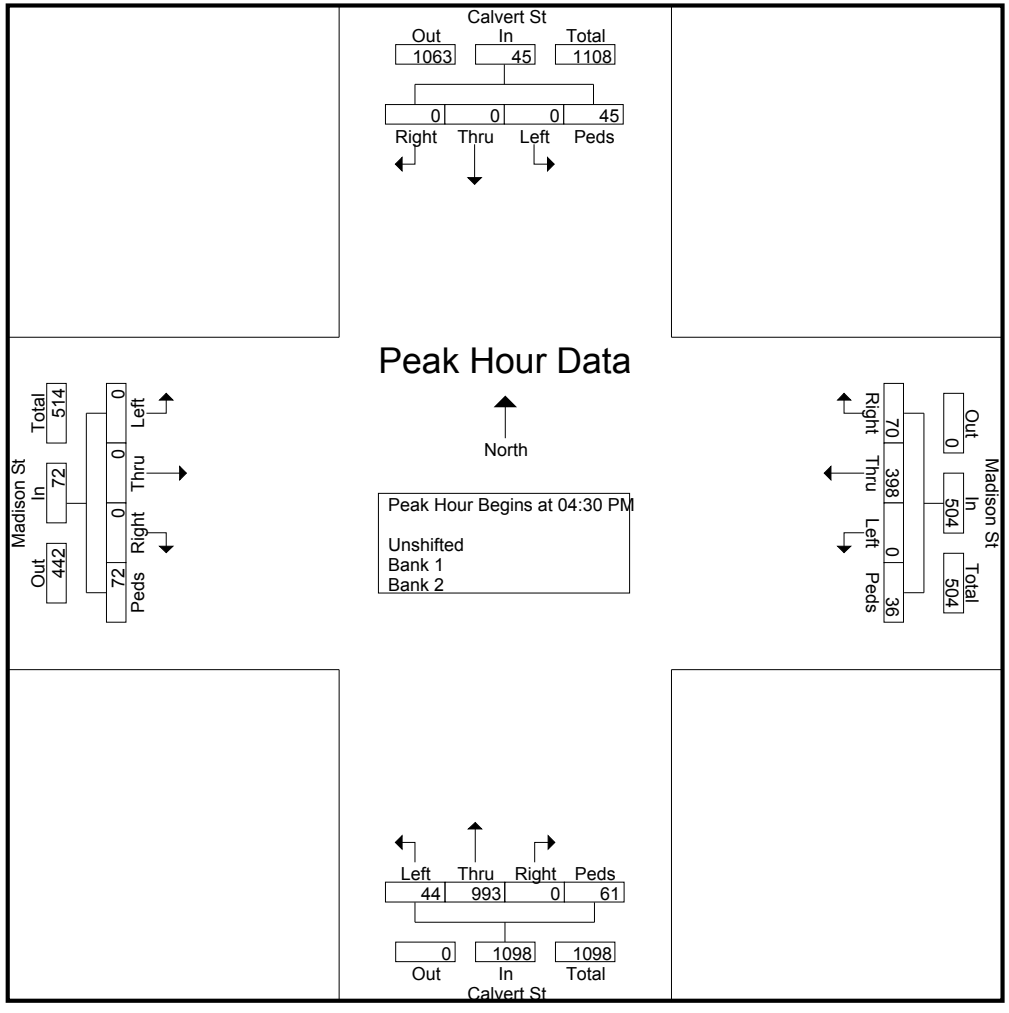
Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_Calvert_PM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 2

| | Calvert St From North | | | | | Madison St From East | | | | | Calvert St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | | | | | |
| **04:30 PM** | **0** | **0** | **0** | **7** | **7** | 20 | 104 | 0 | 9 | 133 | 0 | 250 | 10 | 15 | 275 | 0 | 0 | 0 | 19 | 19 | 434 |
| 04:45 PM | 0 | 0 | 0 | 12 | 12 | 13 | 107 | 0 | 6 | 126 | 0 | 230 | 17 | 18 | 265 | 0 | 0 | 0 | 7 | 7 | 410 |
| 05:00 PM | 0 | 0 | 0 | **17** | **17** | 17 | 83 | 0 | **11** | 111 | 0 | **282** | 11 | 13 | **306** | 0 | 0 | 0 | **31** | **31** | **465** |
| 05:15 PM | 0 | 0 | 0 | 9 | 9 | 20 | 104 | 0 | 10 | **134** | 0 | 231 | 6 | 15 | 252 | 0 | 0 | 0 | 15 | 15 | 410 |
| Total Volume | 0 | 0 | 0 | 45 | 45 | 70 | 398 | 0 | 36 | 504 | 0 | 993 | 44 | 61 | 1098 | 0 | 0 | 0 | 72 | 72 | 1719 |
| % App. Total | 0 | 0 | 0 | 100 | | 13.9 | 79 | 0 | 7.1 | | 0 | 90.4 | 4 | 5.6 | | 0 | 0 | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .662 | .662 | .875 | .930 | .000 | .818 | .940 | .000 | .880 | .647 | .847 | .897 | .000 | .000 | .000 | .581 | .581 | .924 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_Calvert_PM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 3



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_Calvert_PM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 4

| | Calvert St From North | | | | | Madison St From East | | | | | Calvert St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

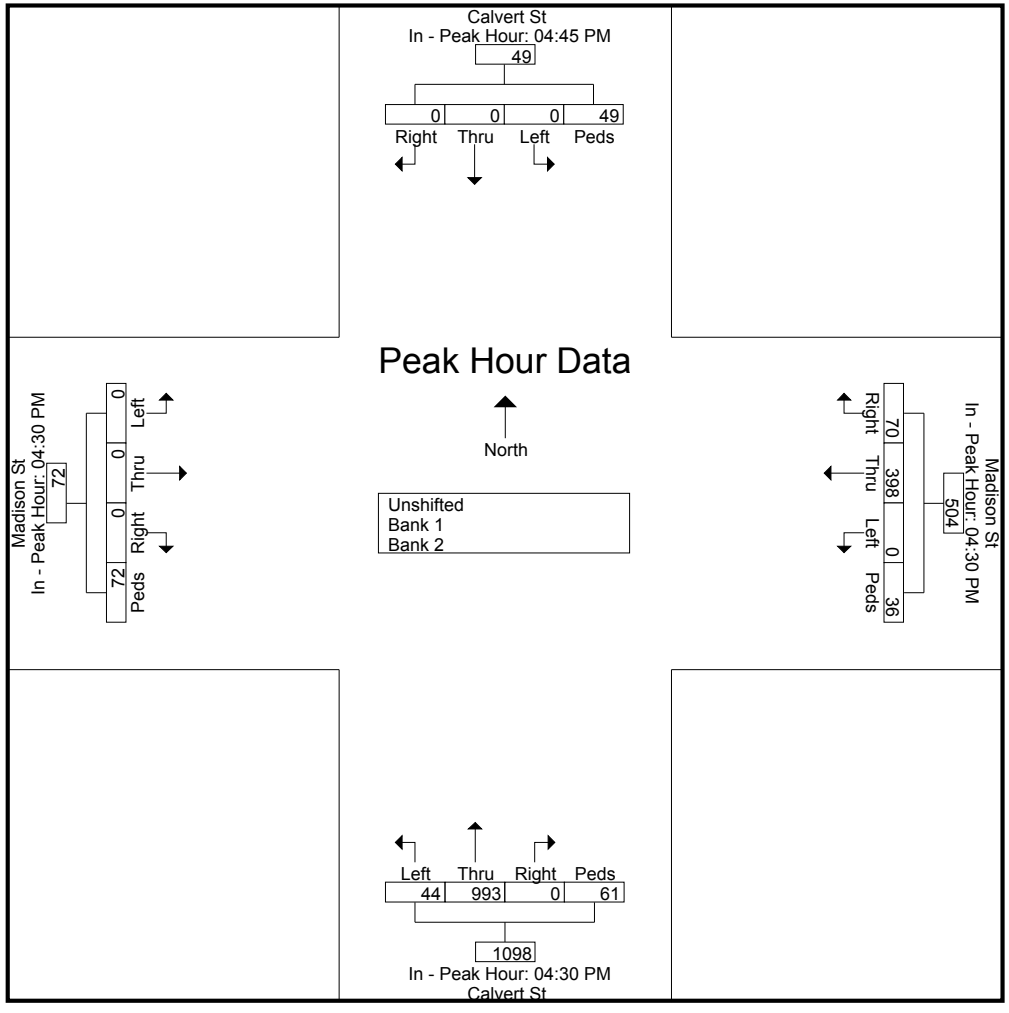
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **04:45 PM** | | | | | **04:30 PM** | | | | | **04:30 PM** | | | | | **04:30 PM** | | | | | |
| **+0 mins.** | **0** | **0** | **0** | **12** | **12** | 20 | 104 | 0 | 9 | 133 | 0 | 250 | 10 | 15 | 275 | 0 | 0 | 0 | 19 | 19 | |
| +15 mins. | 0 | 0 | 0 | 17 | 17 | 13 | 107 | 0 | 6 | 126 | 0 | 230 | **17** | **18** | 265 | 0 | 0 | 0 | 7 | 7 | |
| +30 mins. | 0 | 0 | 0 | 9 | 9 | 17 | 83 | 0 | **11** | 111 | 0 | **282** | 11 | 13 | **306** | 0 | 0 | 0 | **31** | **31** | |
| +45 mins. | 0 | 0 | 0 | 11 | 11 | 20 | 104 | 0 | 10 | **134** | 0 | 231 | 6 | 15 | 252 | 0 | 0 | 0 | 15 | 15 | |
| Total Volume | 0 | 0 | 0 | 49 | 49 | 70 | 398 | 0 | 36 | 504 | 0 | 993 | 44 | 61 | 1098 | 0 | 0 | 0 | 72 | 72 | |
| % App. Total | 0 | 0 | 0 | 100 | | 13.9 | 79 | 0 | 7.1 | | 0 | 90.4 | 4 | 5.6 | | 0 | 0 | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .721 | .721 | .875 | .930 | .000 | .818 | .940 | .000 | .880 | .647 | .847 | .897 | .000 | .000 | .000 | .581 | .581 | |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_Calvert_PM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 5



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Calvert_Center_AM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

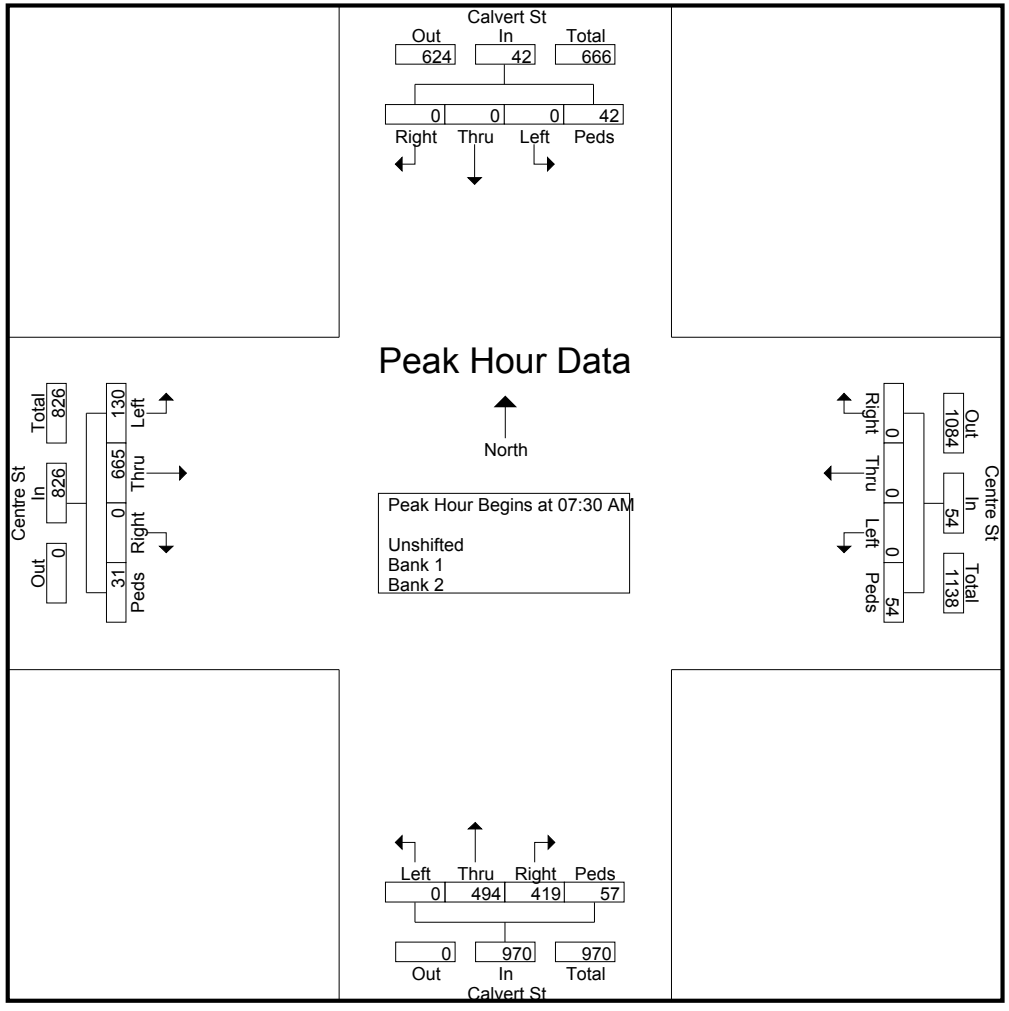
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | Centre St From East | | | | | Calvert St From South | | | | | Centre St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 5 | 5 | 89 | 93 | 0 | 5 | 187 | 0 | 89 | 15 | 4 | 108 | 306 |
| 07:15 AM | 0 | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 13 | 13 | 97 | 115 | 0 | 10 | 222 | 0 | 163 | 29 | 8 | 200 | 442 |
| 07:30 AM | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 9 | 9 | 101 | 136 | 0 | 22 | 259 | 0 | 159 | 30 | 10 | 199 | 477 |
| 07:45 AM | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 18 | 18 | 106 | 115 | 0 | 16 | 237 | 0 | 167 | 23 | 9 | 199 | 465 |
| Total | 0 | 0 | 0 | 34 | 34 | 0 | 0 | 0 | 45 | 45 | 393 | 459 | 0 | 53 | 905 | 0 | 578 | 97 | 31 | 706 | 1690 |
| 08:00 AM | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 15 | 15 | 112 | 129 | 0 | 8 | 249 | 0 | 178 | 37 | 5 | 220 | 495 |
| 08:15 AM | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 12 | 12 | 100 | 114 | 0 | 11 | 225 | 0 | 161 | 40 | 7 | 208 | 455 |
| 08:30 AM | 0 | 0 | 0 | 19 | 19 | 0 | 0 | 0 | 16 | 16 | 102 | 106 | 0 | 18 | 226 | 0 | 116 | 43 | 11 | 170 | 431 |
| 08:45 AM | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 13 | 13 | 80 | 110 | 0 | 11 | 201 | 0 | 108 | 18 | 4 | 130 | 350 |
| Total | 0 | 0 | 0 | 46 | 46 | 0 | 0 | 0 | 56 | 56 | 394 | 459 | 0 | 48 | 901 | 0 | 563 | 138 | 27 | 728 | 1731 |
| Grand Total | 0 | 0 | 0 | 80 | 80 | 0 | 0 | 0 | 101 | 101 | 787 | 918 | 0 | 101 | 1806 | 0 | 1141 | 235 | 58 | 1434 | 3421 |
| Apprch % | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 43.6 | 50.8 | 0 | 5.6 | | 0 | 79.6 | 16.4 | 4 | | |
| Total % | 0 | 0 | 0 | 2.3 | 2.3 | 0 | 0 | 0 | 3 | 3 | 23 | 26.8 | 0 | 3 | 52.8 | 0 | 33.4 | 6.9 | 1.7 | 41.9 | |
| Unshifted | 0 | 0 | 0 | 80 | 80 | 0 | 0 | 0 | 101 | 101 | 787 | 918 | 0 | 101 | 1806 | 0 | 1141 | 235 | 58 | 1434 | 3421 |
| % Unshifted | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | Calvert St From North | | | | | Centre St From East | | | | | Calvert St From South | | | | | Centre St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| **07:30 AM** | **0** | **0** | **0** | **10** | **10** | **0** | **0** | **0** | **9** | **9** | **101** | 136 | 0 | 22 | 259 | 0 | 159 | 30 | 10 | 199 | 477 |
| 07:45 AM | 0 | 0 | 0 | **11** | **11** | 0 | 0 | 0 | **18** | **18** | 106 | 115 | 0 | 16 | 237 | 0 | 167 | 23 | 9 | 199 | 465 |
| 08:00 AM | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 15 | 15 | **112** | 129 | 0 | 8 | 249 | 0 | **178** | 37 | 5 | **220** | **495** |
| 08:15 AM | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 12 | 12 | 100 | 114 | 0 | 11 | 225 | 0 | 161 | **40** | 7 | 208 | 455 |
| Total Volume | 0 | 0 | 0 | 42 | 42 | 0 | 0 | 0 | 54 | 54 | 419 | 494 | 0 | 57 | 970 | 0 | 665 | 130 | 31 | 826 | 1892 |
| % App. Total | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 43.2 | 50.9 | 0 | 5.9 | | 0 | 80.5 | 15.7 | 3.8 | | |
| PHF | .000 | .000 | .000 | .955 | .955 | .000 | .000 | .000 | .750 | .750 | .935 | .908 | .000 | .648 | .936 | .000 | .934 | .813 | .775 | .939 | .956 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Calvert_Center_AM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Calvert_Center_AM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 3

| | Calvert St From North | | | | | Centre St From East | | | | | Calvert St From South | | | | | Centre St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

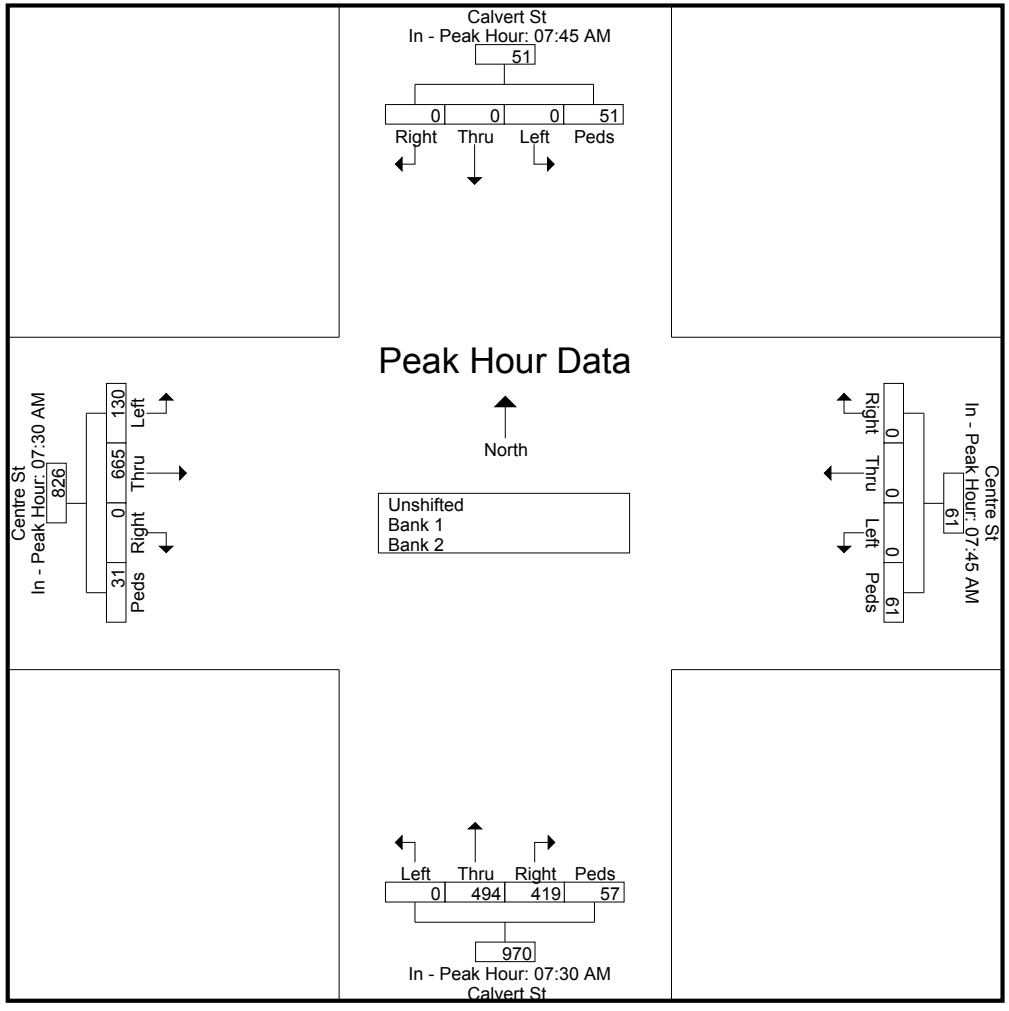
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **07:45 AM** | | | | | **07:45 AM** | | | | | **07:30 AM** | | | | | **07:30 AM** | | | | | |
| **+0 mins.** | **0** | **0** | **0** | **11** | **11** | **0** | **0** | **0** | 18 | 18 | 101 | 136 | 0 | 22 | **259** | 0 | 159 | 30 | **10** | 199 | |
| +15 mins. | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 15 | 15 | 106 | 115 | 0 | 16 | 237 | 0 | 167 | 23 | 9 | 199 | |
| +30 mins. | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 12 | 12 | **112** | 129 | 0 | 8 | 249 | 0 | **178** | 37 | 5 | **220** | |
| +45 mins. | 0 | 0 | 0 | **19** | **19** | 0 | 0 | 0 | 16 | 16 | 100 | 114 | 0 | 11 | 225 | 0 | 161 | **40** | 7 | 208 | |
| Total Volume | 0 | 0 | 0 | 51 | 51 | 0 | 0 | 0 | 61 | 61 | 419 | 494 | 0 | 57 | 970 | 0 | 665 | 130 | 31 | 826 | |
| % App. Total | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 43.2 | 50.9 | 0 | 5.9 | | 0 | 80.5 | 15.7 | 3.8 | | |
| PHF | .000 | .000 | .000 | .671 | .671 | .000 | .000 | .000 | .847 | .847 | .935 | .908 | .000 | .648 | .936 | .000 | .934 | .813 | .775 | .939 | |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Calvert_Center_AM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Calvert_Center_MD
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

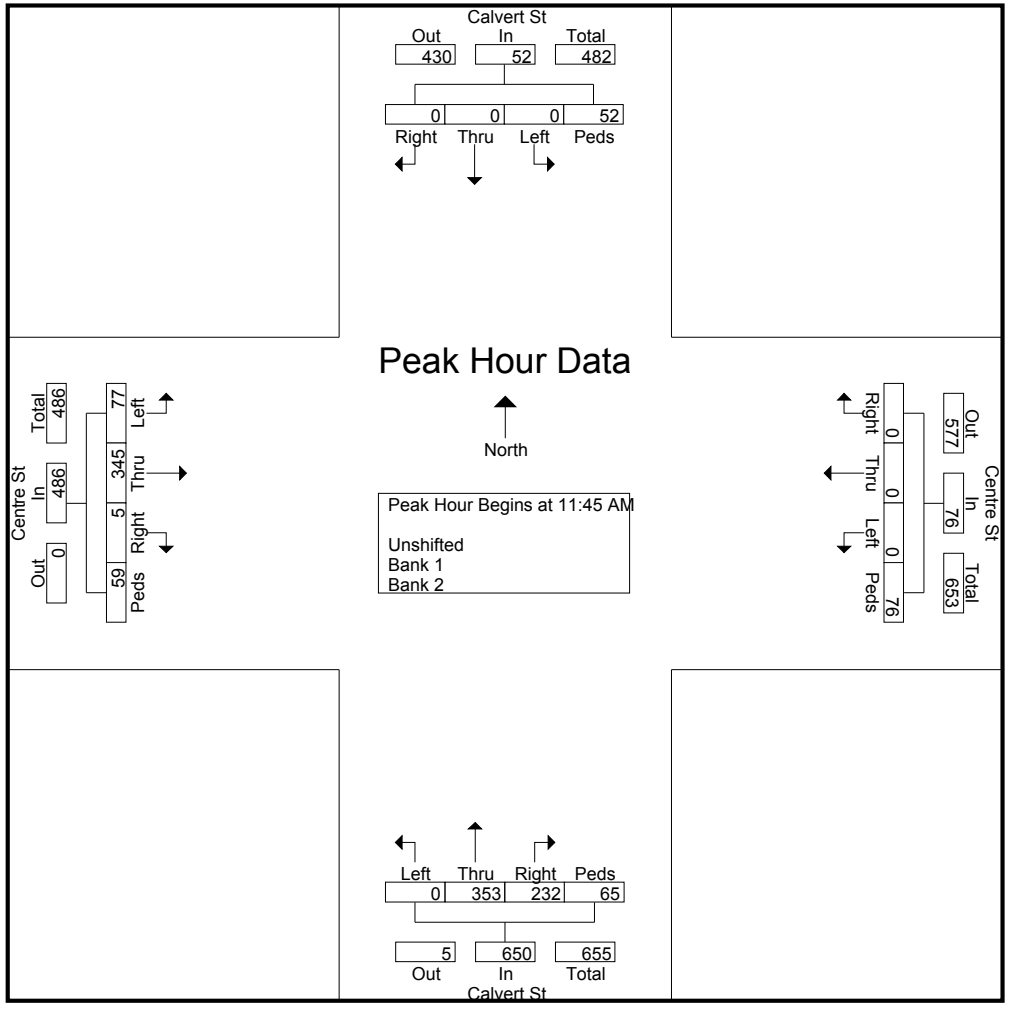
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | Centre St From East | | | | | Calvert St From South | | | | | Centre St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 11:00 AM | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 18 | 18 | 52 | 75 | 0 | 13 | 140 | 0 | 72 | 15 | 7 | 94 | 262 |
| 11:15 AM | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 10 | 10 | 57 | 74 | 0 | 14 | 145 | 0 | 72 | 16 | 7 | 95 | 262 |
| 11:30 AM | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | 14 | 14 | 54 | 86 | 0 | 14 | 154 | 0 | 75 | 14 | 22 | 111 | 292 |
| 11:45 AM | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 10 | 10 | 56 | 88 | 0 | 15 | 159 | 0 | 58 | 16 | 11 | 85 | 264 |
| Total | 0 | 0 | 0 | 45 | 45 | 0 | 0 | 0 | 52 | 52 | 219 | 323 | 0 | 56 | 598 | 0 | 277 | 61 | 47 | 385 | 1080 |
| 12:00 PM | 0 | 0 | 0 | 17 | 17 | 0 | 0 | 0 | 31 | 31 | 41 | 96 | 0 | 11 | 148 | 5 | 109 | 19 | 22 | 155 | 351 |
| 12:15 PM | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 25 | 25 | 68 | 82 | 0 | 24 | 174 | 0 | 83 | 15 | 11 | 109 | 317 |
| 12:30 PM | 0 | 0 | 0 | 16 | 16 | 0 | 0 | 0 | 10 | 10 | 67 | 87 | 0 | 15 | 169 | 0 | 95 | 27 | 15 | 137 | 332 |
| 12:45 PM | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 8 | 8 | 48 | 99 | 0 | 14 | 161 | 0 | 67 | 14 | 6 | 87 | 264 |
| Total | 0 | 0 | 0 | 50 | 50 | 0 | 0 | 0 | 74 | 74 | 224 | 364 | 0 | 64 | 652 | 5 | 354 | 75 | 54 | 488 | 1264 |
| Grand Total | 0 | 0 | 0 | 95 | 95 | 0 | 0 | 0 | 126 | 126 | 443 | 687 | 0 | 120 | 1250 | 5 | 631 | 136 | 101 | 873 | 2344 |
| Apprch % | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 35.4 | 55 | 0 | 9.6 | | 0.6 | 72.3 | 15.6 | 11.6 | | |
| Total % | 0 | 0 | 0 | 4.1 | 4.1 | 0 | 0 | 0 | 5.4 | 5.4 | 18.9 | 29.3 | 0 | 5.1 | 53.3 | 0.2 | 26.9 | 5.8 | 4.3 | 37.2 | |
| Unshifted | 0 | 0 | 0 | 95 | 95 | 0 | 0 | 0 | 126 | 126 | 443 | 687 | 0 | 120 | 1250 | 5 | 631 | 136 | 101 | 873 | 2344 |
| % Unshifted | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | Calvert St From North | | | | | Centre St From East | | | | | Calvert St From South | | | | | Centre St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 11:45 AM | | | | | | | | | | | | | | | | | | | | | |
| **11:45 AM** | **0** | **0** | **0** | **10** | **10** | **0** | **0** | **0** | **10** | **10** | **56** | **88** | **0** | **15** | **159** | **0** | **58** | **16** | **11** | **85** | **264** |
| **12:00 PM** | **0** | **0** | **0** | 17 | 17 | 0 | 0 | 0 | 31 | 31 | 41 | **96** | 0 | 11 | 148 | **5** | **109** | 19 | **22** | **155** | **351** |
| 12:15 PM | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 25 | 25 | **68** | 82 | 0 | **24** | **174** | 0 | 83 | 15 | 11 | 109 | 317 |
| 12:30 PM | 0 | 0 | 0 | 16 | 16 | 0 | 0 | 0 | 10 | 10 | 67 | 87 | 0 | 15 | 169 | 0 | 95 | **27** | 15 | 137 | 332 |
| Total Volume | 0 | 0 | 0 | 52 | 52 | 0 | 0 | 0 | 76 | 76 | 232 | 353 | 0 | 65 | 650 | 5 | 345 | 77 | 59 | 486 | 1264 |
| % App. Total | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 35.7 | 54.3 | 0 | 10 | | 1 | 71 | 15.8 | 12.1 | | |
| PHF | .000 | .000 | .000 | .765 | .765 | .000 | .000 | .000 | .613 | .613 | .853 | .919 | .000 | .677 | .934 | .250 | .791 | .713 | .670 | .784 | .900 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Calvert_Center_MD
Site Code : 00000000
Start Date : 9/16/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Calvert_Center_MD
Site Code : 00000000
Start Date : 9/16/2015
Page No : 3

| | Calvert St From North | | | | | Centre St From East | | | | | Calvert St From South | | | | | Centre St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

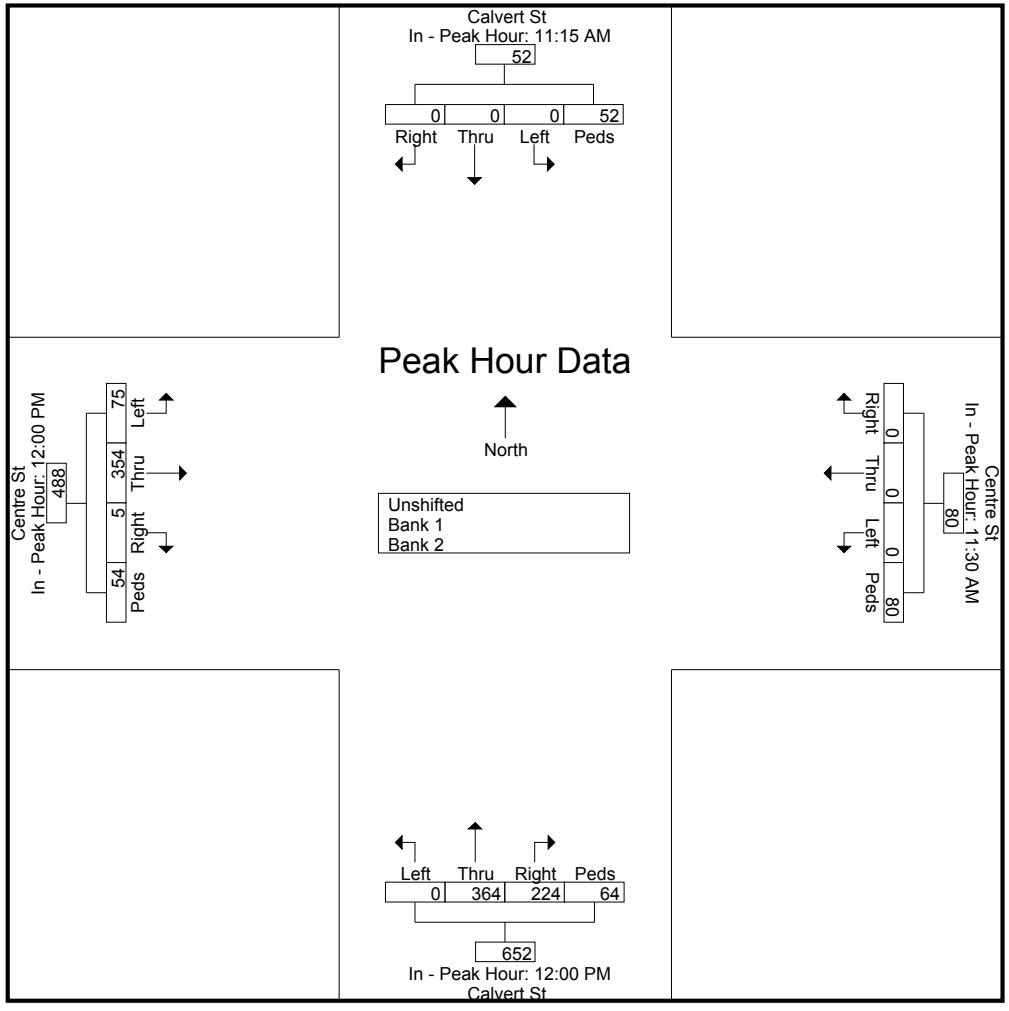
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | **11:15 AM** | | | | | **11:30 AM** | | | | | **12:00 PM** | | | | | **12:00 PM** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **0** | **0** | **0** | **12** | **12** | **0** | **0** | **0** | **14** | **14** | **41** | **96** | **0** | **11** | **148** | 5 | 109 | 19 | 22 | 155 |
| +15 mins. | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | 10 | 10 | **68** | 82 | 0 | **24** | **174** | 0 | 83 | 15 | 11 | 109 |
| +30 mins. | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | **31** | **31** | 67 | 87 | 0 | 15 | 169 | 0 | 95 | **27** | 15 | 137 |
| +45 mins. | 0 | 0 | 0 | **17** | **17** | 0 | 0 | 0 | 25 | 25 | 48 | **99** | 0 | 14 | 161 | 0 | 67 | 14 | 6 | 87 |
| Total Volume | 0 | 0 | 0 | 52 | 52 | 0 | 0 | 0 | 80 | 80 | 224 | 364 | 0 | 64 | 652 | 5 | 354 | 75 | 54 | 488 |
| % App. Total | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 34.4 | 55.8 | 0 | 9.8 | | 1 | 72.5 | 15.4 | 11.1 | |
| PHF | .000 | .000 | .000 | .765 | .765 | .000 | .000 | .000 | .645 | .645 | .824 | .919 | .000 | .667 | .937 | .250 | .812 | .694 | .614 | .787 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Calvert_Center_MD
Site Code : 00000000
Start Date : 9/16/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Calvert_Center_PM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | Calvert St From North | | | | | Centre St From East | | | | | Calvert St From South | | | | | Centre St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 03:30 PM | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 7 | 7 | 134 | 136 | 0 | 11 | 281 | 0 | 188 | 41 | 16 | 245 | 539 |
| 03:45 PM | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | 3 | 3 | 125 | 131 | 0 | 4 | 260 | 0 | 211 | 33 | 9 | 253 | 529 |
| Total | 0 | 0 | 0 | 19 | 19 | 0 | 0 | 0 | 10 | 10 | 259 | 267 | 0 | 15 | 541 | 0 | 399 | 74 | 25 | 498 | 1068 |
| 04:00 PM | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 8 | 8 | 154 | 170 | 0 | 7 | 331 | 0 | 166 | 38 | 12 | 216 | 569 |
| 04:15 PM | 0 | 0 | 0 | 19 | 19 | 0 | 0 | 0 | 15 | 15 | 154 | 176 | 0 | 8 | 338 | 0 | 211 | 56 | 21 | 288 | 660 |
| 04:30 PM | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 10 | 10 | 174 | 221 | 0 | 9 | 404 | 0 | 215 | 26 | 26 | 267 | 691 |
| 04:45 PM | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 5 | 5 | 149 | 188 | 0 | 7 | 344 | 0 | 220 | 39 | 12 | 271 | 631 |
| Total | 0 | 0 | 0 | 54 | 54 | 0 | 0 | 0 | 38 | 38 | 631 | 755 | 0 | 31 | 1417 | 0 | 812 | 159 | 71 | 1042 | 2551 |
| 05:00 PM | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 5 | 5 | 178 | 201 | 0 | 16 | 395 | 0 | 194 | 36 | 19 | 249 | 660 |
| 05:15 PM | 0 | 0 | 0 | 16 | 16 | 0 | 0 | 0 | 9 | 9 | 141 | 227 | 0 | 25 | 393 | 0 | 211 | 44 | 14 | 269 | 687 |
| 05:30 PM | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 8 | 8 | 167 | 210 | 0 | 16 | 393 | 0 | 187 | 36 | 12 | 235 | 645 |
| 05:45 PM | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 6 | 6 | 147 | 195 | 0 | 8 | 350 | 0 | 186 | 47 | 11 | 244 | 605 |
| Total | 0 | 0 | 0 | 41 | 41 | 0 | 0 | 0 | 28 | 28 | 633 | 833 | 0 | 65 | 1531 | 0 | 778 | 163 | 56 | 997 | 2597 |
| 06:00 PM | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 4 | 4 | 122 | 148 | 0 | 16 | 286 | 0 | 148 | 29 | 6 | 183 | 483 |
| 06:15 PM | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 4 | 4 | 102 | 132 | 0 | 11 | 245 | 0 | 155 | 37 | 6 | 198 | 458 |
| Grand Total | 0 | 0 | 0 | 135 | 135 | 0 | 0 | 0 | 84 | 84 | 1747 | 2135 | 0 | 138 | 4020 | 0 | 2292 | 462 | 164 | 2918 | 7157 |
| Apprch % | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 43.5 | 53.1 | 0 | 3.4 | | 0 | 78.5 | 15.8 | 5.6 | | |
| Total % | 0 | 0 | 0 | 1.9 | 1.9 | 0 | 0 | 0 | 1.2 | 1.2 | 24.4 | 29.8 | 0 | 1.9 | 56.2 | 0 | 32 | 6.5 | 2.3 | 40.8 | |
| Unshifted | 0 | 0 | 0 | 135 | 135 | 0 | 0 | 0 | 84 | 84 | 1747 | 2135 | 0 | 138 | 4020 | 0 | 2292 | 462 | 164 | 2918 | 7157 |
| % Unshifted | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

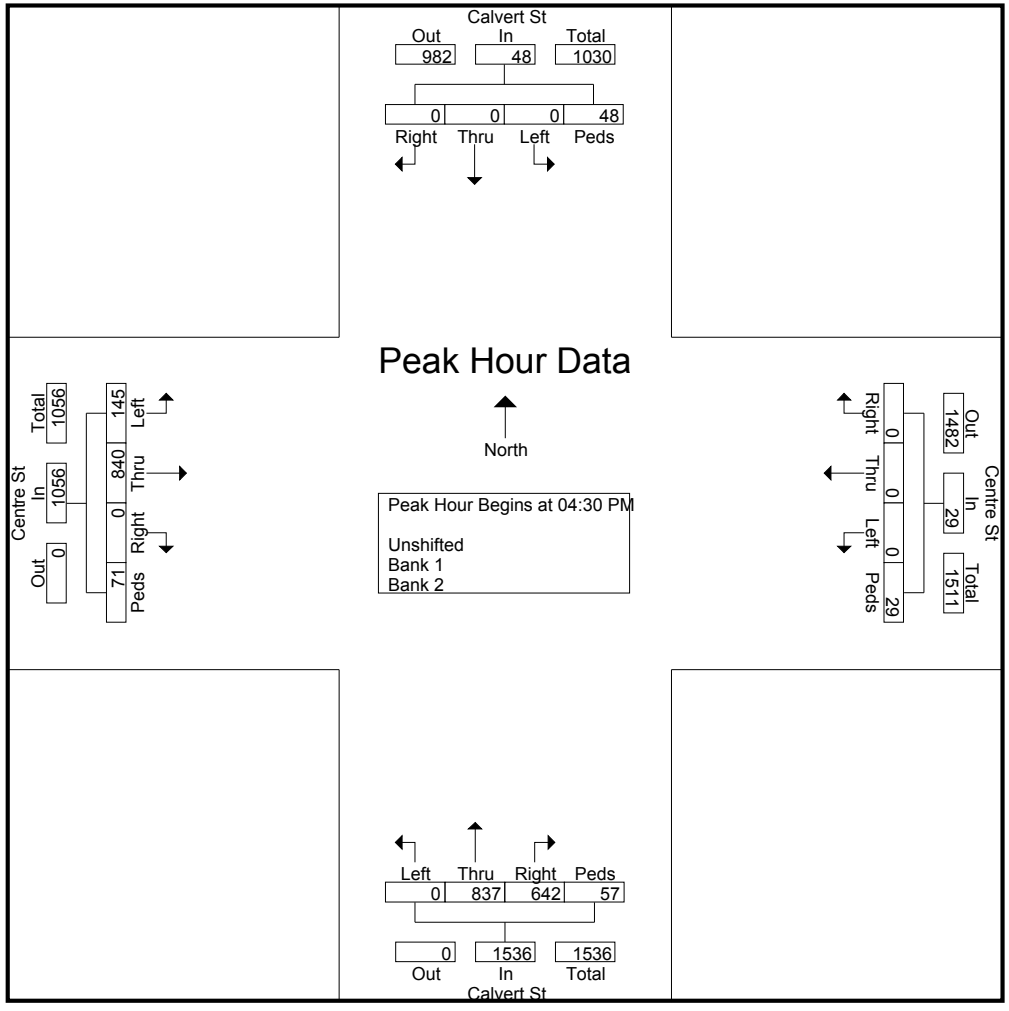
Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Calvert_Center_PM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 2

| | Calvert St From North | | | | | Centre St From East | | | | | Calvert St From South | | | | | Centre St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | | | | | |
| **04:30 PM** | **0** | **0** | **0** | **10** | **10** | **0** | **0** | **0** | 10 | 10 | 174 | 221 | 0 | 9 | 404 | 0 | 215 | 26 | 26 | 267 | **691** |
| 04:45 PM | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 5 | 5 | 149 | 188 | 0 | 7 | 344 | 0 | **220** | 39 | 12 | **271** | 631 |
| 05:00 PM | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 5 | 5 | **178** | 201 | 0 | 16 | 395 | 0 | 194 | 36 | 19 | 249 | 660 |
| 05:15 PM | 0 | 0 | 0 | **16** | **16** | 0 | 0 | 0 | 9 | 9 | 141 | **227** | 0 | **25** | 393 | 0 | 211 | **44** | 14 | 269 | 687 |
| Total Volume | 0 | 0 | 0 | 48 | 48 | 0 | 0 | 0 | 29 | 29 | 642 | 837 | 0 | 57 | 1536 | 0 | 840 | 145 | 71 | 1056 | 2669 |
| % App. Total | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 41.8 | 54.5 | 0 | 3.7 | | 0 | 79.5 | 13.7 | 6.7 | | |
| PHF | .000 | .000 | .000 | .750 | .750 | .000 | .000 | .000 | .725 | .725 | .902 | .922 | .000 | .570 | .950 | .000 | .955 | .824 | .683 | .974 | .966 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Calvert_Center_PM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 3



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Calvert_Center_PM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 4

| | Calvert St From North | | | | | Centre St From East | | | | | Calvert St From South | | | | | Centre St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

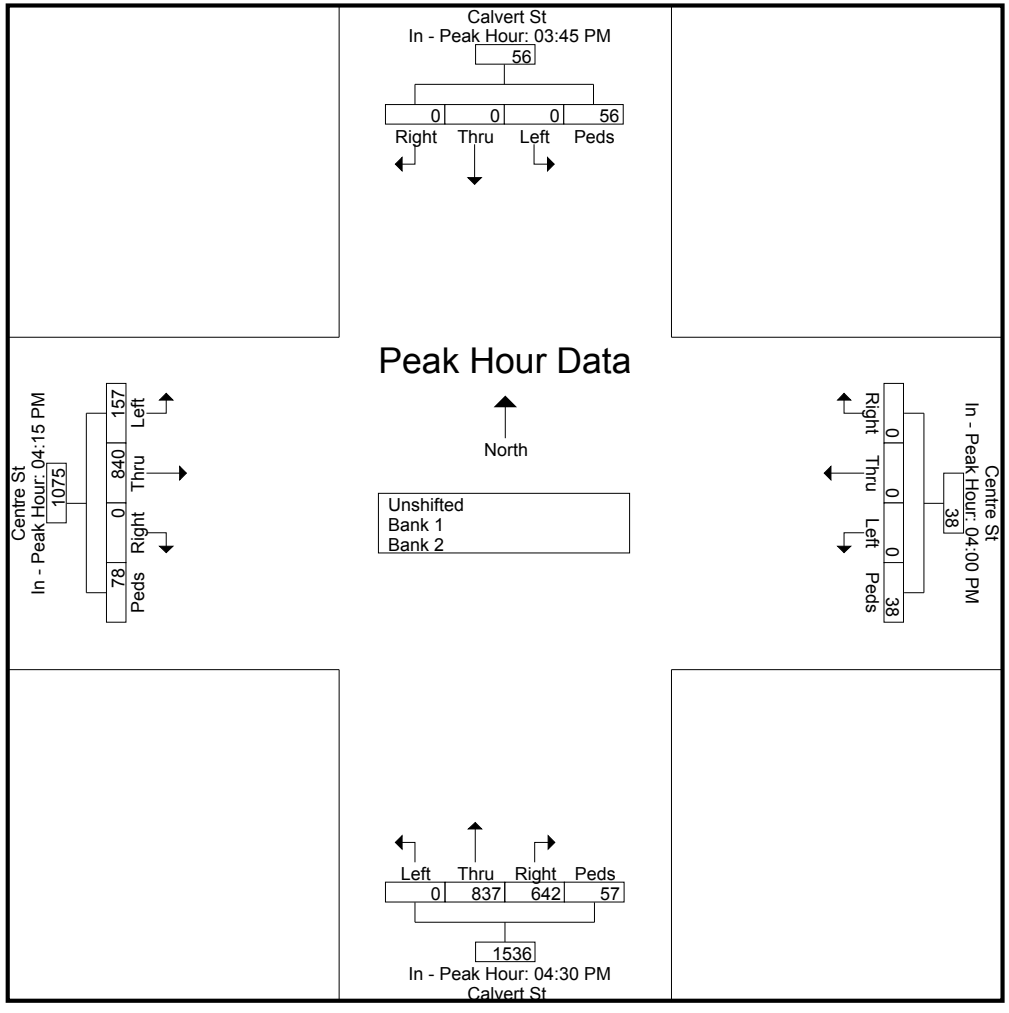
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 03:45 PM | | | | | 04:00 PM | | | | | 04:30 PM | | | | | 04:15 PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **0** | **0** | **0** | **13** | **13** | **0** | **0** | **0** | **8** | **8** | **174** | **221** | **0** | **9** | 404 | 0 | 211 | 56 | 21 | 288 |
| +15 mins. | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 15 | **15** | 149 | 188 | 0 | 7 | 344 | 0 | 215 | 26 | **26** | 267 |
| +30 mins. | 0 | 0 | 0 | **19** | **19** | 0 | 0 | 0 | 10 | 10 | **178** | 201 | 0 | 16 | 395 | 0 | **220** | 39 | 12 | 271 |
| +45 mins. | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 5 | 5 | 141 | **227** | 0 | **25** | 393 | 0 | 194 | 36 | 19 | 249 |
| Total Volume | 0 | 0 | 0 | 56 | 56 | 0 | 0 | 0 | 38 | 38 | 642 | 837 | 0 | 57 | 1536 | 0 | 840 | 157 | 78 | 1075 |
| % App. Total | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 41.8 | 54.5 | 0 | 3.7 | | 0 | 78.1 | 14.6 | 7.3 | |
| PHF | .000 | .000 | .000 | .737 | .737 | .000 | .000 | .000 | .633 | .633 | .902 | .922 | .000 | .570 | .950 | .000 | .955 | .701 | .750 | .933 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Calvert_Center_PM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 5



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

Weather: SUNNY
Counted By: ALDON
Town: BALTIMORE CITY
County: BALTIMORE CITY

File Name : Calvert St at Saratoga St
Site Code : 00000000
Start Date : 9/29/2015
Page No : 1

Groups Printed- VEHS&PEDS

| | CALVERT ST From North | | | | | SARATOGA ST From East | | | | | CALVERT ST From South | | | | | SARATOGA ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 0 | 0 | 8 | 8 | 5 | 72 | 0 | 11 | 88 | 2 | 188 | 7 | 11 | 208 | 0 | 8 | 21 | 8 | 37 | 341 |
| 07:15 AM | 0 | 0 | 0 | 4 | 4 | 2 | 92 | 0 | 10 | 104 | 2 | 209 | 8 | 23 | 242 | 0 | 13 | 24 | 4 | 41 | 391 |
| 07:30 AM | 0 | 0 | 0 | 9 | 9 | 2 | 83 | 0 | 10 | 95 | 2 | 206 | 12 | 10 | 230 | 0 | 21 | 25 | 4 | 50 | 384 |
| 07:45 AM | 0 | 0 | 0 | 6 | 6 | 7 | 98 | 0 | 10 | 115 | 2 | 212 | 15 | 18 | 247 | 0 | 13 | 33 | 3 | 49 | 417 |
| Total | 0 | 0 | 0 | 27 | 27 | 16 | 345 | 0 | 41 | 402 | 8 | 815 | 42 | 62 | 927 | 0 | 55 | 103 | 19 | 177 | 1533 |
| 08:00 AM | 0 | 0 | 0 | 9 | 9 | 8 | 84 | 0 | 8 | 100 | 8 | 248 | 22 | 18 | 296 | 0 | 13 | 36 | 9 | 58 | 463 |
| 08:15 AM | 0 | 0 | 0 | 8 | 8 | 10 | 109 | 0 | 8 | 127 | 5 | 199 | 14 | 27 | 245 | 0 | 24 | 32 | 8 | 64 | 444 |
| 08:30 AM | 0 | 0 | 0 | 12 | 12 | 6 | 121 | 0 | 26 | 153 | 7 | 147 | 14 | 30 | 198 | 0 | 18 | 36 | 11 | 65 | 428 |
| 08:45 AM | 0 | 0 | 0 | 10 | 10 | 12 | 111 | 0 | 15 | 138 | 7 | 164 | 23 | 22 | 216 | 0 | 23 | 37 | 14 | 74 | 438 |
| Total | 0 | 0 | 0 | 39 | 39 | 36 | 425 | 0 | 57 | 518 | 27 | 758 | 73 | 97 | 955 | 0 | 78 | 141 | 42 | 261 | 1773 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 11:00 AM | 0 | 0 | 0 | 9 | 9 | 13 | 46 | 0 | 10 | 69 | 15 | 112 | 15 | 18 | 160 | 0 | 25 | 38 | 4 | 67 | 305 |
| 11:15 AM | 0 | 0 | 0 | 16 | 16 | 15 | 50 | 0 | 9 | 74 | 5 | 119 | 23 | 18 | 165 | 0 | 9 | 29 | 9 | 47 | 302 |
| 11:30 AM | 0 | 0 | 0 | 9 | 9 | 9 | 56 | 0 | 9 | 74 | 14 | 120 | 17 | 23 | 174 | 0 | 13 | 34 | 7 | 54 | 311 |
| 11:45 AM | 0 | 0 | 0 | 18 | 18 | 8 | 54 | 0 | 21 | 83 | 2 | 141 | 24 | 36 | 203 | 0 | 12 | 43 | 7 | 62 | 366 |
| Total | 0 | 0 | 0 | 52 | 52 | 45 | 206 | 0 | 49 | 300 | 36 | 492 | 79 | 95 | 702 | 0 | 59 | 144 | 27 | 230 | 1284 |
| 12:00 PM | 0 | 0 | 0 | 5 | 5 | 11 | 53 | 0 | 14 | 78 | 4 | 160 | 25 | 27 | 216 | 0 | 19 | 30 | 7 | 56 | 355 |
| 12:15 PM | 0 | 0 | 0 | 14 | 14 | 5 | 60 | 0 | 35 | 100 | 3 | 111 | 25 | 27 | 166 | 0 | 18 | 25 | 3 | 46 | 326 |
| 12:30 PM | 0 | 0 | 0 | 16 | 16 | 15 | 51 | 0 | 30 | 96 | 4 | 141 | 24 | 19 | 188 | 0 | 7 | 29 | 8 | 44 | 344 |
| 12:45 PM | 0 | 0 | 0 | 16 | 16 | 14 | 50 | 0 | 17 | 81 | 4 | 131 | 26 | 25 | 186 | 0 | 9 | 32 | 11 | 52 | 335 |
| Total | 0 | 0 | 0 | 51 | 51 | 45 | 214 | 0 | 96 | 355 | 15 | 543 | 100 | 98 | 756 | 0 | 53 | 116 | 29 | 198 | 1360 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 03:30 PM | 0 | 0 | 0 | 9 | 9 | 7 | 77 | 0 | 11 | 95 | 7 | 165 | 13 | 17 | 202 | 0 | 11 | 37 | 8 | 56 | 362 |
| 03:45 PM | 0 | 0 | 0 | 8 | 8 | 12 | 73 | 0 | 28 | 113 | 2 | 181 | 16 | 16 | 215 | 0 | 8 | 39 | 3 | 50 | 386 |
| Total | 0 | 0 | 0 | 17 | 17 | 19 | 150 | 0 | 39 | 208 | 9 | 346 | 29 | 33 | 417 | 0 | 19 | 76 | 11 | 106 | 748 |
| 04:00 PM | 0 | 0 | 0 | 4 | 4 | 13 | 100 | 0 | 21 | 134 | 7 | 228 | 24 | 17 | 276 | 0 | 13 | 40 | 4 | 57 | 471 |
| 04:15 PM | 0 | 0 | 0 | 5 | 5 | 6 | 85 | 0 | 17 | 108 | 5 | 209 | 30 | 17 | 261 | 0 | 17 | 46 | 6 | 69 | 443 |
| 04:30 PM | 0 | 0 | 0 | 12 | 12 | 8 | 113 | 0 | 22 | 143 | 10 | 222 | 37 | 8 | 277 | 0 | 14 | 56 | 9 | 79 | 511 |
| 04:45 PM | 0 | 0 | 0 | 8 | 8 | 6 | 109 | 0 | 17 | 132 | 6 | 230 | 24 | 11 | 271 | 0 | 13 | 44 | 7 | 64 | 475 |
| Total | 0 | 0 | 0 | 29 | 29 | 33 | 407 | 0 | 77 | 517 | 28 | 889 | 115 | 53 | 1085 | 0 | 57 | 186 | 26 | 269 | 1900 |

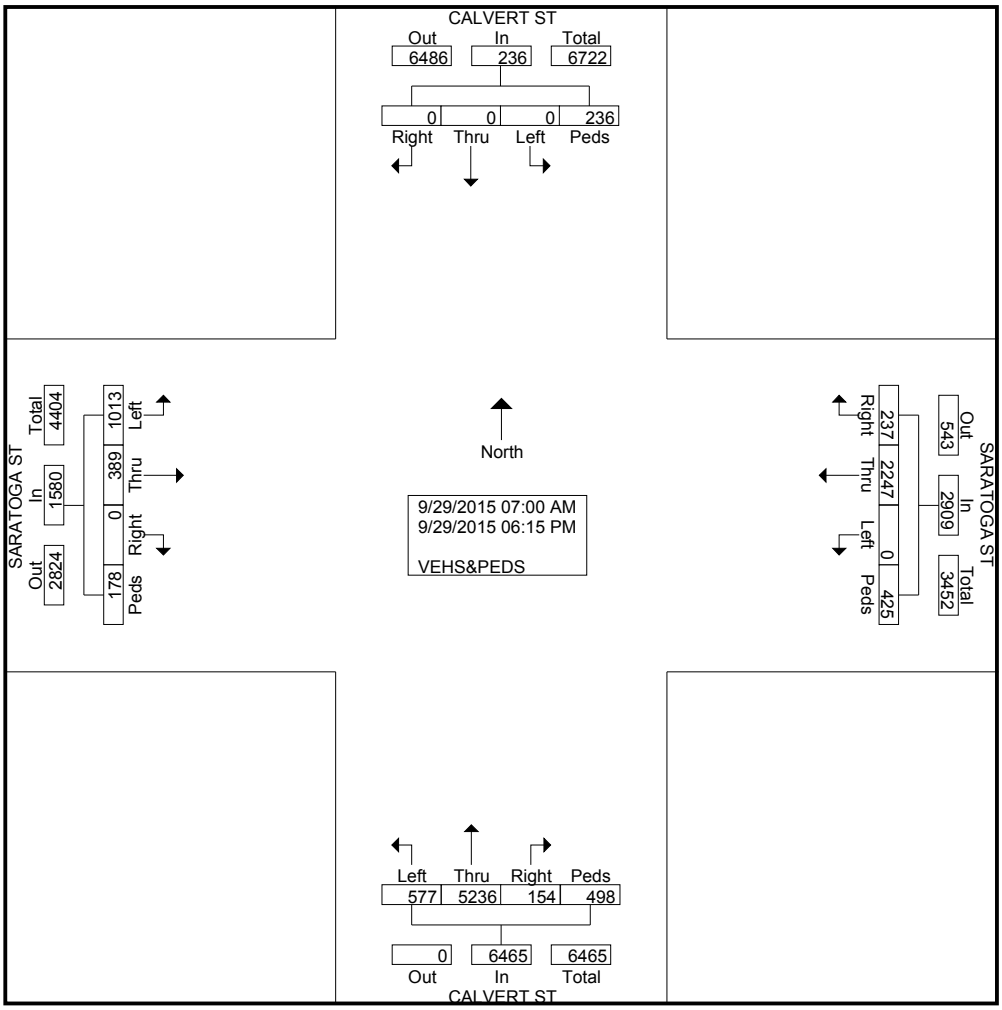
# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at Saratoga St
Site Code : 00000000
Start Date : 9/29/2015
Page No : 2

Groups Printed- VEHS&PEDS

| | CALVERT ST From North | | | | | SARATOGA ST From East | | | | | CALVERT ST From South | | | | | SARATOGA ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 05:00 PM | 0 | 0 | 0 | 3 | 3 | 12 | 98 | 0 | 15 | 125 | 4 | 239 | 37 | 17 | 297 | 0 | 11 | 41 | 7 | 59 | 484 |
| 05:15 PM | 0 | 0 | 0 | 4 | 4 | 9 | 80 | 0 | 12 | 101 | 7 | 286 | 25 | 19 | 337 | 0 | 20 | 48 | 4 | 72 | 514 |
| 05:30 PM | 0 | 0 | 0 | 3 | 3 | 4 | 76 | 0 | 11 | 91 | 7 | 253 | 21 | 5 | 286 | 0 | 11 | 33 | 3 | 47 | 427 |
| 05:45 PM | 0 | 0 | 0 | 3 | 3 | 5 | 75 | 0 | 11 | 91 | 8 | 257 | 21 | 8 | 294 | 0 | 7 | 59 | 5 | 71 | 459 |
| Total | 0 | 0 | 0 | 13 | 13 | 30 | 329 | 0 | 49 | 408 | 26 | 1035 | 104 | 49 | 1214 | 0 | 49 | 181 | 19 | 249 | 1884 |
| 06:00 PM | 0 | 0 | 0 | 5 | 5 | 8 | 92 | 0 | 14 | 114 | 0 | 161 | 21 | 10 | 192 | 0 | 12 | 26 | 2 | 40 | 351 |
| 06:15 PM | 0 | 0 | 0 | 3 | 3 | 5 | 79 | 0 | 3 | 87 | 5 | 197 | 14 | 1 | 217 | 0 | 7 | 40 | 3 | 50 | 357 |
| Grand Total | 0 | 0 | 0 | 236 | 236 | 237 | 2247 | 0 | 425 | 2909 | 154 | 5236 | 577 | 498 | 6465 | 0 | 389 | 1013 | 178 | 1580 | 11190 |
| Apprch % | 0 | 0 | 0 | 100 | | 8.1 | 77.2 | 0 | 14.6 | | 2.4 | 81 | 8.9 | 7.7 | | 0 | 24.6 | 64.1 | 11.3 | | |
| Total % | 0 | 0 | 0 | 2.1 | 2.1 | 2.1 | 20.1 | 0 | 3.8 | 26 | 1.4 | 46.8 | 5.2 | 4.5 | 57.8 | 0 | 3.5 | 9.1 | 1.6 | 14.1 | |

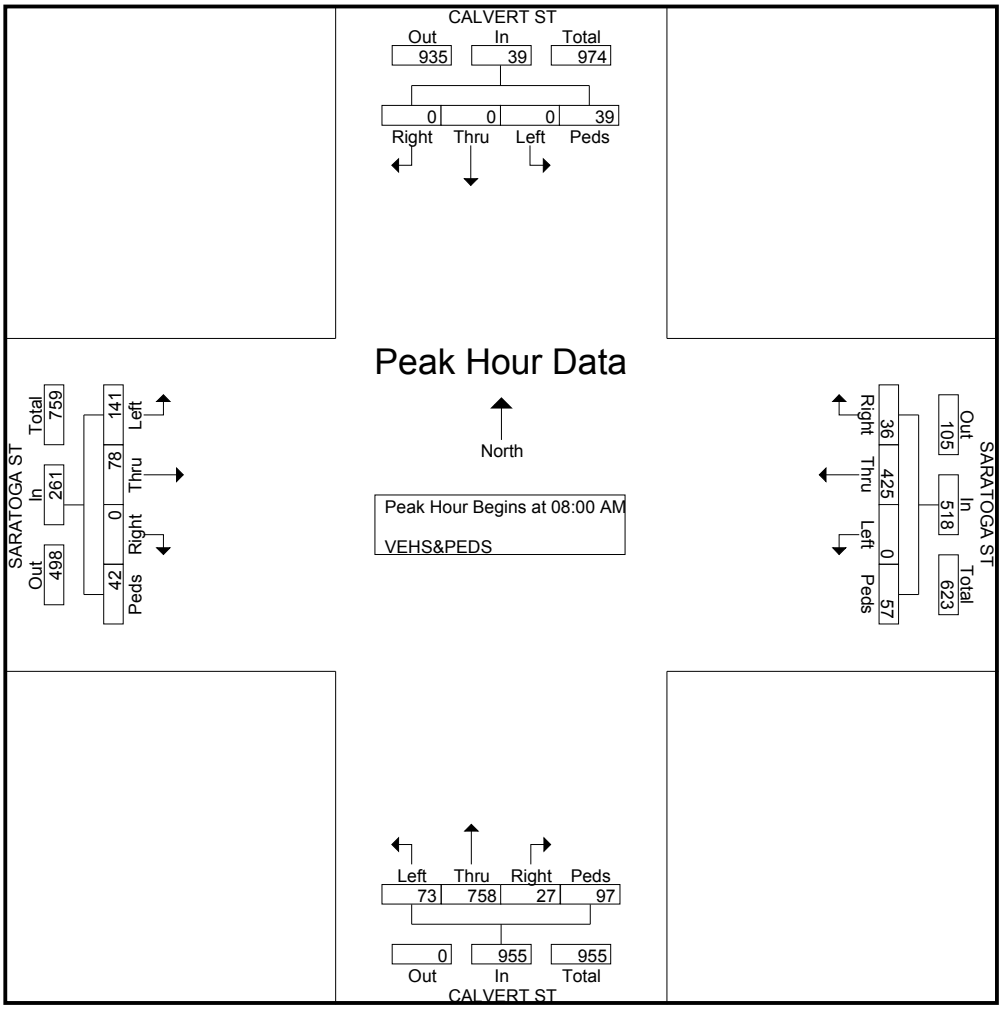


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at Saratoga St
Site Code : 00000000
Start Date : 9/29/2015
Page No : 3

| | CALVERT ST From North | | | | | SARATOGA ST From East | | | | | CALVERT ST From South | | | | | SARATOGA ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 08:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 08:00 AM | 0 | 0 | 0 | 9 | 9 | 8 | 84 | 0 | 8 | 100 | **8** | **248** | 22 | 18 | **296** | 0 | 13 | 36 | 9 | 58 | **463** |
| 08:15 AM | 0 | 0 | 0 | 8 | 8 | 10 | 109 | 0 | 8 | 127 | 5 | 199 | 14 | 27 | 245 | 0 | **24** | 32 | 8 | 64 | 444 |
| 08:30 AM | 0 | 0 | 0 | **12** | **12** | 6 | **121** | 0 | **26** | **153** | 7 | 147 | 14 | **30** | 198 | 0 | 18 | 36 | 11 | 65 | 428 |
| 08:45 AM | 0 | 0 | 0 | 10 | 10 | **12** | 111 | 0 | 15 | 138 | 7 | 164 | **23** | 22 | 216 | 0 | 23 | **37** | **14** | **74** | 438 |
| Total Volume | 0 | 0 | 0 | 39 | 39 | 36 | 425 | 0 | 57 | 518 | 27 | 758 | 73 | 97 | 955 | 0 | 78 | 141 | 42 | 261 | 1773 |
| % App. Total | 0 | 0 | 0 | 100 | | 6.9 | 82 | 0 | 11 | | 2.8 | 79.4 | 7.6 | 10.2 | | 0 | 29.9 | 54 | 16.1 | | |
| PHF | .000 | .000 | .000 | .813 | .813 | .750 | .878 | .000 | .548 | .846 | .844 | .764 | .793 | .808 | .807 | .000 | .813 | .953 | .750 | .882 | .957 |

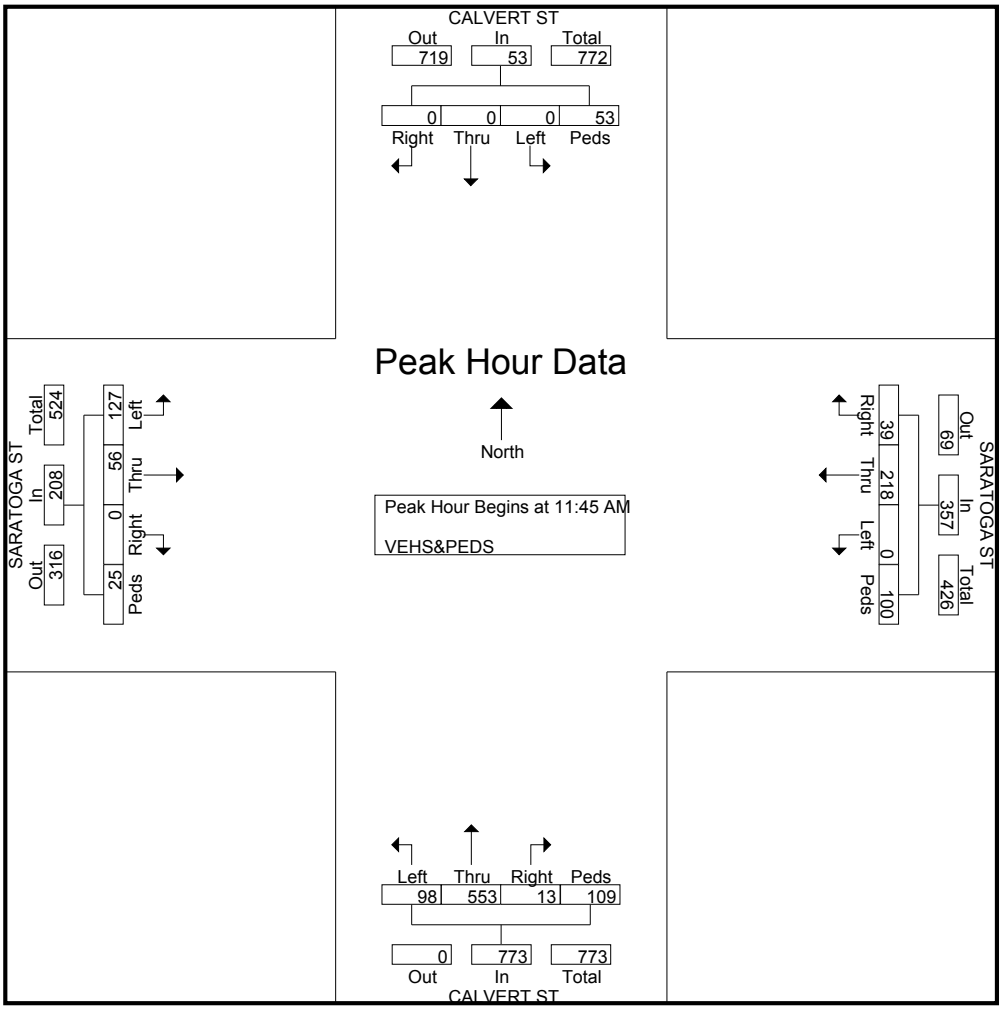


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
443-741-3500

File Name : Calvert St at Saratoga St
Site Code : 00000000
Start Date : 9/29/2015
Page No : 4

| | CALVERT ST From North | | | | | SARATOGA ST From East | | | | | CALVERT ST From South | | | | | SARATOGA ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 11:45 AM | | | | | | | | | | | | | | | | | | | | | |
| 11:45 AM | 0 | 0 | 0 | **18** | **18** | 8 | 54 | 0 | 21 | 83 | 2 | 141 | 24 | **36** | 203 | 0 | 12 | **43** | 7 | **62** | **366** |
| 12:00 PM | 0 | 0 | 0 | 5 | 5 | 11 | 53 | 0 | 14 | 78 | **4** | **160** | **25** | 27 | **216** | 0 | **19** | 30 | 7 | 56 | 355 |
| 12:15 PM | 0 | 0 | 0 | 14 | 14 | 5 | **60** | 0 | **35** | **100** | 3 | 111 | 25 | 27 | 166 | 0 | 18 | 25 | 3 | 46 | 326 |
| 12:30 PM | 0 | 0 | 0 | 16 | 16 | **15** | 51 | 0 | 30 | 96 | 4 | 141 | 24 | 19 | 188 | 0 | 7 | 29 | **8** | 44 | 344 |
| Total Volume | 0 | 0 | 0 | 53 | 53 | 39 | 218 | 0 | 100 | 357 | 13 | 553 | 98 | 109 | 773 | 0 | 56 | 127 | 25 | 208 | 1391 |
| % App. Total | 0 | 0 | 0 | 100 | | 10.9 | 61.1 | 0 | 28 | | 1.7 | 71.5 | 12.7 | 14.1 | | 0 | 26.9 | 61.1 | 12 | | |
| PHF | .000 | .000 | .000 | .736 | .736 | .650 | .908 | .000 | .714 | .893 | .813 | .864 | .980 | .757 | .895 | .000 | .737 | .738 | .781 | .839 | .950 |

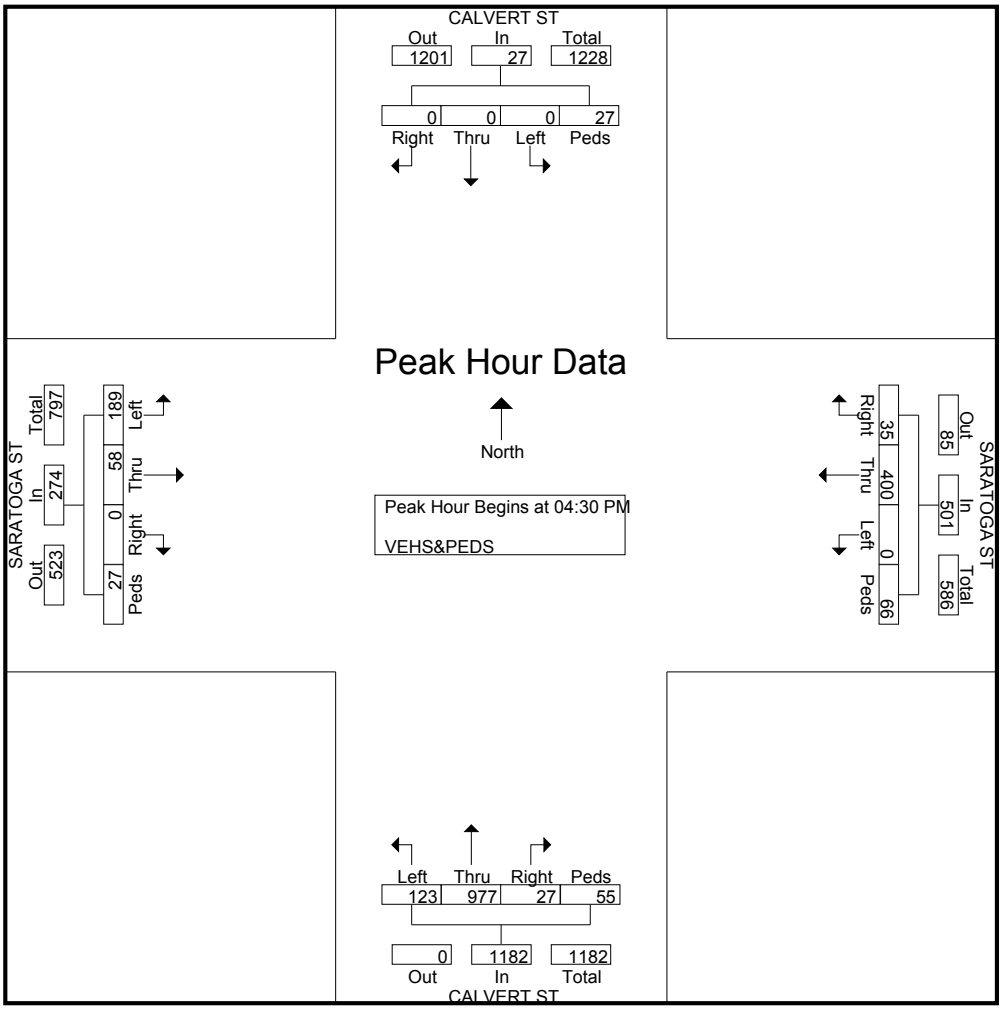


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
443-741-3500

File Name : Calvert St at Saratoga St
Site Code : 00000000
Start Date : 9/29/2015
Page No : 5

| | CALVERT ST From North | | | | | SARATOGA ST From East | | | | | CALVERT ST From South | | | | | SARATOGA ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:30 PM | 0 | 0 | 0 | **12** | **12** | 8 | **113** | 0 | **22** | **143** | **10** | 222 | **37** | 8 | 277 | 0 | 14 | **56** | **9** | **79** | 511 |
| 04:45 PM | 0 | 0 | 0 | 8 | 8 | 6 | 109 | 0 | 17 | 132 | 6 | 230 | 24 | 11 | 271 | 0 | 13 | 44 | 7 | 64 | 475 |
| 05:00 PM | 0 | 0 | 0 | 3 | 3 | **12** | 98 | 0 | 15 | 125 | 4 | 239 | 37 | 17 | 297 | 0 | 11 | 41 | 7 | 59 | 484 |
| 05:15 PM | 0 | 0 | 0 | 4 | 4 | 9 | 80 | 0 | 12 | 101 | 7 | **286** | 25 | **19** | **337** | 0 | **20** | 48 | 4 | 72 | **514** |
| Total Volume | 0 | 0 | 0 | 27 | 27 | 35 | 400 | 0 | 66 | 501 | 27 | 977 | 123 | 55 | 1182 | 0 | 58 | 189 | 27 | 274 | 1984 |
| % App. Total | 0 | 0 | 0 | 100 | | 7 | 79.8 | 0 | 13.2 | | 2.3 | 82.7 | 10.4 | 4.7 | | 0 | 21.2 | 69 | 9.9 | | |
| PHF | .000 | .000 | .000 | .563 | .563 | .729 | .885 | .000 | .750 | .876 | .675 | .854 | .831 | .724 | .877 | .000 | .725 | .844 | .750 | .867 | .965 |



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

Weather: SUNNY
Counted By: CHRISTINE
Town: BALTIMORE CITY
County: BALTIMORE CITY

File Name : Calvert St at Fayette St
Site Code : 00000000
Start Date : 8/26/2015
Page No : 1

Groups Printed- VEHS&PEDS

| | CALVERT ST From North | | | | | FAYETTE ST From East | | | | | CALVERT ST From South | | | | | FAYETTE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 0 | 0 | 15 | 15 | 10 | 165 | 0 | 27 | 202 | 0 | 218 | 20 | 33 | 271 | 0 | 0 | 0 | 14 | 14 | 502 |
| 07:15 AM | 0 | 0 | 0 | 11 | 11 | 24 | 188 | 0 | 40 | 252 | 0 | 288 | 19 | 38 | 345 | 0 | 0 | 0 | 26 | 26 | 634 |
| 07:30 AM | 0 | 0 | 0 | 33 | 33 | 24 | 193 | 0 | 53 | 270 | 0 | 298 | 24 | 56 | 378 | 0 | 0 | 0 | 20 | 20 | 701 |
| 07:45 AM | 0 | 0 | 0 | 56 | 56 | 30 | 245 | 0 | 51 | 326 | 0 | 266 | 30 | 79 | 375 | 0 | 0 | 0 | 45 | 45 | 802 |
| Total | 0 | 0 | 0 | 115 | 115 | 88 | 791 | 0 | 171 | 1050 | 0 | 1070 | 93 | 206 | 1369 | 0 | 0 | 0 | 105 | 105 | 2639 |
| 08:00 AM | 0 | 0 | 0 | 47 | 47 | 25 | 214 | 0 | 66 | 305 | 0 | 293 | 20 | 72 | 385 | 0 | 0 | 0 | 32 | 32 | 769 |
| 08:15 AM | 0 | 0 | 0 | 54 | 54 | 29 | 175 | 0 | 74 | 278 | 0 | 270 | 36 | 80 | 386 | 0 | 0 | 0 | 57 | 57 | 775 |
| 08:30 AM | 0 | 0 | 0 | 62 | 62 | 20 | 198 | 0 | 73 | 291 | 0 | 251 | 25 | 66 | 342 | 0 | 0 | 0 | 52 | 52 | 747 |
| 08:45 AM | 0 | 0 | 0 | 48 | 48 | 34 | 178 | 0 | 62 | 274 | 0 | 237 | 36 | 56 | 329 | 0 | 0 | 0 | 43 | 43 | 694 |
| Total | 0 | 0 | 0 | 211 | 211 | 108 | 765 | 0 | 275 | 1148 | 0 | 1051 | 117 | 274 | 1442 | 0 | 0 | 0 | 184 | 184 | 2985 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 11:00 AM | 0 | 0 | 0 | 39 | 39 | 23 | 101 | 0 | 75 | 199 | 0 | 111 | 31 | 60 | 202 | 0 | 0 | 0 | 42 | 42 | 482 |
| 11:15 AM | 0 | 0 | 0 | 38 | 38 | 27 | 112 | 0 | 79 | 218 | 0 | 95 | 27 | 48 | 170 | 0 | 0 | 0 | 44 | 44 | 470 |
| 11:30 AM | 0 | 0 | 0 | 45 | 45 | 19 | 115 | 0 | 86 | 220 | 0 | 108 | 22 | 88 | 218 | 0 | 0 | 0 | 51 | 51 | 534 |
| 11:45 AM | 0 | 0 | 0 | 42 | 42 | 24 | 127 | 0 | 75 | 226 | 0 | 125 | 40 | 53 | 218 | 0 | 0 | 0 | 39 | 39 | 525 |
| Total | 0 | 0 | 0 | 164 | 164 | 93 | 455 | 0 | 315 | 863 | 0 | 439 | 120 | 249 | 808 | 0 | 0 | 0 | 176 | 176 | 2011 |
| 12:00 PM | 0 | 0 | 0 | 58 | 58 | 14 | 111 | 0 | 108 | 233 | 0 | 118 | 30 | 82 | 230 | 0 | 0 | 0 | 66 | 66 | 587 |
| 12:15 PM | 1 | 0 | 0 | 84 | 85 | 46 | 128 | 0 | 111 | 285 | 0 | 140 | 47 | 107 | 294 | 0 | 0 | 0 | 55 | 55 | 719 |
| 12:30 PM | 0 | 0 | 0 | 87 | 87 | 23 | 113 | 0 | 127 | 263 | 0 | 126 | 31 | 90 | 247 | 0 | 0 | 0 | 86 | 86 | 683 |
| 12:45 PM | 0 | 0 | 0 | 64 | 64 | 16 | 125 | 0 | 116 | 257 | 0 | 140 | 28 | 90 | 258 | 0 | 0 | 0 | 92 | 92 | 671 |
| Total | 1 | 0 | 0 | 293 | 294 | 99 | 477 | 0 | 462 | 1038 | 0 | 524 | 136 | 369 | 1029 | 0 | 0 | 0 | 299 | 299 | 2660 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 03:30 PM | 0 | 0 | 0 | 30 | 30 | 25 | 148 | 0 | 54 | 227 | 0 | 198 | 28 | 48 | 274 | 0 | 0 | 0 | 31 | 31 | 562 |
| 03:45 PM | 0 | 0 | 0 | 37 | 37 | 26 | 123 | 0 | 56 | 205 | 0 | 201 | 27 | 36 | 264 | 0 | 0 | 0 | 26 | 26 | 532 |
| Total | 0 | 0 | 0 | 67 | 67 | 51 | 271 | 0 | 110 | 432 | 0 | 399 | 55 | 84 | 538 | 0 | 0 | 0 | 57 | 57 | 1094 |
| 04:00 PM | 0 | 0 | 0 | 37 | 37 | 20 | 117 | 0 | 58 | 195 | 0 | 275 | 24 | 53 | 352 | 0 | 0 | 0 | 38 | 38 | 622 |
| 04:15 PM | 0 | 0 | 0 | 32 | 32 | 25 | 138 | 0 | 70 | 233 | 0 | 232 | 21 | 46 | 299 | 0 | 0 | 0 | 21 | 21 | 585 |
| 04:30 PM | 0 | 0 | 0 | 30 | 30 | 16 | 143 | 0 | 85 | 244 | 0 | 277 | 35 | 101 | 413 | 0 | 0 | 0 | 36 | 36 | 723 |
| 04:45 PM | 0 | 0 | 0 | 33 | 33 | 28 | 154 | 0 | 54 | 236 | 0 | 272 | 31 | 51 | 354 | 0 | 0 | 0 | 34 | 34 | 657 |
| Total | 0 | 0 | 0 | 132 | 132 | 89 | 552 | 0 | 267 | 908 | 0 | 1056 | 111 | 251 | 1418 | 0 | 0 | 0 | 129 | 129 | 2587 |

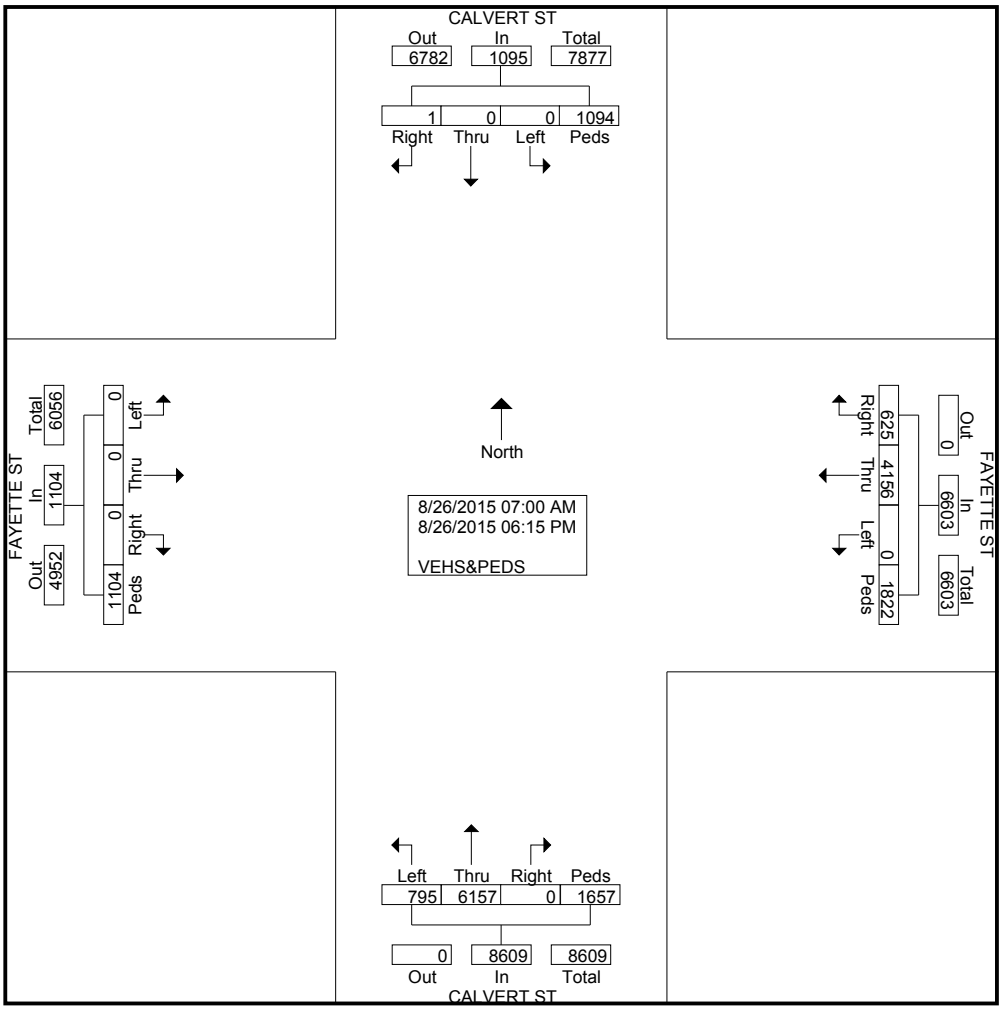
# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at Fayette St
Site Code : 00000000
Start Date : 8/26/2015
Page No : 2

Groups Printed- VEHS&PEDS

| | CALVERT ST From North | | | | | FAYETTE ST From East | | | | | CALVERT ST From South | | | | | FAYETTE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 05:00 PM | 0 | 0 | 0 | 47 | 47 | 20 | 171 | 0 | 66 | 257 | 0 | 331 | 31 | 56 | 418 | 0 | 0 | 0 | 30 | 30 | 752 |
| 05:15 PM | 0 | 0 | 0 | 21 | 21 | 19 | 155 | 0 | 44 | 218 | 0 | 305 | 30 | 39 | 374 | 0 | 0 | 0 | 46 | 46 | 659 |
| 05:30 PM | 0 | 0 | 0 | 15 | 15 | 10 | 153 | 0 | 32 | 195 | 0 | 260 | 36 | 36 | 332 | 0 | 0 | 0 | 25 | 25 | 567 |
| 05:45 PM | 0 | 0 | 0 | 14 | 14 | 22 | 153 | 0 | 34 | 209 | 0 | 262 | 29 | 34 | 325 | 0 | 0 | 0 | 21 | 21 | 569 |
| Total | 0 | 0 | 0 | 97 | 97 | 71 | 632 | 0 | 176 | 879 | 0 | 1158 | 126 | 165 | 1449 | 0 | 0 | 0 | 122 | 122 | 2547 |
| 06:00 PM | 0 | 0 | 0 | 9 | 9 | 14 | 118 | 0 | 28 | 160 | 0 | 238 | 19 | 38 | 295 | 0 | 0 | 0 | 22 | 22 | 486 |
| 06:15 PM | 0 | 0 | 0 | 6 | 6 | 12 | 95 | 0 | 18 | 125 | 0 | 222 | 18 | 21 | 261 | 0 | 0 | 0 | 10 | 10 | 402 |
| Grand Total | 1 | 0 | 0 | 1094 | 1095 | 625 | 4156 | 0 | 1822 | 6603 | 0 | 6157 | 795 | 1657 | 8609 | 0 | 0 | 0 | 1104 | 1104 | 17411 |
| Apprch % | 0.1 | 0 | 0 | 99.9 | | 9.5 | 62.9 | 0 | 27.6 | | 0 | 71.5 | 9.2 | 19.2 | | 0 | 0 | 0 | 100 | | |
| Total % | 0 | 0 | 0 | 6.3 | 6.3 | 3.6 | 23.9 | 0 | 10.5 | 37.9 | 0 | 35.4 | 4.6 | 9.5 | 49.4 | 0 | 0 | 0 | 6.3 | 6.3 | |

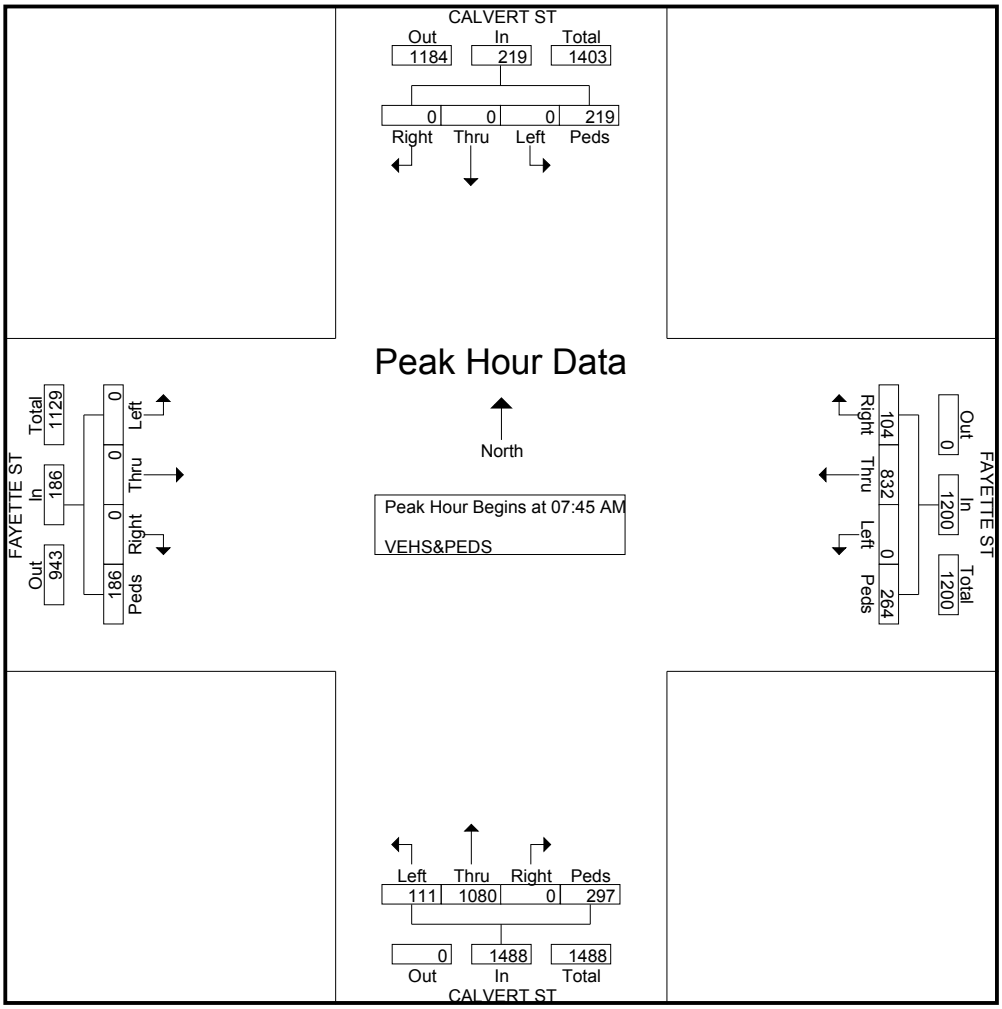


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at Fayette St
Site Code : 00000000
Start Date : 8/26/2015
Page No : 3

| | CALVERT ST From North | | | | | FAYETTE ST From East | | | | | CALVERT ST From South | | | | | FAYETTE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:45 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:45 AM | 0 | 0 | 0 | 56 | 56 | **30** | **245** | 0 | 51 | **326** | 0 | 266 | 30 | 79 | 375 | 0 | 0 | 0 | 45 | 45 | **802** |
| 08:00 AM | 0 | 0 | 0 | 47 | 47 | 25 | 214 | 0 | 66 | 305 | 0 | **293** | 20 | 72 | 385 | 0 | 0 | 0 | 32 | 32 | 769 |
| 08:15 AM | 0 | 0 | 0 | 54 | 54 | 29 | 175 | 0 | **74** | 278 | 0 | 270 | **36** | **80** | **386** | 0 | 0 | 0 | **57** | **57** | 775 |
| 08:30 AM | 0 | 0 | 0 | **62** | **62** | 20 | 198 | 0 | 73 | 291 | 0 | 251 | 25 | 66 | 342 | 0 | 0 | 0 | 52 | 52 | 747 |
| Total Volume | 0 | 0 | 0 | 219 | 219 | 104 | 832 | 0 | 264 | 1200 | 0 | 1080 | 111 | 297 | 1488 | 0 | 0 | 0 | 186 | 186 | 3093 |
| % App. Total | 0 | 0 | 0 | 100 | | 8.7 | 69.3 | 0 | 22 | | 0 | 72.6 | 7.5 | 20 | | 0 | 0 | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .883 | .883 | .867 | .849 | .000 | .892 | .920 | .000 | .922 | .771 | .928 | .964 | .000 | .000 | .000 | .816 | .816 | .964 |

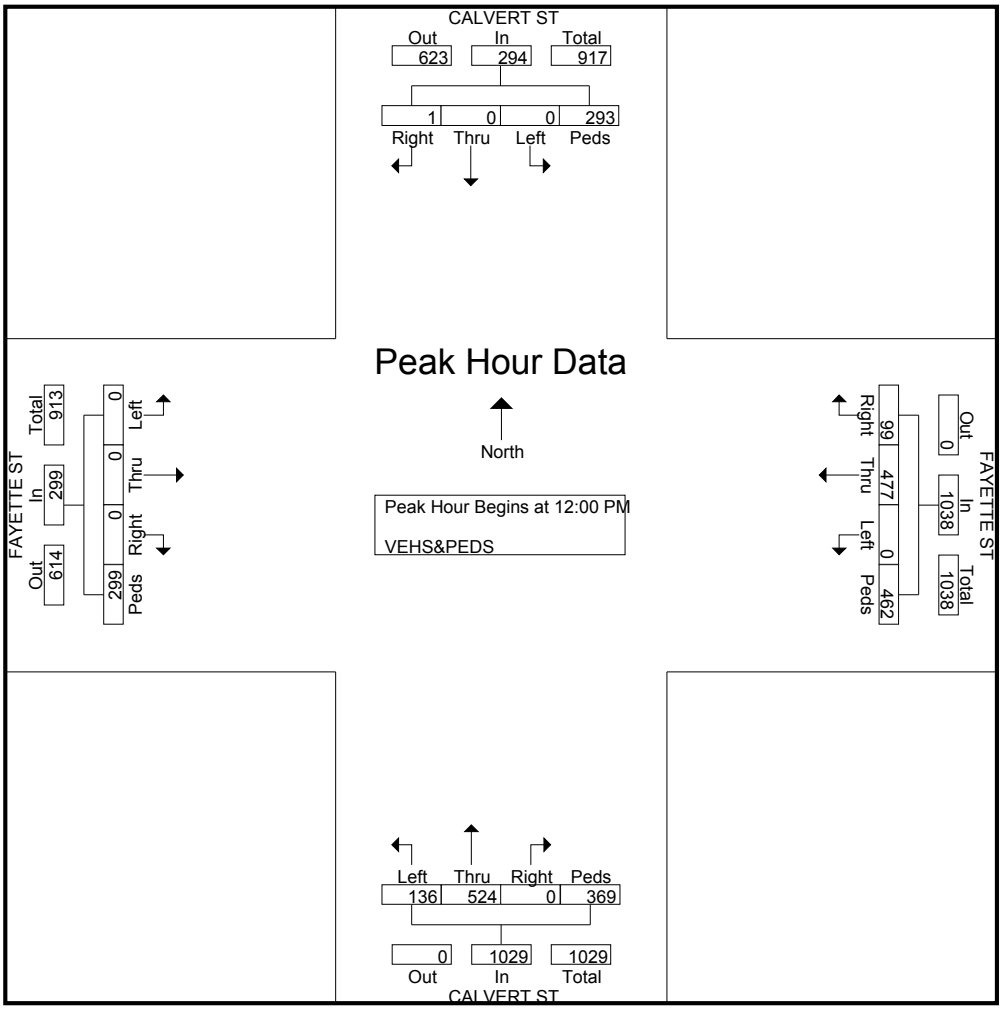


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at Fayette St
Site Code : 00000000
Start Date : 8/26/2015
Page No : 4

| | CALVERT ST From North | | | | | FAYETTE ST From East | | | | | CALVERT ST From South | | | | | FAYETTE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 12:00 PM | 0 | 0 | 0 | 58 | 58 | 14 | 111 | 0 | 108 | 233 | 0 | 118 | 30 | 82 | 230 | 0 | 0 | 0 | 66 | 66 | 587 |
| 12:15 PM | **1** | 0 | 0 | 84 | 85 | **46** | **128** | 0 | 111 | **285** | 0 | **140** | **47** | **107** | **294** | 0 | 0 | 0 | 55 | 55 | **719** |
| 12:30 PM | 0 | 0 | 0 | **87** | **87** | 23 | 113 | 0 | **127** | 263 | 0 | 126 | 31 | 90 | 247 | 0 | 0 | 0 | 86 | 86 | 683 |
| 12:45 PM | 0 | 0 | 0 | 64 | 64 | 16 | 125 | 0 | 116 | 257 | 0 | 140 | 28 | 90 | 258 | 0 | 0 | 0 | **92** | **92** | 671 |
| Total Volume | 1 | 0 | 0 | 293 | 294 | 99 | 477 | 0 | 462 | 1038 | 0 | 524 | 136 | 369 | 1029 | 0 | 0 | 0 | 299 | 299 | 2660 |
| % App. Total | 0.3 | 0 | 0 | 99.7 | | 9.5 | 46 | 0 | 44.5 | | 0 | 50.9 | 13.2 | 35.9 | | 0 | 0 | 0 | 100 | | |
| PHF | .250 | .000 | .000 | .842 | .845 | .538 | .932 | .000 | .909 | .911 | .000 | .936 | .723 | .862 | .875 | .000 | .000 | .000 | .813 | .813 | .925 |

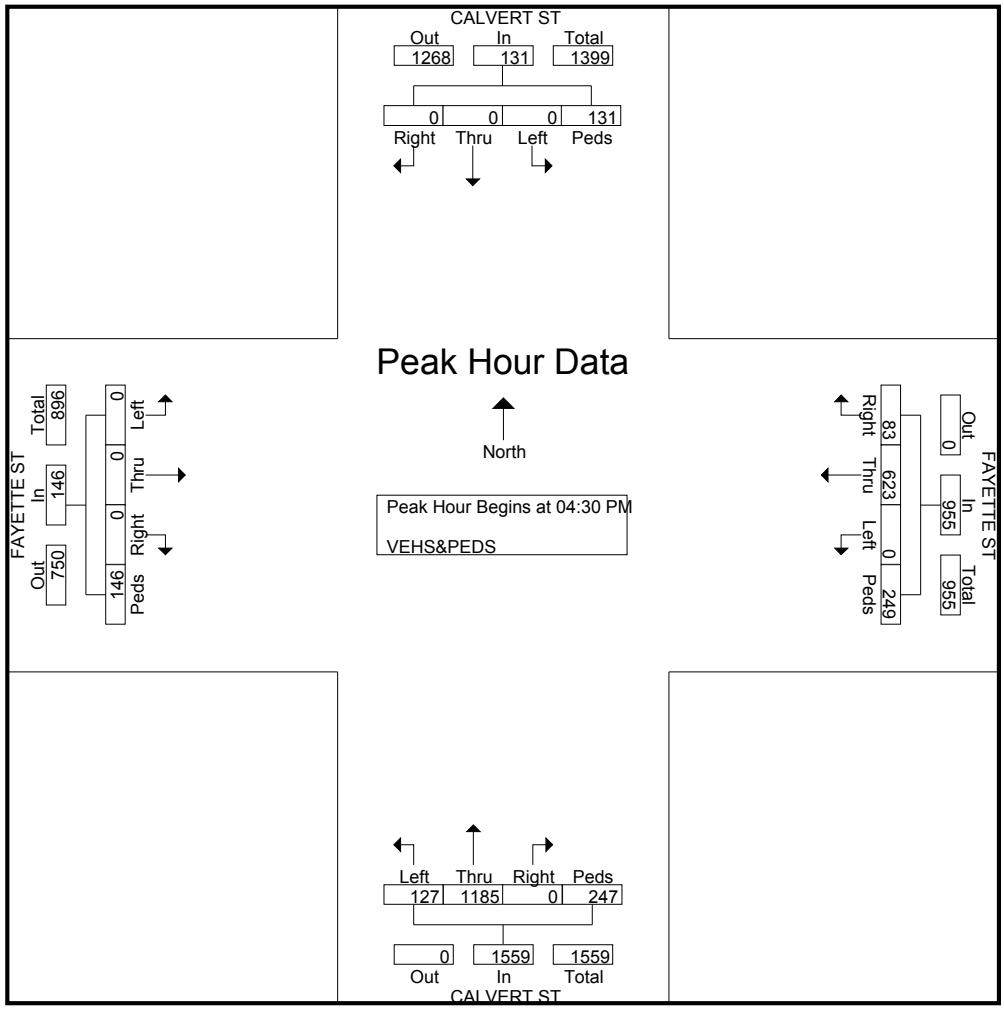


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at Fayette St
Site Code : 00000000
Start Date : 8/26/2015
Page No : 5

| | CALVERT ST From North | | | | | FAYETTE ST From East | | | | | CALVERT ST From South | | | | | FAYETTE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:30 PM | 0 | 0 | 0 | 30 | 30 | 16 | 143 | 0 | **85** | 244 | 0 | 277 | **35** | **101** | 413 | 0 | 0 | 0 | 36 | 36 | 723 |
| 04:45 PM | 0 | 0 | 0 | 33 | 33 | **28** | 154 | 0 | 54 | 236 | 0 | 272 | 31 | 51 | 354 | 0 | 0 | 0 | 34 | 34 | 657 |
| 05:00 PM | 0 | 0 | 0 | **47** | **47** | 20 | **171** | 0 | 66 | **257** | 0 | **331** | 31 | 56 | **418** | 0 | 0 | 0 | 30 | 30 | **752** |
| 05:15 PM | 0 | 0 | 0 | 21 | 21 | 19 | 155 | 0 | 44 | 218 | 0 | 305 | 30 | 39 | 374 | 0 | 0 | 0 | **46** | **46** | 659 |
| Total Volume | 0 | 0 | 0 | 131 | 131 | 83 | 623 | 0 | 249 | 955 | 0 | 1185 | 127 | 247 | 1559 | 0 | 0 | 0 | 146 | 146 | 2791 |
| % App. Total | 0 | 0 | 0 | 100 | | 8.7 | 65.2 | 0 | 26.1 | | 0 | 76 | 8.1 | 15.8 | | 0 | 0 | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .697 | .697 | .741 | .911 | .000 | .732 | .929 | .000 | .895 | .907 | .611 | .932 | .000 | .000 | .000 | .793 | .793 | .928 |



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

Weather: SUNNY
Counted By: SHAHID
Town: BALTIMORE CITY
County: BALTIMORE CITY

File Name : Calvert St at Baltimore St
Site Code : 10000000
Start Date : 9/1/2015
Page No : 1

Groups Printed- VEHS

| | CALVERT ST From North | | | | | BALTIMORE ST From East | | | | | CALVERT ST From South | | | | | BALTIMORE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 06:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 210 | 0 | 0 | 245 | 0 | 86 | 25 | 0 | 111 | 356 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 210 | 0 | 0 | 245 | 0 | 86 | 25 | 0 | 111 | 356 |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 203 | 0 | 0 | 235 | 0 | 112 | 28 | 0 | 140 | 375 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 67 | 236 | 0 | 0 | 303 | 0 | 113 | 38 | 0 | 151 | 454 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 229 | 0 | 0 | 291 | 0 | 140 | 48 | 0 | 188 | 479 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 | 271 | 0 | 0 | 342 | 0 | 120 | 55 | 0 | 175 | 517 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 232 | 939 | 0 | 0 | 1171 | 0 | 485 | 169 | 0 | 654 | 1825 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74 | 260 | 0 | 0 | 334 | 0 | 156 | 61 | 0 | 217 | 551 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 82 | 272 | 0 | 0 | 354 | 0 | 163 | 61 | 0 | 224 | 578 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78 | 237 | 0 | 0 | 315 | 0 | 179 | 62 | 0 | 241 | 556 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74 | 227 | 0 | 0 | 301 | 0 | 160 | 59 | 0 | 219 | 520 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 308 | 996 | 0 | 0 | 1304 | 0 | 658 | 243 | 0 | 901 | 2205 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 11:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 114 | 0 | 0 | 153 | 0 | 91 | 51 | 0 | 142 | 295 |
| 11:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 116 | 0 | 0 | 153 | 0 | 115 | 25 | 0 | 140 | 293 |
| 11:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 123 | 0 | 0 | 154 | 0 | 108 | 34 | 0 | 142 | 296 |
| 11:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 119 | 0 | 0 | 153 | 0 | 113 | 26 | 0 | 139 | 292 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 141 | 472 | 0 | 0 | 613 | 0 | 427 | 136 | 0 | 563 | 1176 |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 124 | 0 | 0 | 167 | 0 | 115 | 23 | 0 | 138 | 305 |
| 12:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 115 | 0 | 0 | 142 | 0 | 100 | 35 | 0 | 135 | 277 |
| 12:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 123 | 0 | 0 | 164 | 0 | 137 | 33 | 0 | 170 | 334 |
| 12:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 154 | 0 | 0 | 200 | 0 | 120 | 33 | 0 | 153 | 353 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 157 | 516 | 0 | 0 | 673 | 0 | 472 | 124 | 0 | 596 | 1269 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 03:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 196 | 0 | 0 | 239 | 0 | 163 | 22 | 0 | 185 | 424 |
| 03:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 226 | 0 | 0 | 299 | 0 | 155 | 17 | 0 | 172 | 471 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 116 | 422 | 0 | 0 | 538 | 0 | 318 | 39 | 0 | 357 | 895 |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 202 | 0 | 0 | 245 | 0 | 152 | 41 | 0 | 193 | 438 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at Baltimore St
Site Code : 10000000
Start Date : 9/1/2015
Page No : 2

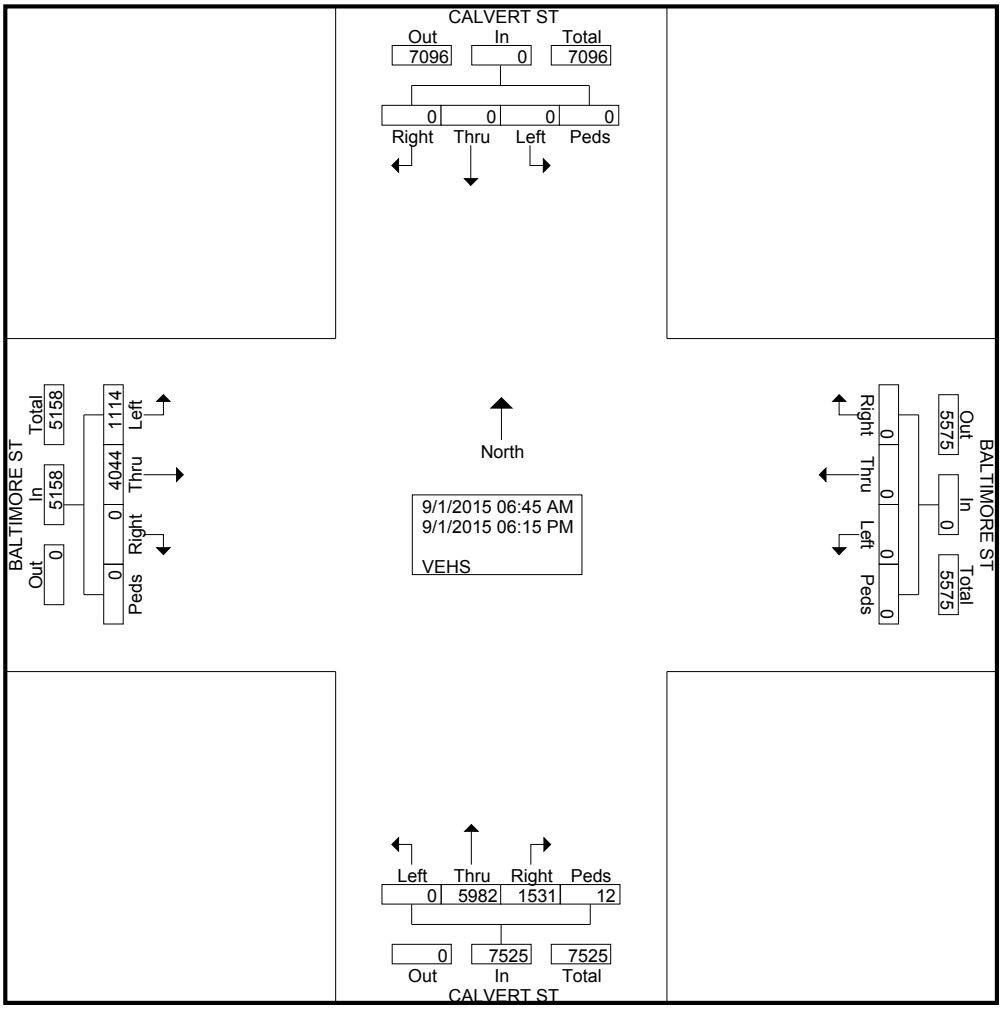
Groups Printed- VEHS

| | CALVERT ST From North | | | | | BALTIMORE ST From East | | | | | CALVERT ST From South | | | | | BALTIMORE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 | 209 | 0 | 0 | 262 | 0 | 164 | 42 | 0 | 206 | 468 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 | 231 | 0 | 0 | 295 | 0 | 170 | 37 | 0 | 207 | 502 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 223 | 0 | 0 | 286 | 0 | 153 | 40 | 0 | 193 | 479 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 223 | 865 | 0 | 0 | 1088 | 0 | 639 | 160 | 0 | 799 | 1887 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 249 | 0 | 6 | 305 | 0 | 174 | 43 | 0 | 217 | 522 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 290 | 0 | 0 | 331 | 0 | 160 | 47 | 0 | 207 | 538 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 | 295 | 0 | 0 | 359 | 0 | 183 | 41 | 0 | 224 | 583 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 250 | 0 | 0 | 299 | 0 | 156 | 39 | 0 | 195 | 494 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 204 | 1084 | 0 | 6 | 1294 | 0 | 673 | 170 | 0 | 843 | 2137 |
| 06:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 244 | 0 | 6 | 307 | 0 | 155 | 23 | 0 | 178 | 485 |
| 06:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 58 | 234 | 0 | 0 | 292 | 0 | 131 | 25 | 0 | 156 | 448 |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1531 | 5982 | 0 | 12 | 7525 | 0 | 4044 | 1114 | 0 | 5158 | 12683 |
| Apprch % | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 20.3 | 79.5 | 0 | 0.2 | | 0 | 78.4 | 21.6 | 0 | | |
| Total % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12.1 | 47.2 | 0 | 0.1 | 59.3 | 0 | 31.9 | 8.8 | 0 | 40.7 | |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at Baltimore St
Site Code : 10000000
Start Date : 9/1/2015
Page No : 3

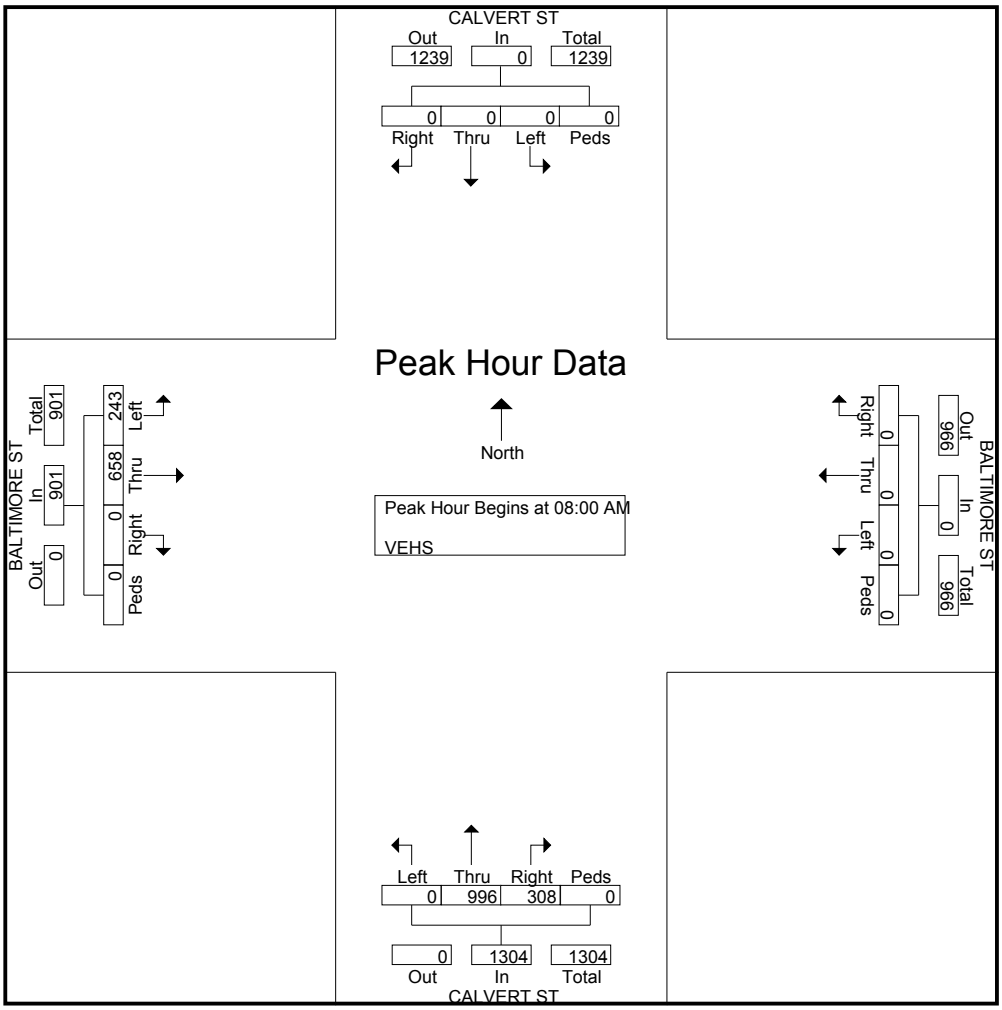


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*


File Name : Calvert St at Baltimore St
Site Code : 10000000
Start Date : 9/1/2015
Page No : 4

| | CALVERT ST From North | | | | | BALTIMORE ST From East | | | | | CALVERT ST From South | | | | | BALTIMORE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 06:45 AM to 09:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 08:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74 | 260 | 0 | 0 | 334 | 0 | 156 | 61 | 0 | 217 | 551 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **82** | **272** | 0 | 0 | **354** | 0 | 163 | 61 | 0 | 224 | **578** |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78 | 237 | 0 | 0 | 315 | 0 | **179** | **62** | 0 | **241** | 556 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74 | 227 | 0 | 0 | 301 | 0 | 160 | 59 | 0 | 219 | 520 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 308 | 996 | 0 | 0 | 1304 | 0 | 658 | 243 | 0 | 901 | 2205 |
| % App. Total | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 23.6 | 76.4 | 0 | 0 | | 0 | 73 | 27 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .939 | .915 | .000 | .000 | .921 | .000 | .919 | .980 | .000 | .935 | .954 |

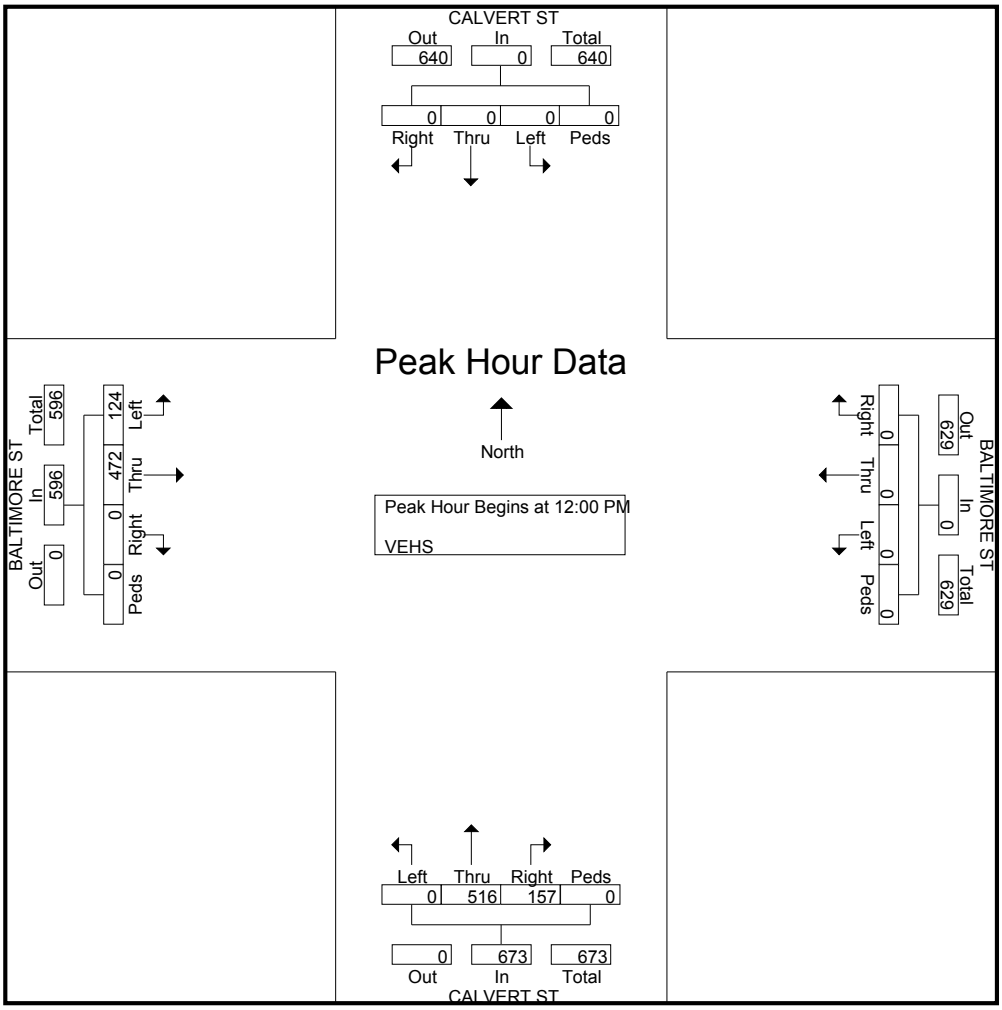


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at Baltimore St
Site Code : 10000000
Start Date : 9/1/2015
Page No : 5

| | CALVERT ST From North | | | | | BALTIMORE ST From East | | | | | CALVERT ST From South | | | | | BALTIMORE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 124 | 0 | 0 | 167 | 0 | 115 | 23 | 0 | 138 | 305 |
| 12:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 115 | 0 | 0 | 142 | 0 | 100 | **35** | 0 | 135 | 277 |
| 12:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 123 | 0 | 0 | 164 | 0 | **137** | 33 | 0 | **170** | 334 |
| 12:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **46** | **154** | 0 | 0 | **200** | 0 | 120 | 33 | 0 | 153 | **353** |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 157 | 516 | 0 | 0 | 673 | 0 | 472 | 124 | 0 | 596 | 1269 |
| % App. Total | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 23.3 | 76.7 | 0 | 0 | | 0 | 79.2 | 20.8 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .853 | .838 | .000 | .000 | .841 | .000 | .861 | .886 | .000 | .876 | .899 |

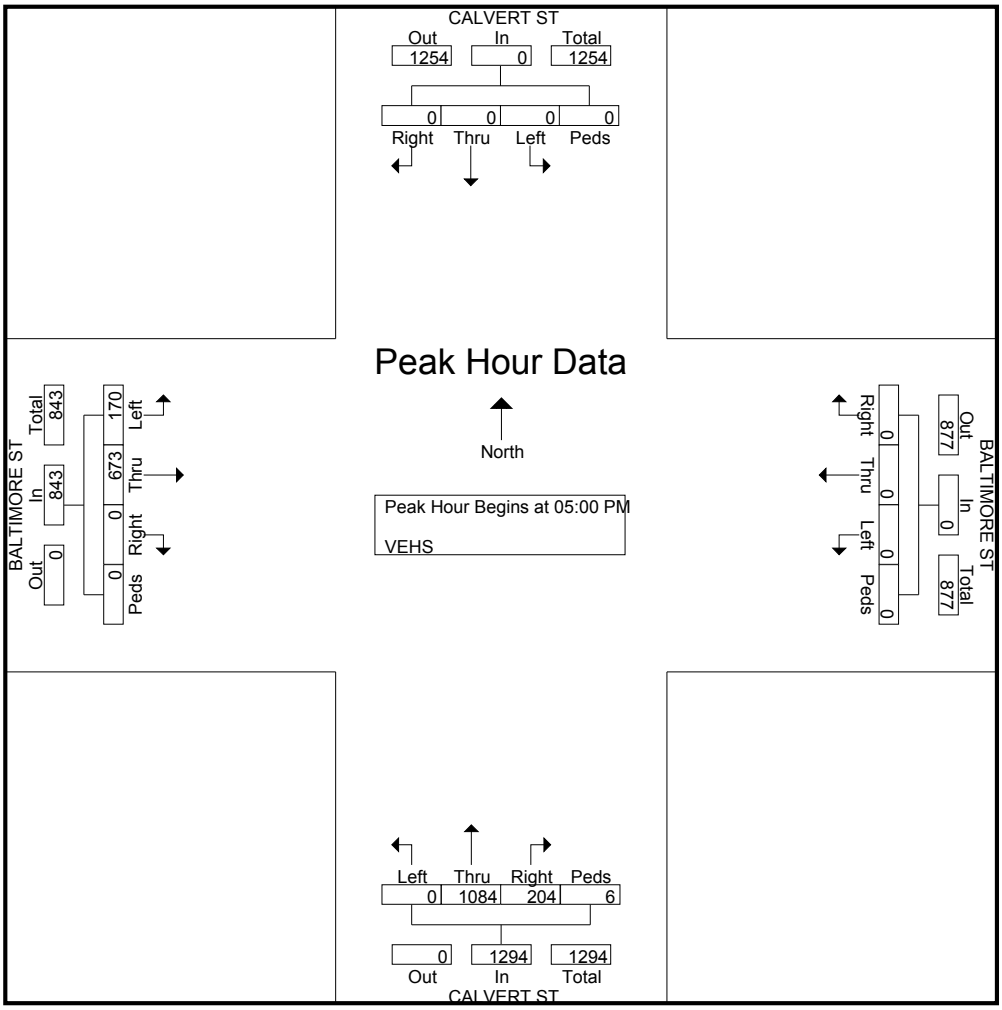


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*


File Name : Calvert St at Baltimore St
Site Code : 10000000
Start Date : 9/1/2015
Page No : 6

| | CALVERT ST From North | | | | | BALTIMORE ST From East | | | | | CALVERT ST From South | | | | | BALTIMORE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 05:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 249 | 0 | **6** | 305 | 0 | 174 | 43 | 0 | 217 | 522 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 290 | 0 | 0 | 331 | 0 | 160 | **47** | 0 | 207 | 538 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **64** | **295** | 0 | 0 | **359** | 0 | **183** | 41 | 0 | **224** | **583** |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 250 | 0 | 0 | 299 | 0 | 156 | 39 | 0 | 195 | 494 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 204 | 1084 | 0 | 6 | 1294 | 0 | 673 | 170 | 0 | 843 | 2137 |
| % App. Total | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 15.8 | 83.8 | 0 | 0.5 | | 0 | 79.8 | 20.2 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .797 | .919 | .000 | .250 | .901 | .000 | .919 | .904 | .000 | .941 | .916 |



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

Weather: SUNNY
Counted By: SHAHID
Town: BALTIMORE CITY
County: BALTIMORE CITY

File Name : Calvert St at Lombard St
Site Code : 40000000
Start Date : 9/10/2015
Page No : 1

Groups Printed- VEHS

| | CALVERT ST From North | | | | | LOMBARD ST From East | | | | | CALVERT ST From South | | | | | LOMBARD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 16 | 536 | 0 | 0 | 552 | 0 | 243 | 17 | 0 | 260 | 0 | 0 | 0 | 0 | 0 | 812 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 15 | 555 | 0 | 0 | 570 | 0 | 284 | 18 | 0 | 302 | 0 | 0 | 0 | 0 | 0 | 872 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 14 | 521 | 0 | 0 | 535 | 0 | 314 | 29 | 0 | 343 | 0 | 0 | 0 | 0 | 0 | 878 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 17 | 627 | 0 | 0 | 644 | 0 | 242 | 34 | 0 | 276 | 0 | 0 | 0 | 0 | 0 | 920 |
| Total | 0 | 0 | 0 | 0 | 0 | 62 | 2239 | 0 | 0 | 2301 | 0 | 1083 | 98 | 0 | 1181 | 0 | 0 | 0 | 0 | 0 | 3482 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 22 | 499 | 0 | 0 | 521 | 0 | 187 | 73 | 0 | 260 | 0 | 0 | 0 | 0 | 0 | 781 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 13 | 505 | 0 | 0 | 518 | 0 | 201 | 61 | 0 | 262 | 0 | 0 | 0 | 0 | 0 | 780 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 8 | 506 | 0 | 0 | 514 | 0 | 199 | 89 | 0 | 288 | 0 | 0 | 0 | 0 | 0 | 802 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 23 | 499 | 0 | 0 | 522 | 0 | 164 | 74 | 0 | 238 | 0 | 0 | 0 | 0 | 0 | 760 |
| Total | 0 | 0 | 0 | 0 | 0 | 66 | 2009 | 0 | 0 | 2075 | 0 | 751 | 297 | 0 | 1048 | 0 | 0 | 0 | 0 | 0 | 3123 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 10:45 AM | 0 | 0 | 0 | 0 | 0 | 10 | 381 | 0 | 0 | 391 | 0 | 128 | 28 | 0 | 156 | 0 | 0 | 0 | 0 | 0 | 547 |
| Total | 0 | 0 | 0 | 0 | 0 | 10 | 381 | 0 | 0 | 391 | 0 | 128 | 28 | 0 | 156 | 0 | 0 | 0 | 0 | 0 | 547 |
| 11:00 AM | 0 | 0 | 0 | 0 | 0 | 26 | 379 | 0 | 0 | 405 | 0 | 115 | 43 | 0 | 158 | 0 | 0 | 0 | 0 | 0 | 563 |
| 11:15 AM | 0 | 0 | 0 | 0 | 0 | 17 | 398 | 0 | 0 | 415 | 0 | 130 | 26 | 0 | 156 | 0 | 0 | 0 | 0 | 0 | 571 |
| 11:30 AM | 0 | 0 | 0 | 0 | 0 | 19 | 415 | 0 | 0 | 434 | 0 | 126 | 29 | 0 | 155 | 0 | 0 | 0 | 0 | 0 | 589 |
| 11:45 AM | 0 | 0 | 0 | 0 | 0 | 19 | 390 | 0 | 0 | 409 | 8 | 127 | 22 | 0 | 157 | 0 | 0 | 0 | 0 | 0 | 566 |
| Total | 0 | 0 | 0 | 0 | 0 | 81 | 1582 | 0 | 0 | 1663 | 8 | 498 | 120 | 0 | 626 | 0 | 0 | 0 | 0 | 0 | 2289 |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | 32 | 436 | 0 | 0 | 468 | 0 | 142 | 23 | 0 | 165 | 0 | 0 | 0 | 0 | 0 | 633 |
| 12:15 PM | 0 | 0 | 0 | 0 | 0 | 11 | 438 | 0 | 0 | 449 | 0 | 142 | 22 | 0 | 164 | 0 | 0 | 0 | 0 | 0 | 613 |
| 12:30 PM | 0 | 0 | 0 | 0 | 0 | 21 | 453 | 0 | 0 | 474 | 0 | 122 | 13 | 0 | 135 | 0 | 0 | 0 | 0 | 0 | 609 |
| 12:45 PM | 0 | 0 | 0 | 0 | 0 | 24 | 473 | 0 | 0 | 497 | 0 | 139 | 22 | 0 | 161 | 0 | 0 | 0 | 0 | 0 | 658 |
| Total | 0 | 0 | 0 | 0 | 0 | 88 | 1800 | 0 | 0 | 1888 | 0 | 545 | 80 | 0 | 625 | 0 | 0 | 0 | 0 | 0 | 2513 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 03:15 PM | 0 | 0 | 0 | 0 | 0 | 16 | 625 | 0 | 0 | 641 | 0 | 201 | 33 | 0 | 234 | 0 | 0 | 0 | 0 | 0 | 875 |
| 03:30 PM | 0 | 0 | 0 | 0 | 0 | 12 | 557 | 0 | 0 | 569 | 0 | 207 | 23 | 0 | 230 | 0 | 0 | 0 | 0 | 0 | 799 |
| 03:45 PM | 0 | 0 | 0 | 0 | 0 | 14 | 658 | 0 | 0 | 672 | 0 | 214 | 23 | 0 | 237 | 0 | 0 | 0 | 0 | 0 | 909 |
| Total | 0 | 0 | 0 | 0 | 0 | 42 | 1840 | 0 | 0 | 1882 | 0 | 622 | 79 | 0 | 701 | 0 | 0 | 0 | 0 | 0 | 2583 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at Lombard St
Site Code : 40000000
Start Date : 9/10/2015
Page No : 2

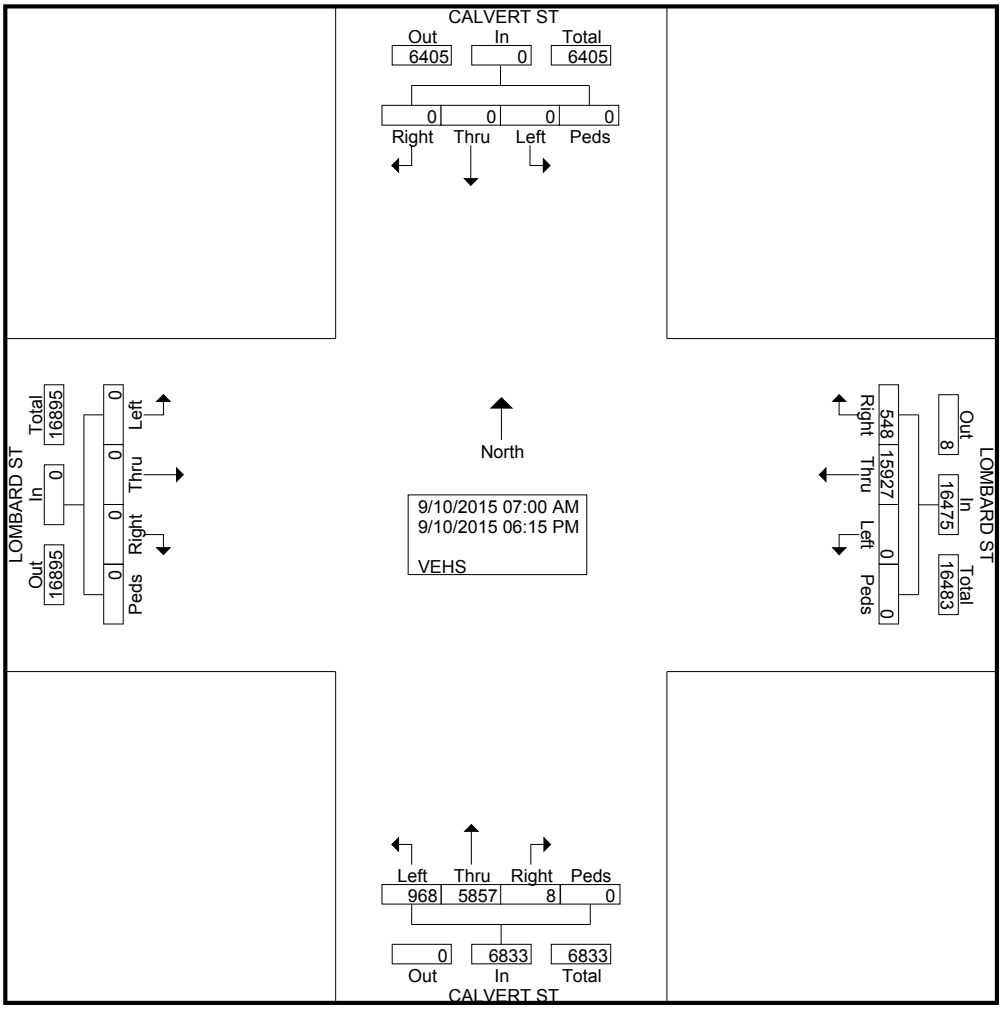
Groups Printed- VEHS

| | CALVERT ST From North | | | | | LOMBARD ST From East | | | | | CALVERT ST From South | | | | | LOMBARD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 22 | 615 | 0 | 0 | 637 | 0 | 200 | 40 | 0 | 240 | 0 | 0 | 0 | 0 | 0 | 877 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 17 | 589 | 0 | 0 | 606 | 0 | 241 | 25 | 0 | 266 | 0 | 0 | 0 | 0 | 0 | 872 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 14 | 636 | 0 | 0 | 650 | 0 | 231 | 17 | 0 | 248 | 0 | 0 | 0 | 0 | 0 | 898 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 20 | 627 | 0 | 0 | 647 | 0 | 231 | 21 | 0 | 252 | 0 | 0 | 0 | 0 | 0 | 899 |
| Total | 0 | 0 | 0 | 0 | 0 | 73 | 2467 | 0 | 0 | 2540 | 0 | 903 | 103 | 0 | 1006 | 0 | 0 | 0 | 0 | 0 | 3546 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 20 | 595 | 0 | 0 | 615 | 0 | 234 | 37 | 0 | 271 | 0 | 0 | 0 | 0 | 0 | 886 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 15 | 471 | 0 | 0 | 486 | 0 | 195 | 27 | 0 | 222 | 0 | 0 | 0 | 0 | 0 | 708 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 22 | 661 | 0 | 0 | 683 | 0 | 223 | 23 | 0 | 246 | 0 | 0 | 0 | 0 | 0 | 929 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 32 | 694 | 0 | 0 | 726 | 0 | 237 | 36 | 0 | 273 | 0 | 0 | 0 | 0 | 0 | 999 |
| Total | 0 | 0 | 0 | 0 | 0 | 89 | 2421 | 0 | 0 | 2510 | 0 | 889 | 123 | 0 | 1012 | 0 | 0 | 0 | 0 | 0 | 3522 |
| 06:00 PM | 0 | 0 | 0 | 0 | 0 | 19 | 620 | 0 | 0 | 639 | 0 | 227 | 24 | 0 | 251 | 0 | 0 | 0 | 0 | 0 | 890 |
| 06:15 PM | 0 | 0 | 0 | 0 | 0 | 18 | 568 | 0 | 0 | 586 | 0 | 211 | 16 | 0 | 227 | 0 | 0 | 0 | 0 | 0 | 813 |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 548 | 15927 | 0 | 0 | 16475 | 8 | 5857 | 968 | 0 | 6833 | 0 | 0 | 0 | 0 | 0 | 23308 |
| Apprch % | 0 | 0 | 0 | 0 | | 3.3 | 96.7 | 0 | 0 | | 0.1 | 85.7 | 14.2 | 0 | | 0 | 0 | 0 | 0 | | |
| Total % | 0 | 0 | 0 | 0 | 0 | 2.4 | 68.3 | 0 | 0 | 70.7 | 0 | 25.1 | 4.2 | 0 | 29.3 | 0 | 0 | 0 | 0 | 0 | |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*


File Name : Calvert St at Lombard St
Site Code : 40000000
Start Date : 9/10/2015
Page No : 3

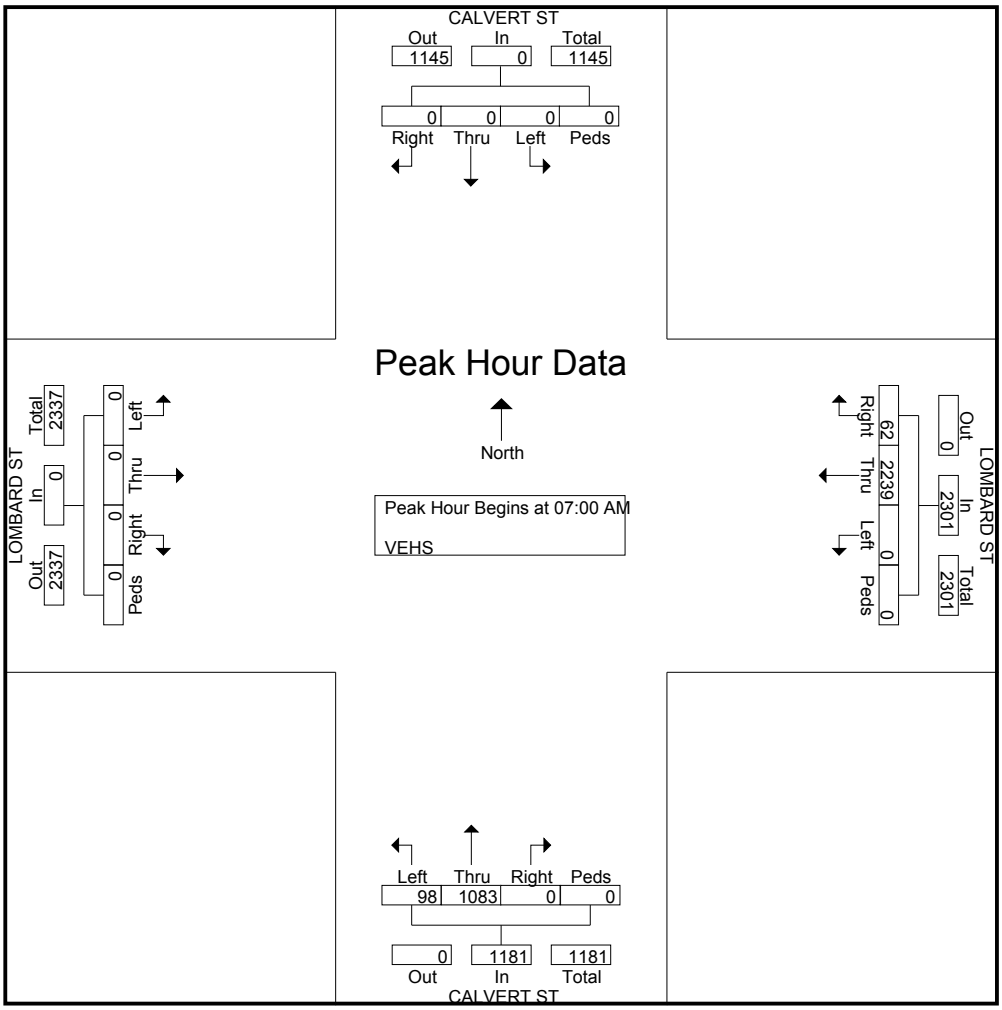


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at Lombard St
Site Code : 40000000
Start Date : 9/10/2015
Page No : 4

| | CALVERT ST From North | | | | | LOMBARD ST From East | | | | | CALVERT ST From South | | | | | LOMBARD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 16 | 536 | 0 | 0 | 552 | 0 | 243 | 17 | 0 | 260 | 0 | 0 | 0 | 0 | 0 | 812 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 15 | 555 | 0 | 0 | 570 | 0 | 284 | 18 | 0 | 302 | 0 | 0 | 0 | 0 | 0 | 872 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 14 | 521 | 0 | 0 | 535 | 0 | **314** | 29 | 0 | **343** | 0 | 0 | 0 | 0 | 0 | 878 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | **17** | **627** | 0 | 0 | **644** | 0 | 242 | **34** | 0 | 276 | 0 | 0 | 0 | 0 | 0 | **920** |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 62 | 2239 | 0 | 0 | 2301 | 0 | 1083 | 98 | 0 | 1181 | 0 | 0 | 0 | 0 | 0 | 3482 |
| % App. Total | 0 | 0 | 0 | 0 | | 2.7 | 97.3 | 0 | 0 | | 0 | 91.7 | 8.3 | 0 | | 0 | 0 | 0 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .912 | .893 | .000 | .000 | .893 | .000 | .862 | .721 | .000 | .861 | .000 | .000 | .000 | .000 | .000 | .946 |

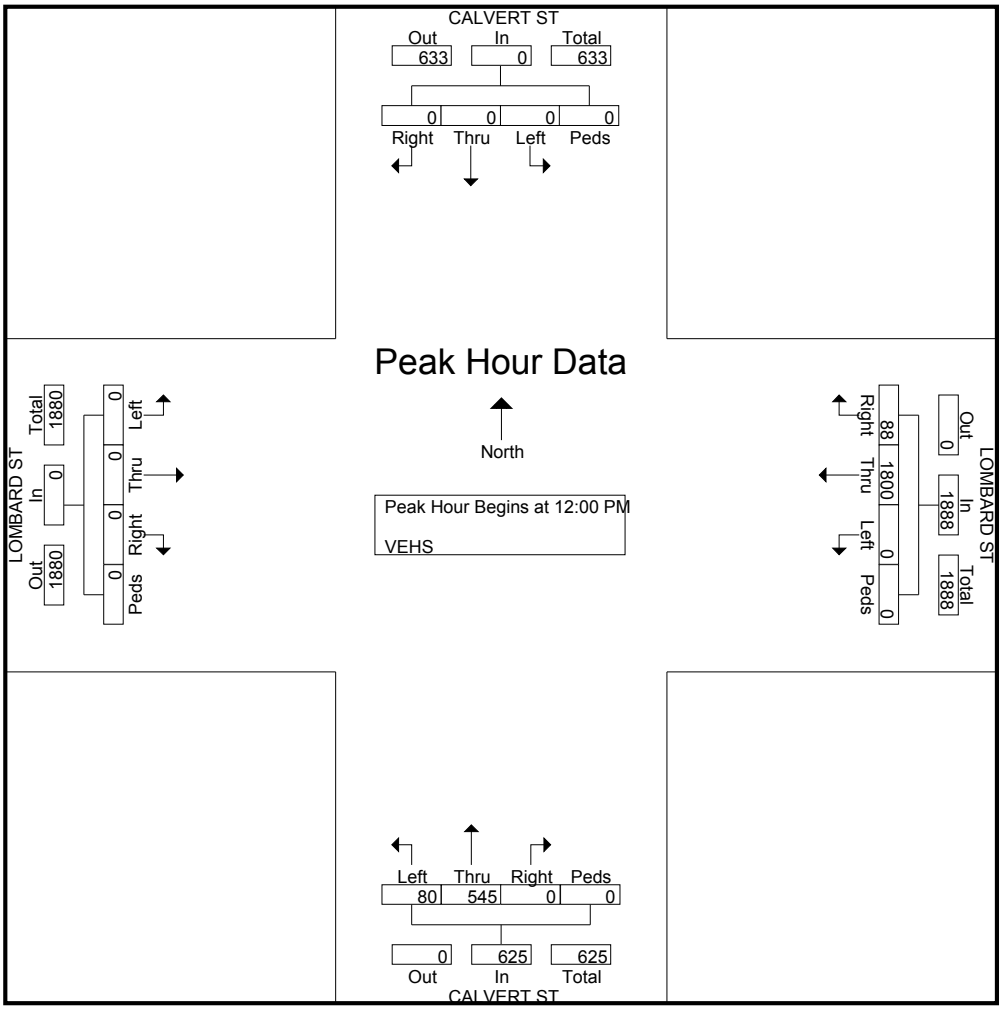


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at Lombard St
Site Code : 40000000
Start Date : 9/10/2015
Page No : 5

| | CALVERT ST From North | | | | | LOMBARD ST From East | | | | | CALVERT ST From South | | | | | LOMBARD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | **32** | 436 | 0 | 0 | 468 | 0 | **142** | **23** | 0 | **165** | 0 | 0 | 0 | 0 | 0 | 633 |
| 12:15 PM | 0 | 0 | 0 | 0 | 0 | 11 | 438 | 0 | 0 | 449 | 0 | 142 | 22 | 0 | 164 | 0 | 0 | 0 | 0 | 0 | 613 |
| 12:30 PM | 0 | 0 | 0 | 0 | 0 | 21 | 453 | 0 | 0 | 474 | 0 | 122 | 13 | 0 | 135 | 0 | 0 | 0 | 0 | 0 | 609 |
| 12:45 PM | 0 | 0 | 0 | 0 | 0 | 24 | **473** | 0 | 0 | **497** | 0 | 139 | 22 | 0 | 161 | 0 | 0 | 0 | 0 | 0 | **658** |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 88 | 1800 | 0 | 0 | 1888 | 0 | 545 | 80 | 0 | 625 | 0 | 0 | 0 | 0 | 0 | 2513 |
| % App. Total | 0 | 0 | 0 | 0 | | 4.7 | 95.3 | 0 | 0 | | 0 | 87.2 | 12.8 | 0 | | 0 | 0 | 0 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .688 | .951 | .000 | .000 | .950 | .000 | .960 | .870 | .000 | .947 | .000 | .000 | .000 | .000 | .000 | .955 |

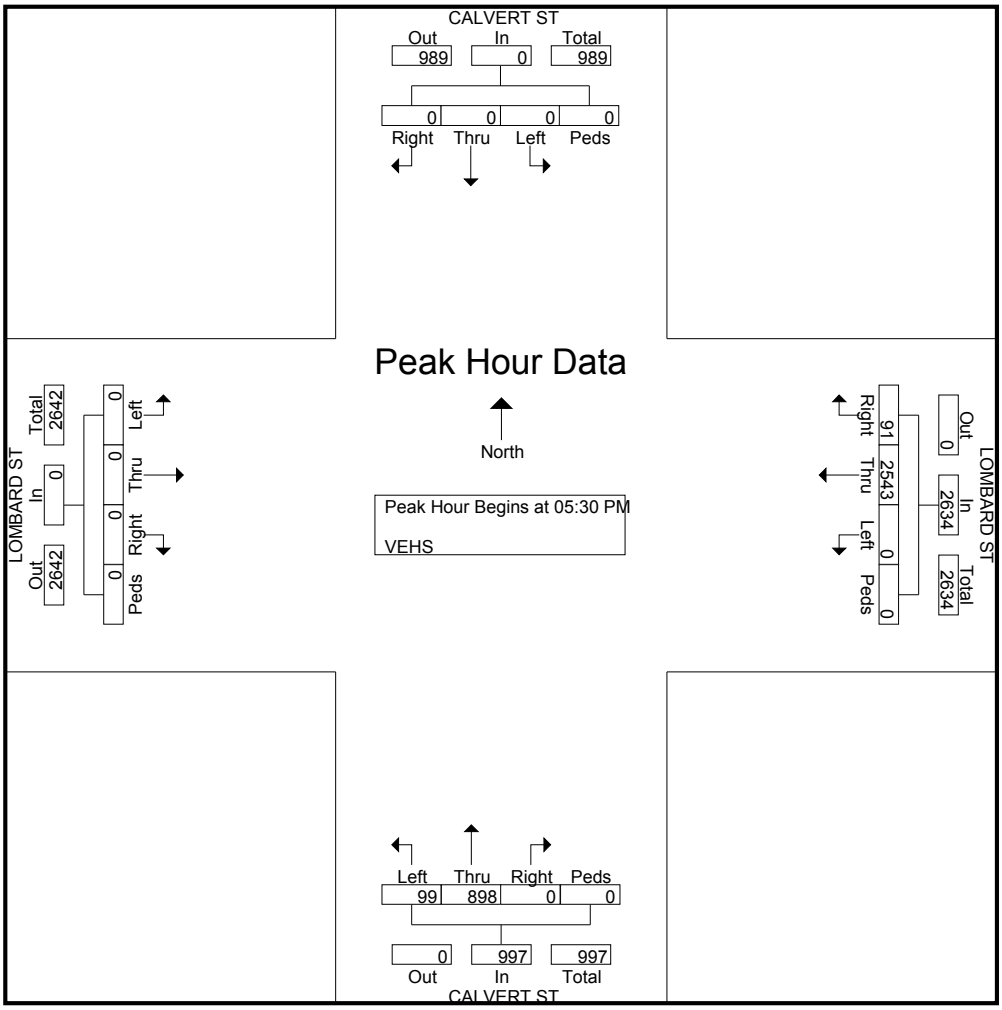


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at Lombard St
Site Code : 40000000
Start Date : 9/10/2015
Page No : 6

| | CALVERT ST From North | | | | | LOMBARD ST From East | | | | | CALVERT ST From South | | | | | LOMBARD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 05:30 PM | | | | | | | | | | | | | | | | | | | | | |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 22 | 661 | 0 | 0 | 683 | 0 | 223 | 23 | 0 | 246 | 0 | 0 | 0 | 0 | 0 | 929 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | **32** | **694** | 0 | 0 | **726** | 0 | **237** | **36** | 0 | **273** | 0 | 0 | 0 | 0 | 0 | **999** |
| 06:00 PM | 0 | 0 | 0 | 0 | 0 | 19 | 620 | 0 | 0 | 639 | 0 | 227 | 24 | 0 | 251 | 0 | 0 | 0 | 0 | 0 | 890 |
| 06:15 PM | 0 | 0 | 0 | 0 | 0 | 18 | 568 | 0 | 0 | 586 | 0 | 211 | 16 | 0 | 227 | 0 | 0 | 0 | 0 | 0 | 813 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 91 | 2543 | 0 | 0 | 2634 | 0 | 898 | 99 | 0 | 997 | 0 | 0 | 0 | 0 | 0 | 3631 |
| % App. Total | 0 | 0 | 0 | 0 | | 3.5 | 96.5 | 0 | 0 | | 0 | 90.1 | 9.9 | 0 | | 0 | 0 | 0 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .711 | .916 | .000 | .000 | .907 | .000 | .947 | .688 | .000 | .913 | .000 | .000 | .000 | .000 | .000 | .909 |



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

Weather: SUNNY
Counted By: SHAHID
Town: BALTIMORE CITY
County: BALTIMORE CITY

File Name : Light St at Lombard St
Site Code : 50000000
Start Date : 9/15/2015
Page No : 1

Groups Printed- VEHS

| | LIGHT ST From North | | | | | LOMBARD ST From East | | | | | LIGHT ST From South | | | | | LOMBARD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 81 | 289 | 0 | 0 | 370 | 0 | 312 | 215 | 0 | 527 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 897 |
| 07:15 AM | 82 | 296 | 0 | 0 | 378 | 0 | 338 | 237 | 0 | 575 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 953 |
| 07:30 AM | 80 | 369 | 0 | 0 | 449 | 0 | 321 | 229 | 0 | 550 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 999 |
| 07:45 AM | 94 | 361 | 0 | 0 | 455 | 0 | 347 | 234 | 0 | 581 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1036 |
| Total | 337 | 1315 | 0 | 0 | 1652 | 0 | 1318 | 915 | 0 | 2233 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3885 |
| 08:00 AM | 94 | 336 | 0 | 0 | 430 | 0 | 337 | 201 | 0 | 538 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 968 |
| 08:15 AM | 88 | 350 | 0 | 0 | 438 | 0 | 306 | 182 | 0 | 488 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 926 |
| 08:30 AM | 97 | 353 | 0 | 0 | 450 | 0 | 315 | 185 | 0 | 500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 950 |
| 08:45 AM | 92 | 312 | 0 | 0 | 404 | 0 | 308 | 181 | 0 | 489 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 893 |
| Total | 371 | 1351 | 0 | 0 | 1722 | 0 | 1266 | 749 | 0 | 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3737 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 11:00 AM | 70 | 206 | 0 | 0 | 276 | 0 | 255 | 147 | 0 | 402 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 678 |
| 11:15 AM | 88 | 189 | 0 | 0 | 277 | 0 | 264 | 154 | 0 | 418 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 695 |
| 11:30 AM | 87 | 224 | 0 | 0 | 311 | 0 | 295 | 154 | 0 | 449 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 760 |
| 11:45 AM | 88 | 209 | 0 | 0 | 297 | 0 | 249 | 193 | 0 | 442 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 739 |
| Total | 333 | 828 | 0 | 0 | 1161 | 0 | 1063 | 648 | 0 | 1711 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2872 |
| 12:00 PM | 63 | 196 | 0 | 0 | 259 | 0 | 273 | 195 | 0 | 468 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 727 |
| 12:15 PM | 73 | 204 | 0 | 0 | 277 | 0 | 303 | 166 | 0 | 469 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 746 |
| 12:30 PM | 85 | 240 | 0 | 0 | 325 | 0 | 233 | 204 | 0 | 437 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 762 |
| 12:45 PM | 88 | 251 | 0 | 0 | 339 | 0 | 244 | 212 | 0 | 456 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 795 |
| Total | 309 | 891 | 0 | 0 | 1200 | 0 | 1053 | 777 | 0 | 1830 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3030 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 03:30 PM | 89 | 327 | 0 | 0 | 416 | 0 | 363 | 244 | 0 | 607 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1023 |
| 03:45 PM | 94 | 328 | 0 | 0 | 422 | 0 | 401 | 247 | 0 | 648 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1070 |
| Total | 183 | 655 | 0 | 0 | 838 | 0 | 764 | 491 | 0 | 1255 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2093 |
| 04:00 PM | 74 | 334 | 0 | 0 | 408 | 0 | 381 | 245 | 0 | 626 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1034 |
| 04:15 PM | 83 | 347 | 0 | 0 | 430 | 0 | 384 | 250 | 0 | 634 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1064 |
| 04:30 PM | 72 | 316 | 0 | 0 | 388 | 0 | 328 | 230 | 0 | 558 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 946 |
| 04:45 PM | 81 | 351 | 0 | 0 | 432 | 0 | 311 | 202 | 0 | 513 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 945 |
| Total | 310 | 1348 | 0 | 0 | 1658 | 0 | 1404 | 927 | 0 | 2331 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3989 |

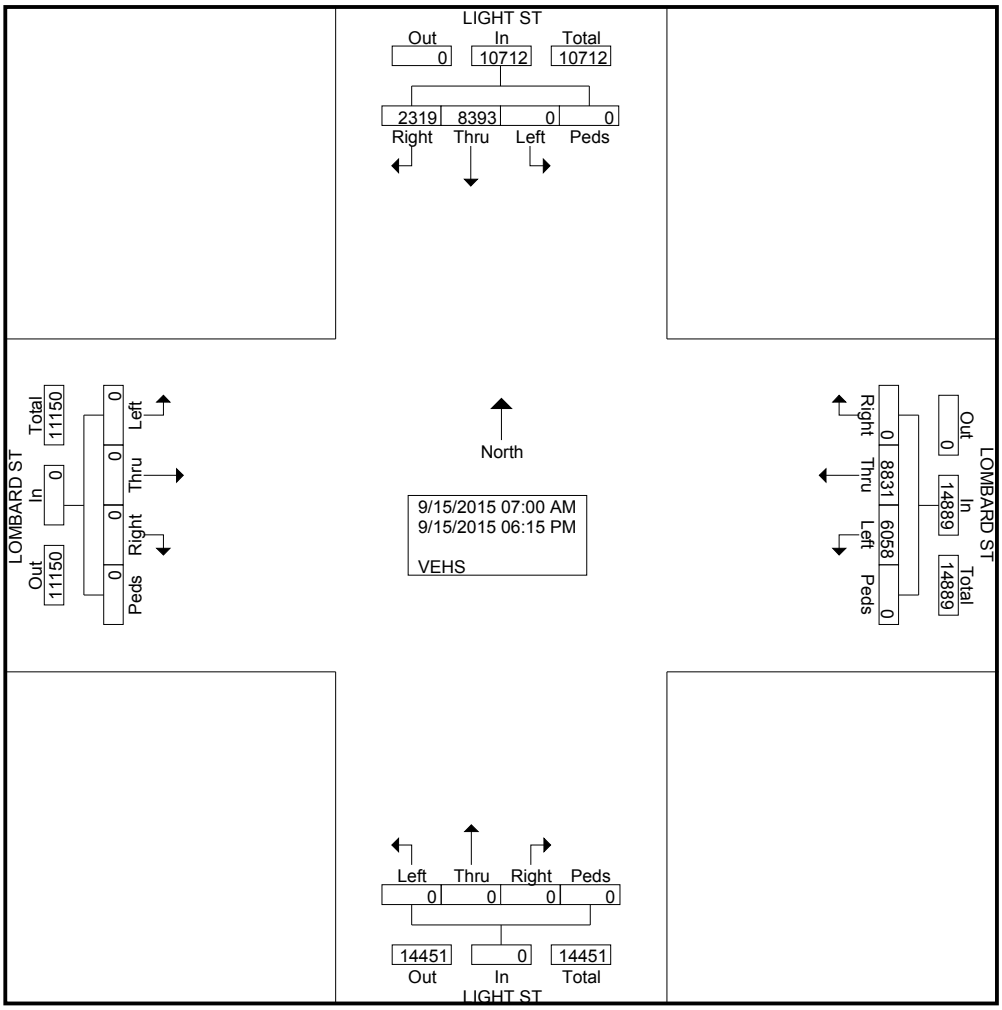
# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Light St at Lombard St
Site Code : 50000000
Start Date : 9/15/2015
Page No : 2

Groups Printed- VEHS

| | LIGHT ST From North | | | | | LOMBARD ST From East | | | | | LIGHT ST From South | | | | | LOMBARD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 05:00 PM | 84 | 330 | 0 | 0 | 414 | 0 | 319 | 232 | 0 | 551 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 965 |
| 05:15 PM | 66 | 316 | 0 | 0 | 382 | 0 | 336 | 270 | 0 | 606 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 988 |
| 05:30 PM | 70 | 304 | 0 | 0 | 374 | 0 | 322 | 243 | 0 | 565 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 939 |
| 05:45 PM | 78 | 356 | 0 | 0 | 434 | 0 | 336 | 274 | 0 | 610 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1044 |
| Total | 298 | 1306 | 0 | 0 | 1604 | 0 | 1313 | 1019 | 0 | 2332 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3936 |
| 06:00 PM | 87 | 340 | 0 | 0 | 427 | 0 | 337 | 234 | 0 | 571 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 998 |
| 06:15 PM | 91 | 359 | 0 | 0 | 450 | 0 | 313 | 298 | 0 | 611 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1061 |
| Grand Total | 2319 | 8393 | 0 | 0 | 10712 | 0 | 8831 | 6058 | 0 | 14889 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25601 |
| Apprch % | 21.6 | 78.4 | 0 | 0 | | 0 | 59.3 | 40.7 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | |
| Total % | 9.1 | 32.8 | 0 | 0 | 41.8 | 0 | 34.5 | 23.7 | 0 | 58.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

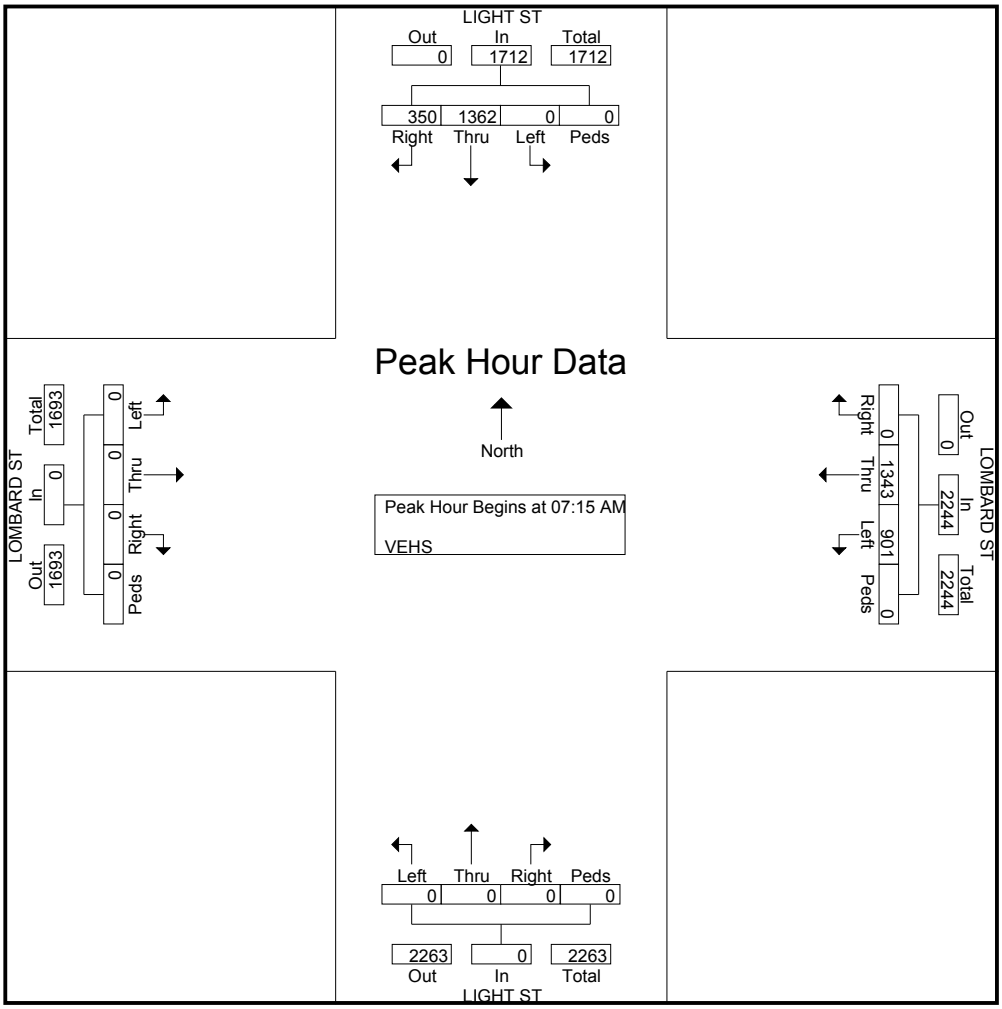


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Light St at Lombard St
Site Code : 50000000
Start Date : 9/15/2015
Page No : 3

| | LIGHT ST From North | | | | | LOMBARD ST From East | | | | | LIGHT ST From South | | | | | LOMBARD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:15 AM | 82 | 296 | 0 | 0 | 378 | 0 | 338 | **237** | 0 | 575 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 953 |
| 07:30 AM | 80 | **369** | 0 | 0 | 449 | 0 | 321 | 229 | 0 | 550 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 999 |
| 07:45 AM | **94** | 361 | 0 | 0 | **455** | 0 | **347** | 234 | 0 | **581** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1036** |
| 08:00 AM | 94 | 336 | 0 | 0 | 430 | 0 | 337 | 201 | 0 | 538 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 968 |
| Total Volume | 350 | 1362 | 0 | 0 | 1712 | 0 | 1343 | 901 | 0 | 2244 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3956 |
| % App. Total | 20.4 | 79.6 | 0 | 0 | | 0 | 59.8 | 40.2 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | |
| PHF | .931 | .923 | .000 | .000 | .941 | .000 | .968 | .950 | .000 | .966 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .955 |

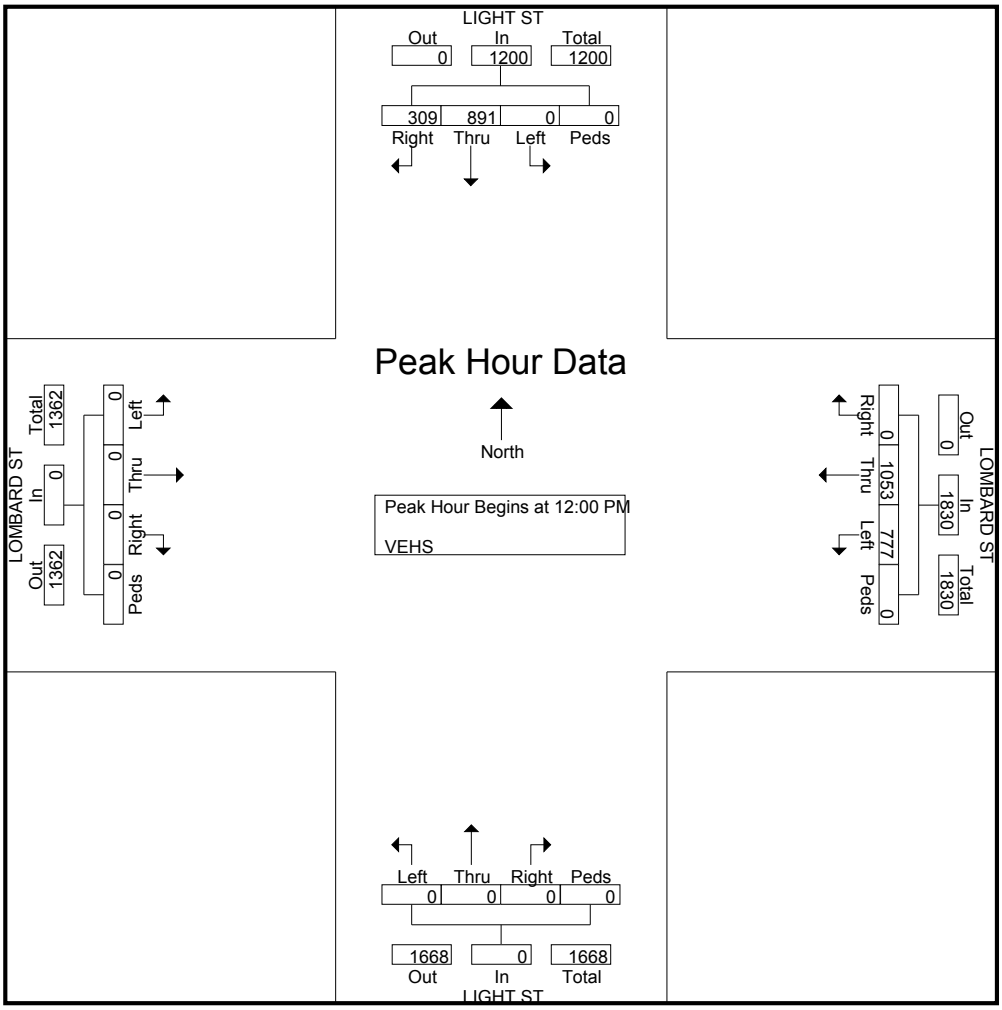


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Light St at Lombard St
Site Code : 50000000
Start Date : 9/15/2015
Page No : 4

| | LIGHT ST From North | | | | | LOMBARD ST From East | | | | | LIGHT ST From South | | | | | LOMBARD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 12:00 PM | 63 | 196 | 0 | 0 | 259 | 0 | 273 | 195 | 0 | 468 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 727 |
| 12:15 PM | 73 | 204 | 0 | 0 | 277 | 0 | **303** | 166 | 0 | **469** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 746 |
| 12:30 PM | 85 | 240 | 0 | 0 | 325 | 0 | 233 | 204 | 0 | 437 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 762 |
| 12:45 PM | **88** | **251** | 0 | 0 | **339** | 0 | 244 | **212** | 0 | 456 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **795** |
| Total Volume | 309 | 891 | 0 | 0 | 1200 | 0 | 1053 | 777 | 0 | 1830 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3030 |
| % App. Total | 25.8 | 74.2 | 0 | 0 | | 0 | 57.5 | 42.5 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | |
| PHF | .878 | .887 | .000 | .000 | .885 | .000 | .869 | .916 | .000 | .975 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .953 |

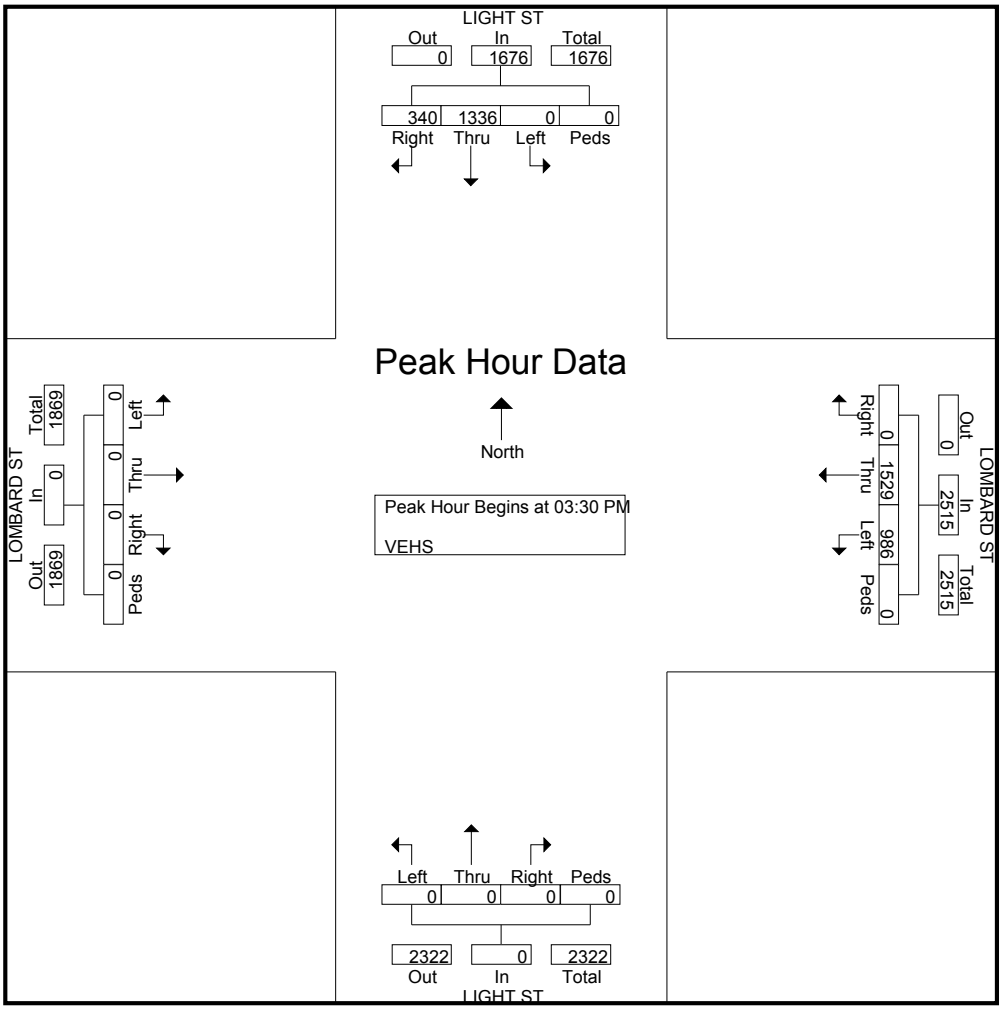


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Light St at Lombard St
Site Code : 50000000
Start Date : 9/15/2015
Page No : 5

| | LIGHT ST From North | | | | | LOMBARD ST From East | | | | | LIGHT ST From South | | | | | LOMBARD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 03:30 PM | | | | | | | | | | | | | | | | | | | | | |
| 03:30 PM | 89 | 327 | 0 | 0 | 416 | 0 | 363 | 244 | 0 | 607 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1023 |
| 03:45 PM | **94** | 328 | 0 | 0 | 422 | 0 | **401** | 247 | 0 | **648** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1070** |
| 04:00 PM | 74 | 334 | 0 | 0 | 408 | 0 | 381 | 245 | 0 | 626 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1034 |
| 04:15 PM | 83 | **347** | 0 | 0 | **430** | 0 | 384 | **250** | 0 | 634 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1064 |
| Total Volume | 340 | 1336 | 0 | 0 | 1676 | 0 | 1529 | 986 | 0 | 2515 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4191 |
| % App. Total | 20.3 | 79.7 | 0 | 0 | | 0 | 60.8 | 39.2 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | |
| PHF | .904 | .963 | .000 | .000 | .974 | .000 | .953 | .986 | .000 | .970 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .979 |



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

Weather: SUNNY
Counted By: SHAHID
Town: BALTIMORE CITY
County: BALTIMORE CITY

File Name : Light St at Baltimore St
Site Code : 20000000
Start Date : 9/2/2015
Page No : 1

Groups Printed- VEHS

| | LIGHT ST From North | | | | | BALTIMORE ST From East | | | | | LIGHT ST From South | | | | | BALTIMORE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 336 | 31 | 0 | 367 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 106 | 0 | 0 | 123 | 490 |
| 07:15 AM | 0 | 372 | 20 | 0 | 392 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 126 | 0 | 0 | 140 | 532 |
| 07:30 AM | 0 | 456 | 31 | 0 | 487 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 159 | 0 | 0 | 175 | 662 |
| 07:45 AM | 0 | 452 | 42 | 0 | 494 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 152 | 0 | 0 | 169 | 663 |
| Total | 0 | 1616 | 124 | 0 | 1740 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 | 543 | 0 | 0 | 607 | 2347 |
| 08:00 AM | 0 | 394 | 31 | 0 | 425 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 161 | 0 | 0 | 194 | 619 |
| 08:15 AM | 0 | 406 | 46 | 0 | 452 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 172 | 0 | 0 | 194 | 646 |
| 08:30 AM | 0 | 399 | 46 | 0 | 445 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 136 | 0 | 0 | 170 | 615 |
| 08:45 AM | 0 | 379 | 43 | 0 | 422 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 129 | 0 | 0 | 158 | 580 |
| Total | 0 | 1578 | 166 | 0 | 1744 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 118 | 598 | 0 | 0 | 716 | 2460 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 11:00 AM | 0 | 212 | 19 | 0 | 231 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 74 | 0 | 0 | 101 | 332 |
| 11:15 AM | 0 | 204 | 35 | 0 | 239 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 86 | 0 | 0 | 107 | 346 |
| 11:30 AM | 0 | 219 | 33 | 0 | 252 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 106 | 0 | 0 | 130 | 382 |
| 11:45 AM | 0 | 188 | 31 | 0 | 219 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 79 | 0 | 0 | 100 | 319 |
| Total | 0 | 823 | 118 | 0 | 941 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 | 345 | 0 | 0 | 438 | 1379 |
| 12:00 PM | 0 | 208 | 31 | 0 | 239 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 82 | 0 | 0 | 101 | 340 |
| 12:15 PM | 0 | 242 | 27 | 0 | 269 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 84 | 0 | 0 | 112 | 381 |
| 12:30 PM | 0 | 209 | 27 | 0 | 236 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 106 | 0 | 0 | 136 | 372 |
| 12:45 PM | 0 | 252 | 37 | 0 | 289 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 94 | 0 | 0 | 123 | 412 |
| Total | 0 | 911 | 122 | 0 | 1033 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 106 | 366 | 0 | 0 | 472 | 1505 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 03:30 PM | 0 | 309 | 25 | 0 | 334 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 119 | 0 | 0 | 144 | 478 |
| 03:45 PM | 0 | 349 | 30 | 0 | 379 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 128 | 0 | 0 | 150 | 529 |
| Total | 0 | 658 | 55 | 0 | 713 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 247 | 0 | 0 | 294 | 1007 |
| 04:00 PM | 0 | 308 | 28 | 0 | 336 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 128 | 0 | 0 | 150 | 486 |
| 04:15 PM | 0 | 397 | 24 | 0 | 421 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 137 | 0 | 0 | 158 | 579 |
| 04:30 PM | 0 | 349 | 30 | 0 | 379 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 143 | 0 | 0 | 165 | 544 |
| 04:45 PM | 0 | 343 | 24 | 0 | 367 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 160 | 0 | 0 | 187 | 554 |
| Total | 0 | 1397 | 106 | 0 | 1503 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 92 | 568 | 0 | 0 | 660 | 2163 |

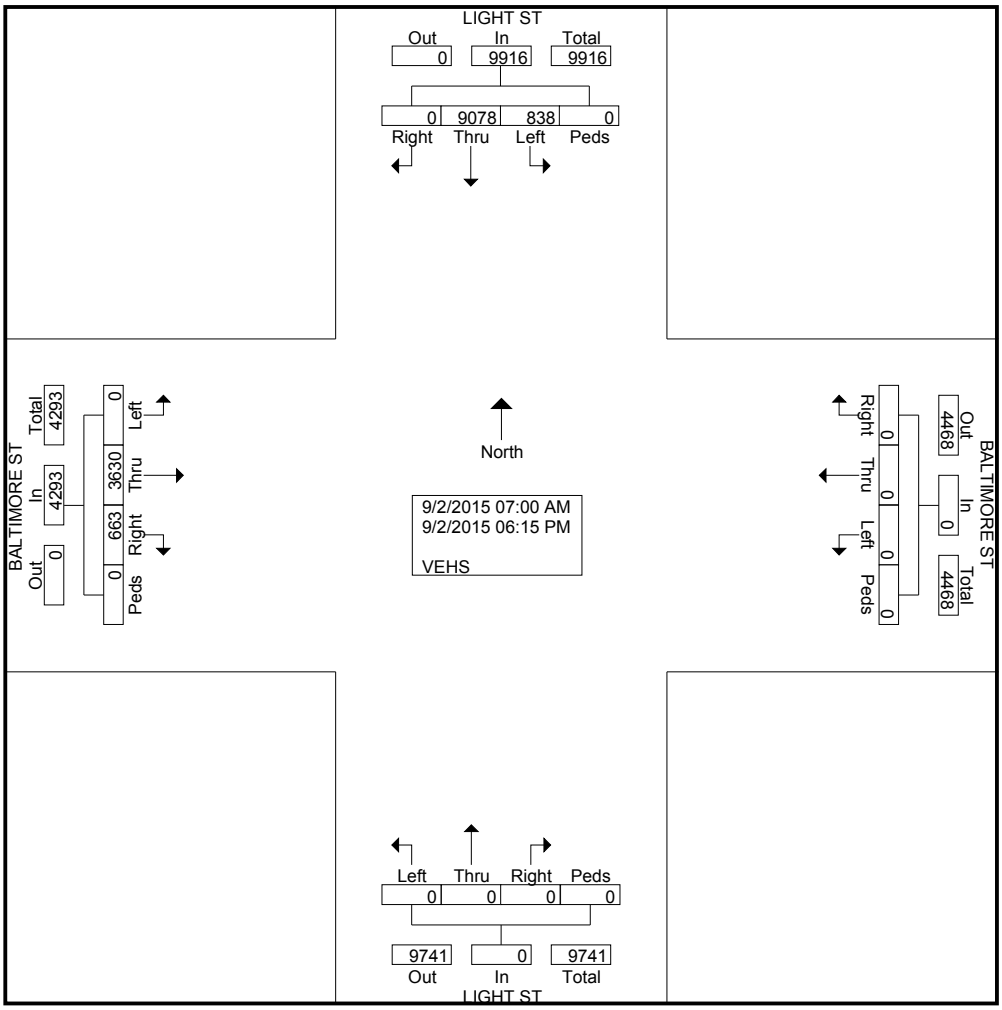
# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Light St at Baltimore St
Site Code : 20000000
Start Date : 9/2/2015
Page No : 2

Groups Printed- VEHS

| | LIGHT ST From North | | | | | BALTIMORE ST From East | | | | | LIGHT ST From South | | | | | BALTIMORE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 05:00 PM | 0 | 352 | 31 | 0 | 383 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 166 | 0 | 0 | 195 | 578 |
| 05:15 PM | 0 | 346 | 29 | 0 | 375 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 148 | 0 | 0 | 174 | 549 |
| 05:30 PM | 0 | 365 | 20 | 0 | 385 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 164 | 0 | 0 | 186 | 571 |
| 05:45 PM | 0 | 346 | 24 | 0 | 370 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 154 | 0 | 0 | 180 | 550 |
| Total | 0 | 1409 | 104 | 0 | 1513 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 103 | 632 | 0 | 0 | 735 | 2248 |
| 06:00 PM | 0 | 341 | 25 | 0 | 366 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 176 | 0 | 0 | 194 | 560 |
| 06:15 PM | 0 | 345 | 18 | 0 | 363 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 155 | 0 | 0 | 177 | 540 |
| Grand Total | 0 | 9078 | 838 | 0 | 9916 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 663 | 3630 | 0 | 0 | 4293 | 14209 |
| Apprch % | 0 | 91.5 | 8.5 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 15.4 | 84.6 | 0 | 0 | | |
| Total % | 0 | 63.9 | 5.9 | 0 | 69.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4.7 | 25.5 | 0 | 0 | 30.2 | |

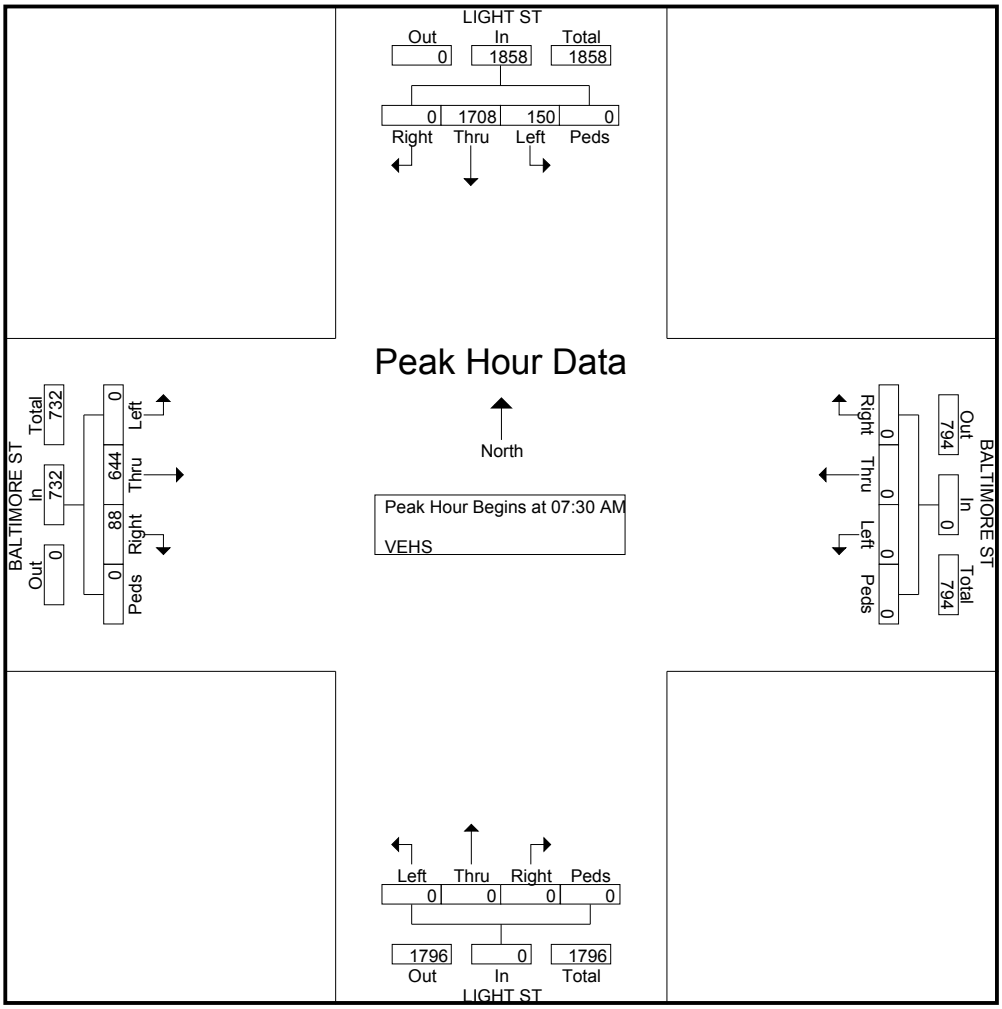


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Light St at Baltimore St
Site Code : 20000000
Start Date : 9/2/2015
Page No : 3

| | LIGHT ST From North | | | | | BALTIMORE ST From East | | | | | LIGHT ST From South | | | | | BALTIMORE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:30 AM | 0 | **456** | 31 | 0 | 487 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 159 | 0 | 0 | 175 | 662 |
| 07:45 AM | 0 | 452 | 42 | 0 | **494** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 152 | 0 | 0 | 169 | **663** |
| 08:00 AM | 0 | 394 | 31 | 0 | 425 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **33** | 161 | 0 | 0 | **194** | 619 |
| 08:15 AM | 0 | 406 | **46** | 0 | 452 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | **172** | 0 | 0 | 194 | 646 |
| Total Volume | 0 | 1708 | 150 | 0 | 1858 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88 | 644 | 0 | 0 | 732 | 2590 |
| % App. Total | 0 | 91.9 | 8.1 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 12 | 88 | 0 | 0 | | |
| PHF | .000 | .936 | .815 | .000 | .940 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .667 | .936 | .000 | .000 | .943 | .977 |

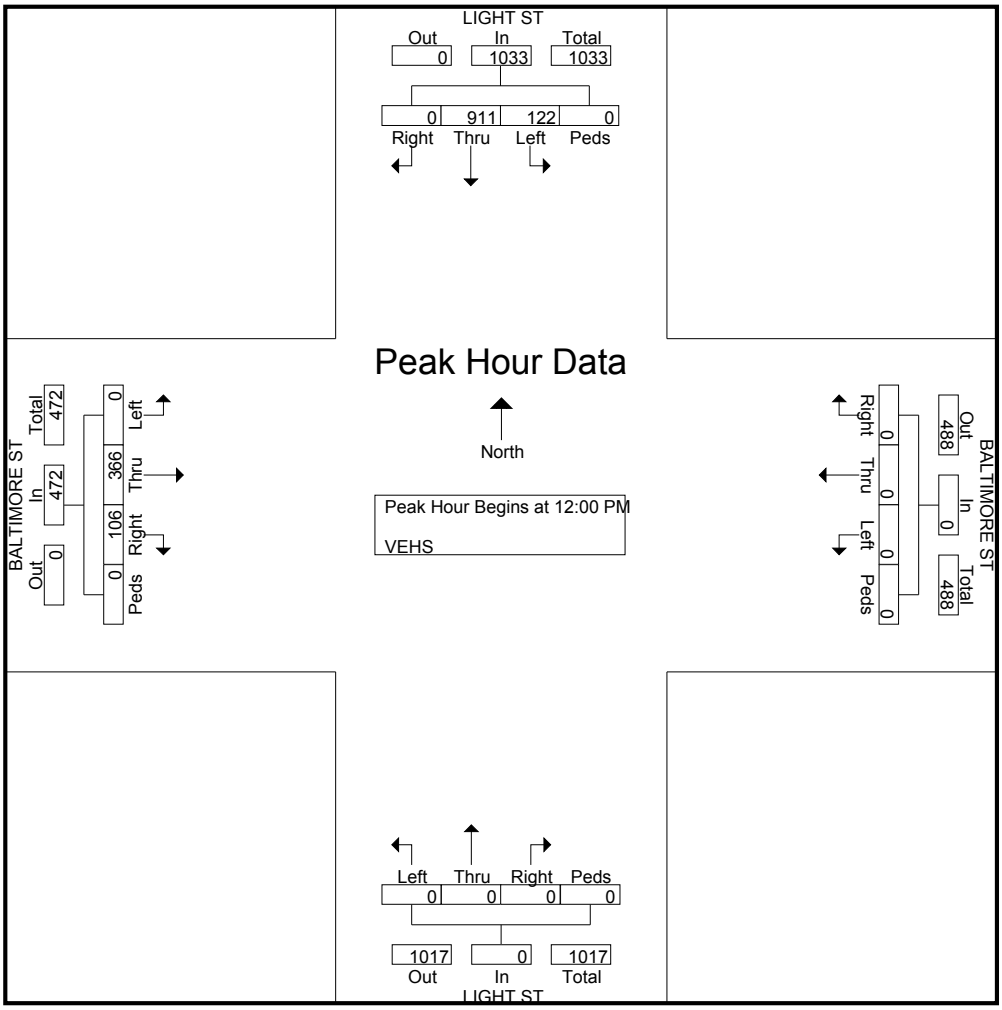


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Light St at Baltimore St
Site Code : 20000000
Start Date : 9/2/2015
Page No : 4

| | LIGHT ST From North | | | | | BALTIMORE ST From East | | | | | LIGHT ST From South | | | | | BALTIMORE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 12:00 PM | 0 | 208 | 31 | 0 | 239 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 82 | 0 | 0 | 101 | 340 |
| 12:15 PM | 0 | 242 | 27 | 0 | 269 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 84 | 0 | 0 | 112 | 381 |
| 12:30 PM | 0 | 209 | 27 | 0 | 236 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **30** | **106** | 0 | 0 | **136** | 372 |
| 12:45 PM | 0 | **252** | **37** | 0 | **289** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 94 | 0 | 0 | 123 | **412** |
| Total Volume | 0 | 911 | 122 | 0 | 1033 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 106 | 366 | 0 | 0 | 472 | 1505 |
| % App. Total | 0 | 88.2 | 11.8 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 22.5 | 77.5 | 0 | 0 | | |
| PHF | .000 | .904 | .824 | .000 | .894 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .883 | .863 | .000 | .000 | .868 | .913 |

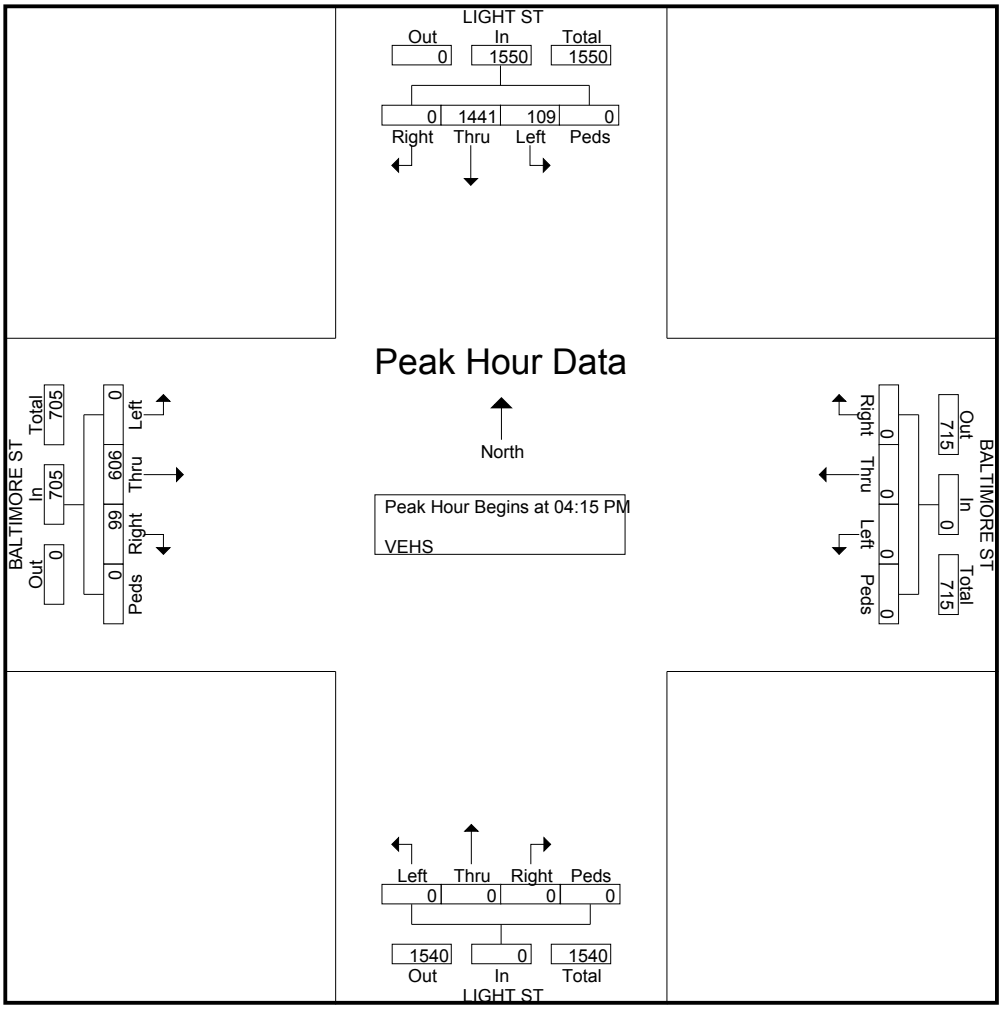


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Light St at Baltimore St
Site Code : 20000000
Start Date : 9/2/2015
Page No : 5

| | LIGHT ST From North | | | | | BALTIMORE ST From East | | | | | LIGHT ST From South | | | | | BALTIMORE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:15 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:15 PM | 0 | **397** | 24 | 0 | **421** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 137 | 0 | 0 | 158 | **579** |
| 04:30 PM | 0 | 349 | 30 | 0 | 379 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 143 | 0 | 0 | 165 | 544 |
| 04:45 PM | 0 | 343 | 24 | 0 | 367 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 160 | 0 | 0 | 187 | 554 |
| 05:00 PM | 0 | 352 | **31** | 0 | 383 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **29** | **166** | 0 | 0 | **195** | 578 |
| Total Volume | 0 | 1441 | 109 | 0 | 1550 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 99 | 606 | 0 | 0 | 705 | 2255 |
| % App. Total | 0 | 93 | 7 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 14 | 86 | 0 | 0 | | |
| PHF | .000 | .907 | .879 | .000 | .920 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .853 | .913 | .000 | .000 | .904 | .974 |



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

Weather: SUNNY
Counted By: GARY
Town: BALTIMORE CITY
County: BALTIMORE CITY

File Name : St Paul St at Fayette St
Site Code : 00000000
Start Date : 9/24/2015
Page No : 1

Groups Printed- VEHSPEDS

| | ST PAUL ST From North | | | | | FAYETTE ST From East | | | | | ST PAUL ST From South | | | | | FAYETTE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 29 | 265 | 0 | 30 | 324 | 0 | 126 | 59 | 9 | 194 | 0 | 0 | 0 | 28 | 28 | 0 | 0 | 0 | 25 | 25 | 571 |
| 07:15 AM | 47 | 318 | 0 | 22 | 387 | 0 | 124 | 97 | 14 | 235 | 0 | 0 | 0 | 43 | 43 | 0 | 0 | 0 | 23 | 23 | 688 |
| 07:30 AM | 48 | 328 | 0 | 25 | 401 | 0 | 145 | 86 | 14 | 245 | 0 | 0 | 0 | 41 | 41 | 0 | 0 | 0 | 37 | 37 | 724 |
| 07:45 AM | 63 | 344 | 0 | 38 | 445 | 0 | 150 | 70 | 13 | 233 | 0 | 0 | 0 | 59 | 59 | 0 | 0 | 0 | 40 | 40 | 777 |
| Total | 187 | 1255 | 0 | 115 | 1557 | 0 | 545 | 312 | 50 | 907 | 0 | 0 | 0 | 171 | 171 | 0 | 0 | 0 | 125 | 125 | 2760 |
| 08:00 AM | 60 | 341 | 0 | 26 | 427 | 0 | 146 | 71 | 35 | 252 | 0 | 0 | 0 | 50 | 50 | 0 | 0 | 0 | 35 | 35 | 764 |
| 08:15 AM | 54 | 345 | 0 | 38 | 437 | 0 | 126 | 66 | 35 | 227 | 0 | 0 | 0 | 56 | 56 | 0 | 0 | 0 | 45 | 45 | 765 |
| 08:30 AM | 70 | 364 | 0 | 32 | 466 | 0 | 139 | 57 | 36 | 232 | 0 | 0 | 0 | 58 | 58 | 0 | 0 | 0 | 46 | 46 | 802 |
| 08:45 AM | 55 | 294 | 0 | 36 | 385 | 0 | 118 | 61 | 23 | 202 | 0 | 0 | 0 | 30 | 30 | 0 | 0 | 0 | 48 | 48 | 665 |
| Total | 239 | 1344 | 0 | 132 | 1715 | 0 | 529 | 255 | 129 | 913 | 0 | 0 | 0 | 194 | 194 | 0 | 0 | 0 | 174 | 174 | 2996 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 11:00 AM | 29 | 204 | 0 | 59 | 292 | 0 | 104 | 57 | 56 | 217 | 0 | 0 | 0 | 40 | 40 | 0 | 0 | 0 | 41 | 41 | 590 |
| 11:15 AM | 32 | 234 | 0 | 47 | 313 | 0 | 109 | 49 | 36 | 194 | 0 | 0 | 0 | 58 | 58 | 0 | 0 | 0 | 36 | 36 | 601 |
| 11:30 AM | 31 | 206 | 0 | 34 | 271 | 0 | 104 | 54 | 35 | 193 | 0 | 0 | 0 | 52 | 52 | 0 | 0 | 0 | 32 | 32 | 548 |
| 11:45 AM | 30 | 224 | 0 | 43 | 297 | 0 | 69 | 51 | 50 | 170 | 0 | 0 | 0 | 48 | 48 | 0 | 0 | 0 | 51 | 51 | 566 |
| Total | 122 | 868 | 0 | 183 | 1173 | 0 | 386 | 211 | 177 | 774 | 0 | 0 | 0 | 198 | 198 | 0 | 0 | 0 | 160 | 160 | 2305 |
| 12:00 PM | 43 | 213 | 0 | 56 | 312 | 0 | 102 | 49 | 50 | 201 | 0 | 0 | 0 | 46 | 46 | 0 | 0 | 0 | 55 | 55 | 614 |
| 12:15 PM | 34 | 228 | 0 | 59 | 321 | 0 | 86 | 31 | 56 | 173 | 0 | 0 | 0 | 61 | 61 | 0 | 0 | 0 | 68 | 68 | 623 |
| 12:30 PM | 39 | 248 | 0 | 78 | 365 | 0 | 80 | 34 | 130 | 244 | 0 | 0 | 0 | 72 | 72 | 0 | 0 | 0 | 60 | 60 | 741 |
| 12:45 PM | 30 | 233 | 0 | 82 | 345 | 0 | 105 | 34 | 87 | 226 | 0 | 0 | 0 | 75 | 75 | 0 | 0 | 0 | 83 | 83 | 729 |
| Total | 146 | 922 | 0 | 275 | 1343 | 0 | 373 | 148 | 323 | 844 | 0 | 0 | 0 | 254 | 254 | 0 | 0 | 0 | 266 | 266 | 2707 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 03:30 PM | 65 | 327 | 0 | 62 | 454 | 0 | 124 | 34 | 75 | 233 | 0 | 0 | 0 | 59 | 59 | 0 | 0 | 0 | 53 | 53 | 799 |
| 03:45 PM | 50 | 336 | 0 | 45 | 431 | 0 | 107 | 62 | 68 | 237 | 0 | 0 | 0 | 66 | 66 | 0 | 0 | 0 | 42 | 42 | 776 |
| Total | 115 | 663 | 0 | 107 | 885 | 0 | 231 | 96 | 143 | 470 | 0 | 0 | 0 | 125 | 125 | 0 | 0 | 0 | 95 | 95 | 1575 |
| 04:00 PM | 59 | 317 | 0 | 32 | 408 | 0 | 94 | 62 | 32 | 188 | 0 | 0 | 0 | 63 | 63 | 0 | 0 | 0 | 61 | 61 | 720 |
| 04:15 PM | 61 | 274 | 0 | 34 | 369 | 0 | 110 | 66 | 33 | 209 | 0 | 0 | 0 | 56 | 56 | 0 | 0 | 0 | 72 | 72 | 706 |
| 04:30 PM | 57 | 253 | 0 | 65 | 375 | 0 | 101 | 61 | 55 | 217 | 0 | 0 | 0 | 53 | 53 | 0 | 0 | 0 | 72 | 72 | 717 |
| 04:45 PM | 58 | 276 | 0 | 46 | 380 | 0 | 137 | 63 | 31 | 231 | 0 | 0 | 0 | 61 | 61 | 0 | 0 | 0 | 89 | 89 | 761 |
| Total | 235 | 1120 | 0 | 177 | 1532 | 0 | 442 | 252 | 151 | 845 | 0 | 0 | 0 | 233 | 233 | 0 | 0 | 0 | 294 | 294 | 2904 |

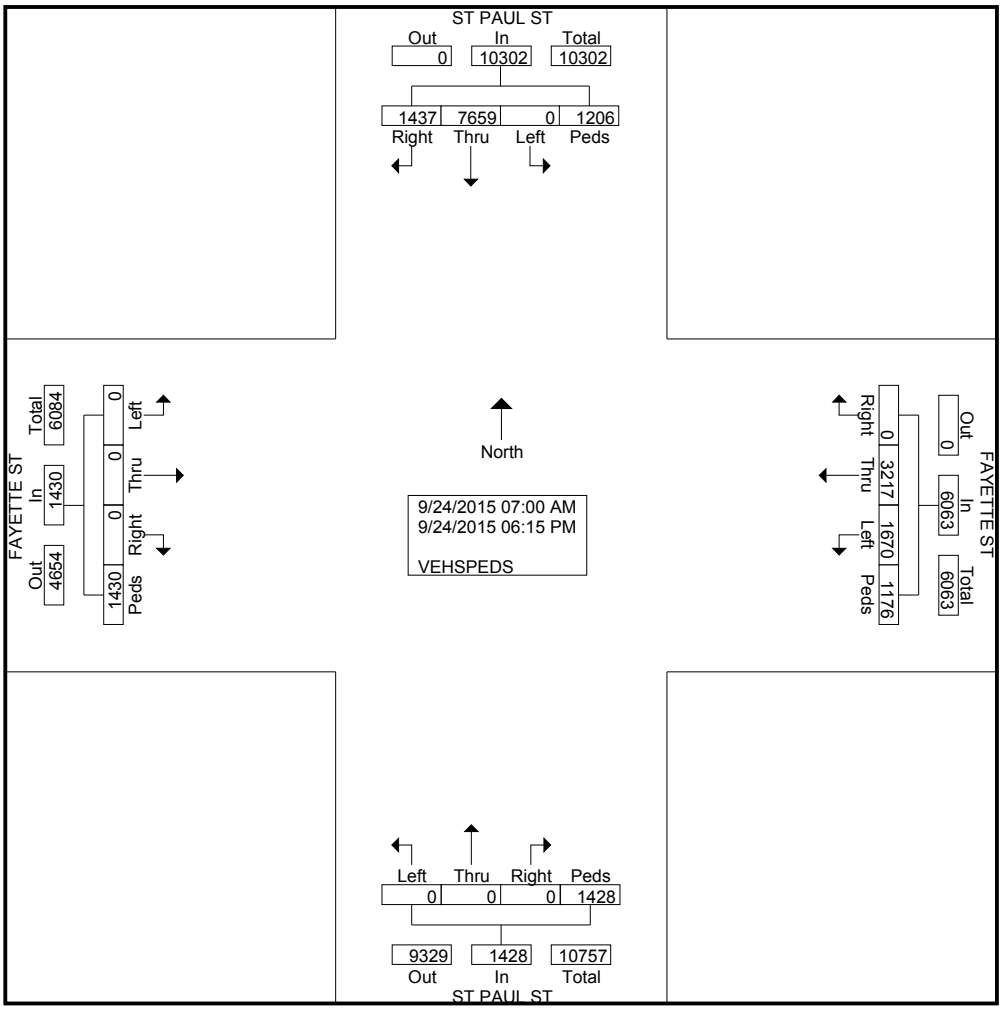
# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*


File Name : St Paul St at Fayette St
Site Code : 00000000
Start Date : 9/24/2015
Page No : 2

Groups Printed- VEHSPEDS

| | ST PAUL ST From North | | | | | FAYETTE ST From East | | | | | ST PAUL ST From South | | | | | FAYETTE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 05:00 PM | 76 | 241 | 0 | 59 | 376 | 0 | 110 | 74 | 57 | 241 | 0 | 0 | 0 | 56 | 56 | 0 | 0 | 0 | 84 | 84 | 757 |
| 05:15 PM | 72 | 239 | 0 | 41 | 352 | 0 | 127 | 67 | 35 | 229 | 0 | 0 | 0 | 35 | 35 | 0 | 0 | 0 | 41 | 41 | 657 |
| 05:30 PM | 63 | 236 | 0 | 35 | 334 | 0 | 96 | 47 | 21 | 164 | 0 | 0 | 0 | 46 | 46 | 0 | 0 | 0 | 54 | 54 | 598 |
| 05:45 PM | 73 | 233 | 0 | 20 | 326 | 0 | 139 | 70 | 41 | 250 | 0 | 0 | 0 | 51 | 51 | 0 | 0 | 0 | 48 | 48 | 675 |
| Total | 284 | 949 | 0 | 155 | 1388 | 0 | 472 | 258 | 154 | 884 | 0 | 0 | 0 | 188 | 188 | 0 | 0 | 0 | 227 | 227 | 2687 |
| 06:00 PM | 51 | 230 | 0 | 36 | 317 | 0 | 126 | 80 | 28 | 234 | 0 | 0 | 0 | 33 | 33 | 0 | 0 | 0 | 33 | 33 | 617 |
| 06:15 PM | 58 | 308 | 0 | 26 | 392 | 0 | 113 | 58 | 21 | 192 | 0 | 0 | 0 | 32 | 32 | 0 | 0 | 0 | 56 | 56 | 672 |
| Grand Total | 1437 | 7659 | 0 | 1206 | 10302 | 0 | 3217 | 1670 | 1176 | 6063 | 0 | 0 | 0 | 1428 | 1428 | 0 | 0 | 0 | 1430 | 1430 | 19223 |
| Apprch % | 13.9 | 74.3 | 0 | 11.7 | | 0 | 53.1 | 27.5 | 19.4 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| Total % | 7.5 | 39.8 | 0 | 6.3 | 53.6 | 0 | 16.7 | 8.7 | 6.1 | 31.5 | 0 | 0 | 0 | 7.4 | 7.4 | 0 | 0 | 0 | 7.4 | 7.4 | |

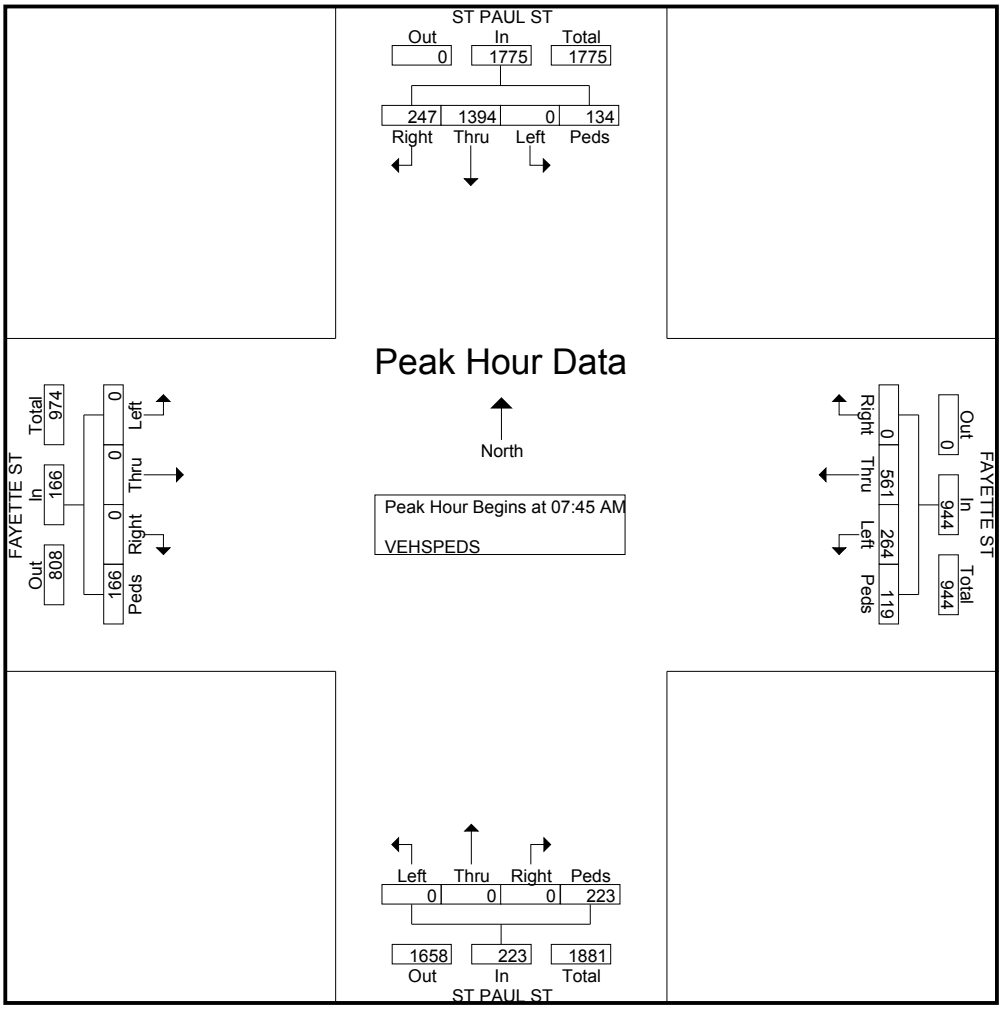


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at Fayette St
Site Code : 00000000
Start Date : 9/24/2015
Page No : 3

| | ST PAUL ST From North | | | | | FAYETTE ST From East | | | | | ST PAUL ST From South | | | | | FAYETTE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:45 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:45 AM | 63 | 344 | 0 | **38** | 445 | 0 | **150** | 70 | 13 | 233 | 0 | 0 | 0 | **59** | **59** | 0 | 0 | 0 | 40 | 40 | 777 |
| 08:00 AM | 60 | 341 | 0 | 26 | 427 | 0 | 146 | **71** | 35 | **252** | 0 | 0 | 0 | 50 | 50 | 0 | 0 | 0 | 35 | 35 | 764 |
| 08:15 AM | 54 | 345 | 0 | 38 | 437 | 0 | 126 | 66 | 35 | 227 | 0 | 0 | 0 | 56 | 56 | 0 | 0 | 0 | 45 | 45 | 765 |
| 08:30 AM | **70** | **364** | 0 | 32 | **466** | 0 | 139 | 57 | **36** | 232 | 0 | 0 | 0 | 58 | 58 | 0 | 0 | 0 | **46** | **46** | **802** |
| Total Volume | 247 | 1394 | 0 | 134 | 1775 | 0 | 561 | 264 | 119 | 944 | 0 | 0 | 0 | 223 | 223 | 0 | 0 | 0 | 166 | 166 | 3108 |
| % App. Total | 13.9 | 78.5 | 0 | 7.5 | | 0 | 59.4 | 28 | 12.6 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| PHF | .882 | .957 | .000 | .882 | .952 | .000 | .935 | .930 | .826 | .937 | .000 | .000 | .000 | .945 | .945 | .000 | .000 | .000 | .902 | .902 | .969 |

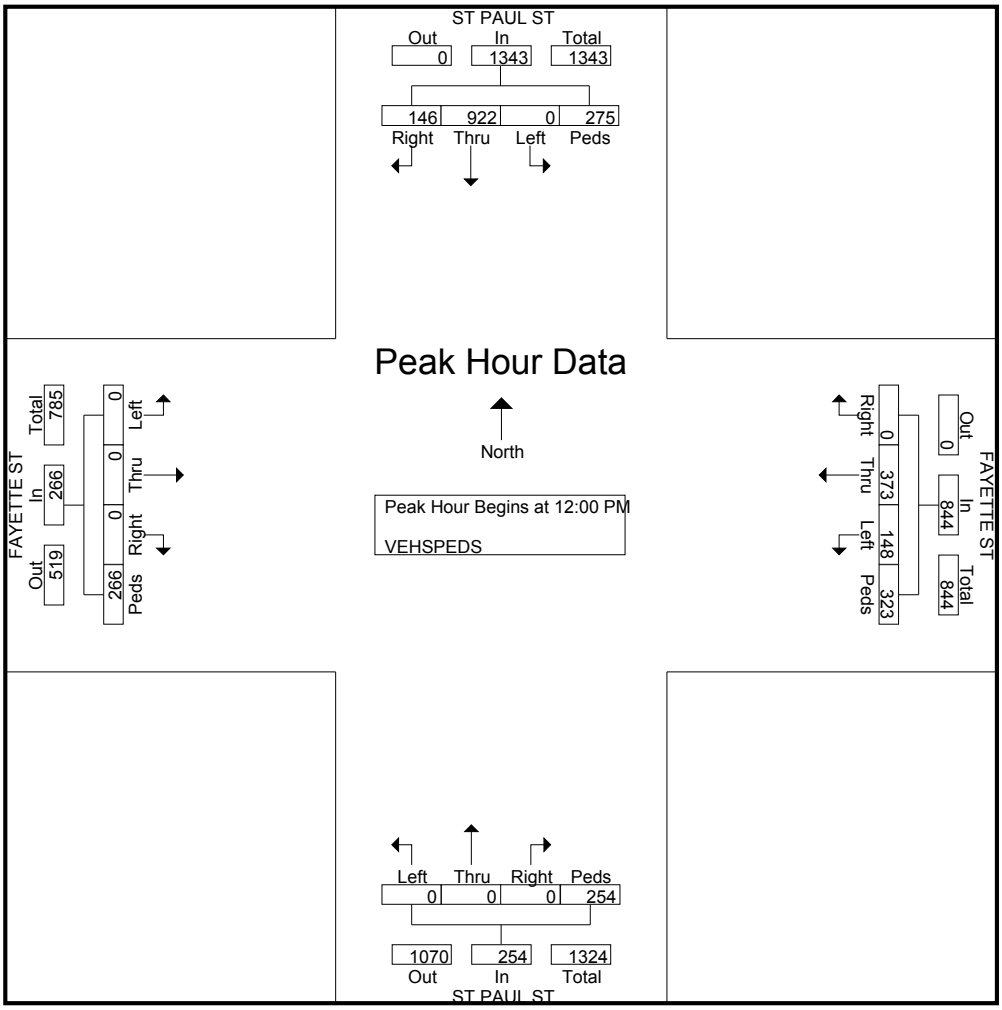


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at Fayette St
Site Code : 00000000
Start Date : 9/24/2015
Page No : 4

| | ST PAUL ST From North | | | | | FAYETTE ST From East | | | | | ST PAUL ST From South | | | | | FAYETTE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 12:00 PM | **43** | 213 | 0 | 56 | 312 | 0 | 102 | **49** | 50 | 201 | 0 | 0 | 0 | 46 | 46 | 0 | 0 | 0 | 55 | 55 | 614 |
| 12:15 PM | 34 | 228 | 0 | 59 | 321 | 0 | 86 | 31 | 56 | 173 | 0 | 0 | 0 | 61 | 61 | 0 | 0 | 0 | 68 | 68 | 623 |
| 12:30 PM | 39 | **248** | 0 | 78 | **365** | 0 | 80 | 34 | **130** | **244** | 0 | 0 | 0 | 72 | 72 | 0 | 0 | 0 | 60 | 60 | **741** |
| 12:45 PM | 30 | 233 | 0 | **82** | 345 | 0 | **105** | 34 | 87 | 226 | 0 | 0 | 0 | **75** | **75** | 0 | 0 | 0 | **83** | **83** | 729 |
| Total Volume | 146 | 922 | 0 | 275 | 1343 | 0 | 373 | 148 | 323 | 844 | 0 | 0 | 0 | 254 | 254 | 0 | 0 | 0 | 266 | 266 | 2707 |
| % App. Total | 10.9 | 68.7 | 0 | 20.5 | | 0 | 44.2 | 17.5 | 38.3 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| PHF | .849 | .929 | .000 | .838 | .920 | .000 | .888 | .755 | .621 | .865 | .000 | .000 | .000 | .847 | .847 | .000 | .000 | .000 | .801 | .801 | .913 |

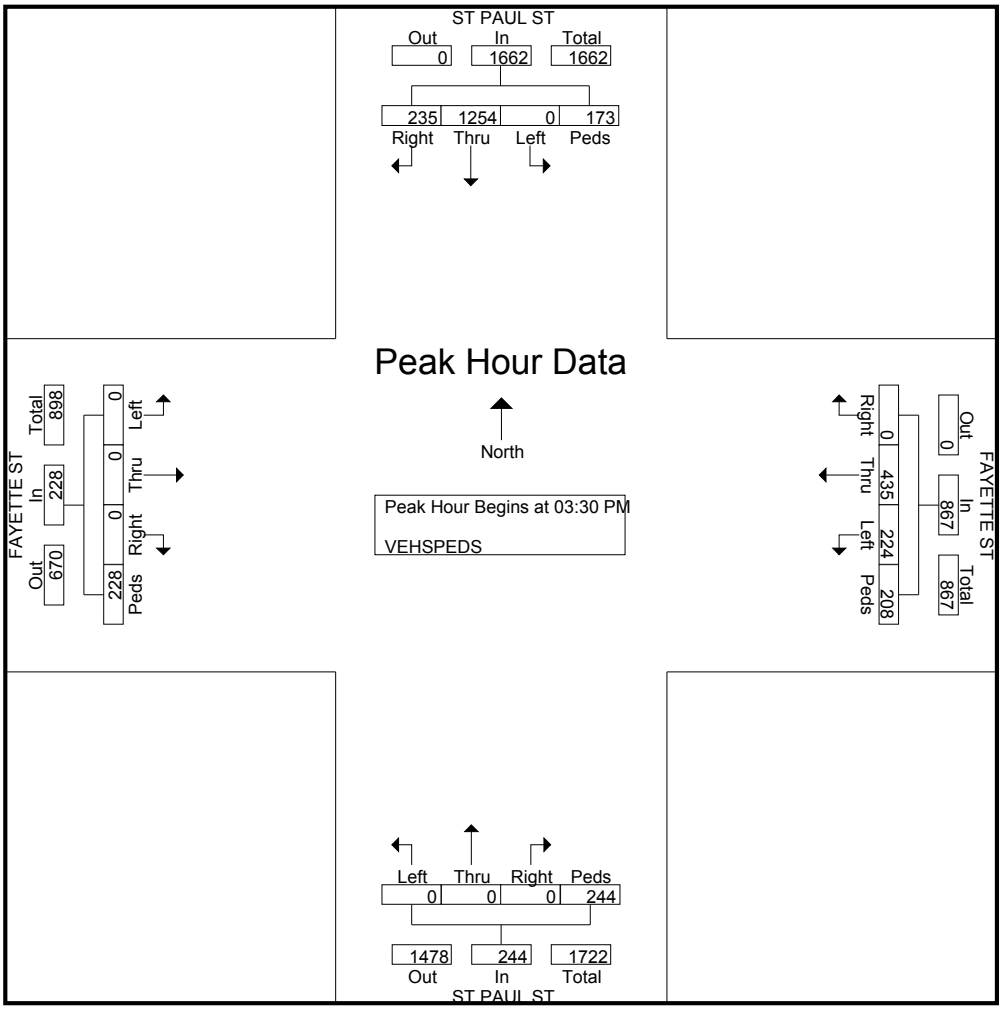


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at Fayette St
Site Code : 00000000
Start Date : 9/24/2015
Page No : 5

| | ST PAUL ST From North | | | | | FAYETTE ST From East | | | | | ST PAUL ST From South | | | | | FAYETTE ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 03:30 PM | | | | | | | | | | | | | | | | | | | | | |
| 03:30 PM | **65** | 327 | 0 | **62** | **454** | 0 | **124** | 34 | **75** | 233 | 0 | 0 | 0 | 59 | 59 | 0 | 0 | 0 | 53 | 53 | **799** |
| 03:45 PM | 50 | **336** | 0 | 45 | 431 | 0 | 107 | 62 | 68 | **237** | 0 | 0 | 0 | **66** | **66** | 0 | 0 | 0 | 42 | 42 | 776 |
| 04:00 PM | 59 | 317 | 0 | 32 | 408 | 0 | 94 | 62 | 32 | 188 | 0 | 0 | 0 | 63 | 63 | 0 | 0 | 0 | 61 | 61 | 720 |
| 04:15 PM | 61 | 274 | 0 | 34 | 369 | 0 | 110 | **66** | 33 | 209 | 0 | 0 | 0 | 56 | 56 | 0 | 0 | 0 | **72** | **72** | 706 |
| Total Volume | 235 | 1254 | 0 | 173 | 1662 | 0 | 435 | 224 | 208 | 867 | 0 | 0 | 0 | 244 | 244 | 0 | 0 | 0 | 228 | 228 | 3001 |
| % App. Total | 14.1 | 75.5 | 0 | 10.4 | | 0 | 50.2 | 25.8 | 24 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| PHF | .904 | .933 | .000 | .698 | .915 | .000 | .877 | .848 | .693 | .915 | .000 | .000 | .000 | .924 | .924 | .000 | .000 | .000 | .792 | .792 | .939 |



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

Weather: SUNNY
Counted By: MIKE
Town: BALTIMORE CITY
County: BALTIMORE CITY

File Name : St Paul St at Saratoga St
Site Code : 00000000
Start Date : 9/17/2015
Page No : 1

Groups Printed- VEHS&PEDS

| | ST PAUL ST From North | | | | | SARATOGA ST From East | | | | | ST PAUL ST From South | | | | | SARATOGA ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 14 | 239 | 9 | 13 | 275 | 0 | 29 | 34 | 14 | 77 | 0 | 0 | 0 | 4 | 4 | 2 | 15 | 0 | 1 | 18 | 374 |
| 07:15 AM | 9 | 304 | 7 | 11 | 331 | 0 | 31 | 49 | 10 | 90 | 0 | 0 | 0 | 7 | 7 | 10 | 31 | 0 | 2 | 43 | 471 |
| 07:30 AM | 23 | 364 | 10 | 15 | 412 | 0 | 54 | 53 | 14 | 121 | 0 | 0 | 0 | 8 | 8 | 17 | 34 | 0 | 3 | 54 | 595 |
| 07:45 AM | 15 | 402 | 11 | 7 | 435 | 0 | 72 | 49 | 11 | 132 | 0 | 0 | 0 | 14 | 14 | 10 | 30 | 0 | 1 | 41 | 622 |
| Total | 61 | 1309 | 37 | 46 | 1453 | 0 | 186 | 185 | 49 | 420 | 0 | 0 | 0 | 33 | 33 | 39 | 110 | 0 | 7 | 156 | 2062 |
| 08:00 AM | 28 | 403 | 13 | 6 | 450 | 0 | 60 | 46 | 21 | 127 | 0 | 0 | 0 | 5 | 5 | 18 | 40 | 0 | 0 | 58 | 640 |
| 08:15 AM | 31 | 413 | 12 | 9 | 465 | 0 | 54 | 46 | 32 | 132 | 0 | 0 | 0 | 11 | 11 | 16 | 50 | 0 | 2 | 68 | 676 |
| 08:30 AM | 25 | 391 | 19 | 15 | 450 | 0 | 80 | 47 | 19 | 146 | 0 | 0 | 0 | 8 | 8 | 15 | 30 | 0 | 0 | 45 | 649 |
| 08:45 AM | 32 | 403 | 16 | 8 | 459 | 0 | 81 | 42 | 18 | 141 | 0 | 0 | 0 | 15 | 15 | 15 | 44 | 0 | 1 | 60 | 675 |
| Total | 116 | 1610 | 60 | 38 | 1824 | 0 | 275 | 181 | 90 | 546 | 0 | 0 | 0 | 39 | 39 | 64 | 164 | 0 | 3 | 231 | 2640 |
| 09:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 5 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 5 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 11:00 AM | 24 | 182 | 15 | 10 | 231 | 0 | 37 | 47 | 17 | 101 | 0 | 0 | 0 | 12 | 12 | 6 | 18 | 0 | 1 | 25 | 369 |
| 11:15 AM | 20 | 199 | 12 | 7 | 238 | 0 | 27 | 33 | 27 | 87 | 0 | 0 | 0 | 6 | 6 | 6 | 22 | 0 | 1 | 29 | 360 |
| 11:30 AM | 29 | 182 | 15 | 18 | 244 | 0 | 39 | 36 | 26 | 101 | 0 | 0 | 0 | 10 | 10 | 6 | 20 | 0 | 1 | 27 | 382 |
| 11:45 AM | 25 | 164 | 11 | 8 | 208 | 0 | 39 | 32 | 27 | 98 | 0 | 0 | 0 | 4 | 4 | 2 | 15 | 0 | 1 | 18 | 328 |
| Total | 98 | 727 | 53 | 43 | 921 | 0 | 142 | 148 | 97 | 387 | 0 | 0 | 0 | 32 | 32 | 20 | 75 | 0 | 4 | 99 | 1439 |
| 12:00 PM | 27 | 171 | 18 | 8 | 224 | 0 | 42 | 36 | 23 | 101 | 0 | 0 | 0 | 8 | 8 | 4 | 24 | 0 | 2 | 30 | 363 |
| 12:15 PM | 30 | 176 | 10 | 16 | 232 | 0 | 44 | 45 | 43 | 132 | 0 | 0 | 0 | 8 | 8 | 3 | 16 | 0 | 6 | 25 | 397 |
| 12:30 PM | 21 | 207 | 13 | 16 | 257 | 0 | 43 | 26 | 34 | 103 | 0 | 0 | 0 | 10 | 10 | 5 | 22 | 0 | 2 | 29 | 399 |
| 12:45 PM | 13 | 187 | 16 | 12 | 228 | 0 | 39 | 40 | 17 | 96 | 0 | 0 | 0 | 12 | 12 | 10 | 21 | 0 | 1 | 32 | 368 |
| Total | 91 | 741 | 57 | 52 | 941 | 0 | 168 | 147 | 117 | 432 | 0 | 0 | 0 | 38 | 38 | 22 | 83 | 0 | 11 | 116 | 1527 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 03:30 PM | 33 | 288 | 5 | 7 | 333 | 0 | 54 | 51 | 15 | 120 | 0 | 0 | 0 | 5 | 5 | 5 | 38 | 0 | 1 | 44 | 502 |
| 03:45 PM | 22 | 266 | 16 | 16 | 320 | 0 | 61 | 39 | 22 | 122 | 0 | 0 | 0 | 6 | 6 | 3 | 39 | 0 | 1 | 43 | 491 |
| Total | 55 | 554 | 21 | 23 | 653 | 0 | 115 | 90 | 37 | 242 | 0 | 0 | 0 | 11 | 11 | 8 | 77 | 0 | 2 | 87 | 993 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at Saratoga St
Site Code : 00000000
Start Date : 9/17/2015
Page No : 2

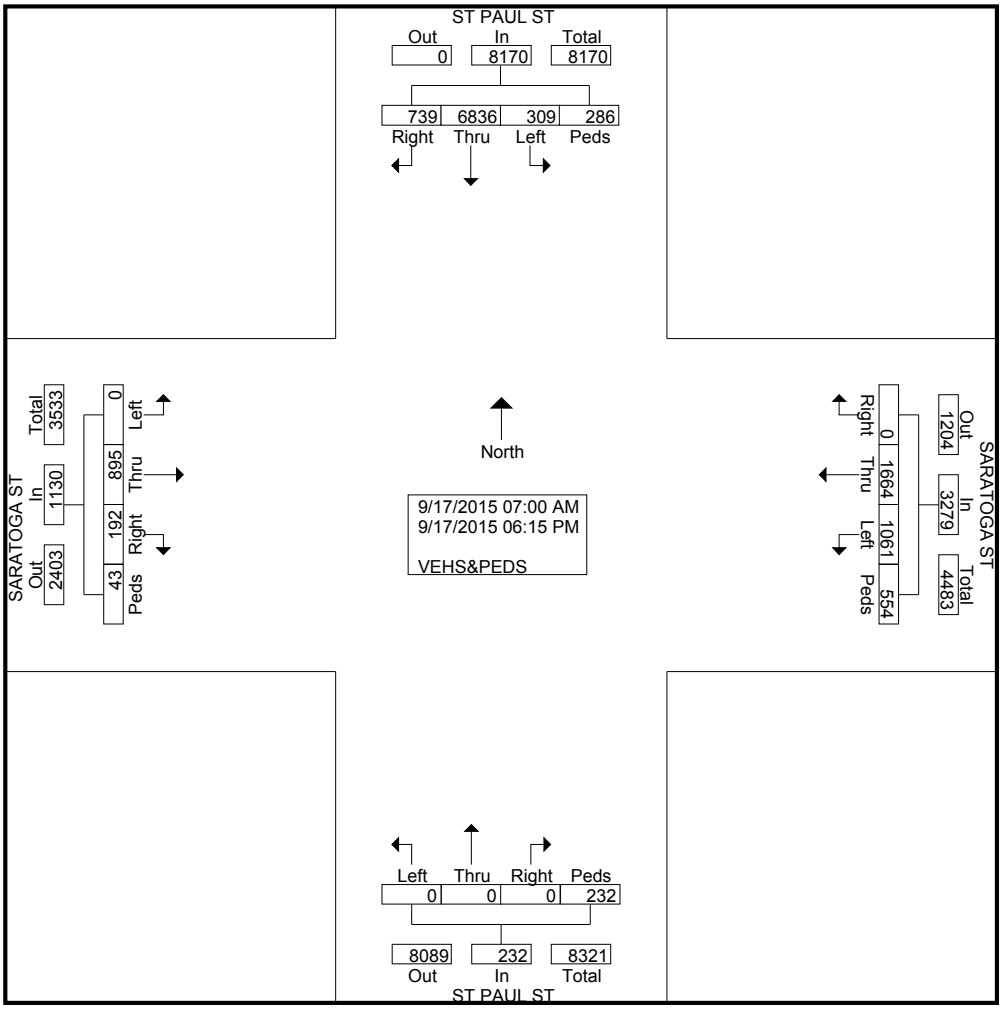
Groups Printed- VEHS&PEDS

| | ST PAUL ST From North | | | | | SARATOGA ST From East | | | | | ST PAUL ST From South | | | | | SARATOGA ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 04:00 PM | 27 | 267 | 15 | 12 | 321 | 0 | 66 | 48 | 23 | 137 | 0 | 0 | 0 | 12 | 12 | 9 | 36 | 0 | 1 | 46 | 516 |
| 04:15 PM | 28 | 214 | 9 | 10 | 261 | 0 | 56 | 46 | 20 | 122 | 0 | 0 | 0 | 7 | 7 | 7 | 46 | 0 | 2 | 55 | 445 |
| 04:30 PM | 25 | 276 | 5 | 13 | 319 | 0 | 108 | 55 | 23 | 186 | 0 | 0 | 0 | 15 | 15 | 8 | 38 | 0 | 2 | 48 | 568 |
| 04:45 PM | 37 | 236 | 8 | 8 | 289 | 0 | 89 | 51 | 13 | 153 | 0 | 0 | 0 | 7 | 7 | 5 | 29 | 0 | 1 | 35 | 484 |
| Total | 117 | 993 | 37 | 43 | 1190 | 0 | 319 | 200 | 79 | 598 | 0 | 0 | 0 | 41 | 41 | 29 | 149 | 0 | 6 | 184 | 2013 |
| 05:00 PM | 41 | 194 | 7 | 14 | 256 | 0 | 70 | 31 | 18 | 119 | 0 | 0 | 0 | 10 | 10 | 2 | 38 | 0 | 4 | 44 | 429 |
| 05:15 PM | 30 | 131 | 11 | 8 | 180 | 0 | 95 | 16 | 7 | 118 | 0 | 0 | 0 | 5 | 5 | 2 | 58 | 0 | 1 | 61 | 364 |
| 05:30 PM | 33 | 120 | 7 | 0 | 160 | 0 | 87 | 13 | 11 | 111 | 0 | 0 | 0 | 6 | 6 | 0 | 34 | 0 | 1 | 35 | 312 |
| 05:45 PM | 28 | 123 | 8 | 4 | 163 | 0 | 76 | 17 | 25 | 118 | 0 | 0 | 0 | 7 | 7 | 1 | 37 | 0 | 1 | 39 | 327 |
| Total | 132 | 568 | 33 | 26 | 759 | 0 | 328 | 77 | 61 | 466 | 0 | 0 | 0 | 28 | 28 | 5 | 167 | 0 | 7 | 179 | 1432 |
| 06:00 PM | 39 | 176 | 5 | 6 | 226 | 0 | 80 | 15 | 7 | 102 | 0 | 0 | 0 | 2 | 2 | 1 | 34 | 0 | 1 | 36 | 366 |
| 06:15 PM | 30 | 158 | 6 | 9 | 203 | 0 | 49 | 16 | 17 | 82 | 0 | 0 | 0 | 8 | 8 | 4 | 35 | 0 | 2 | 41 | 334 |
| Grand Total | 739 | 6836 | 309 | 286 | 8170 | 0 | 1664 | 1061 | 554 | 3279 | 0 | 0 | 0 | 232 | 232 | 192 | 895 | 0 | 43 | 1130 | 12811 |
| Apprch % | 9 | 83.7 | 3.8 | 3.5 | | 0 | 50.7 | 32.4 | 16.9 | | 0 | 0 | 0 | 100 | | 17 | 79.2 | 0 | 3.8 | | |
| Total % | 5.8 | 53.4 | 2.4 | 2.2 | 63.8 | 0 | 13 | 8.3 | 4.3 | 25.6 | 0 | 0 | 0 | 1.8 | 1.8 | 1.5 | 7 | 0 | 0.3 | 8.8 | |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at Saratoga St
Site Code : 00000000
Start Date : 9/17/2015
Page No : 3

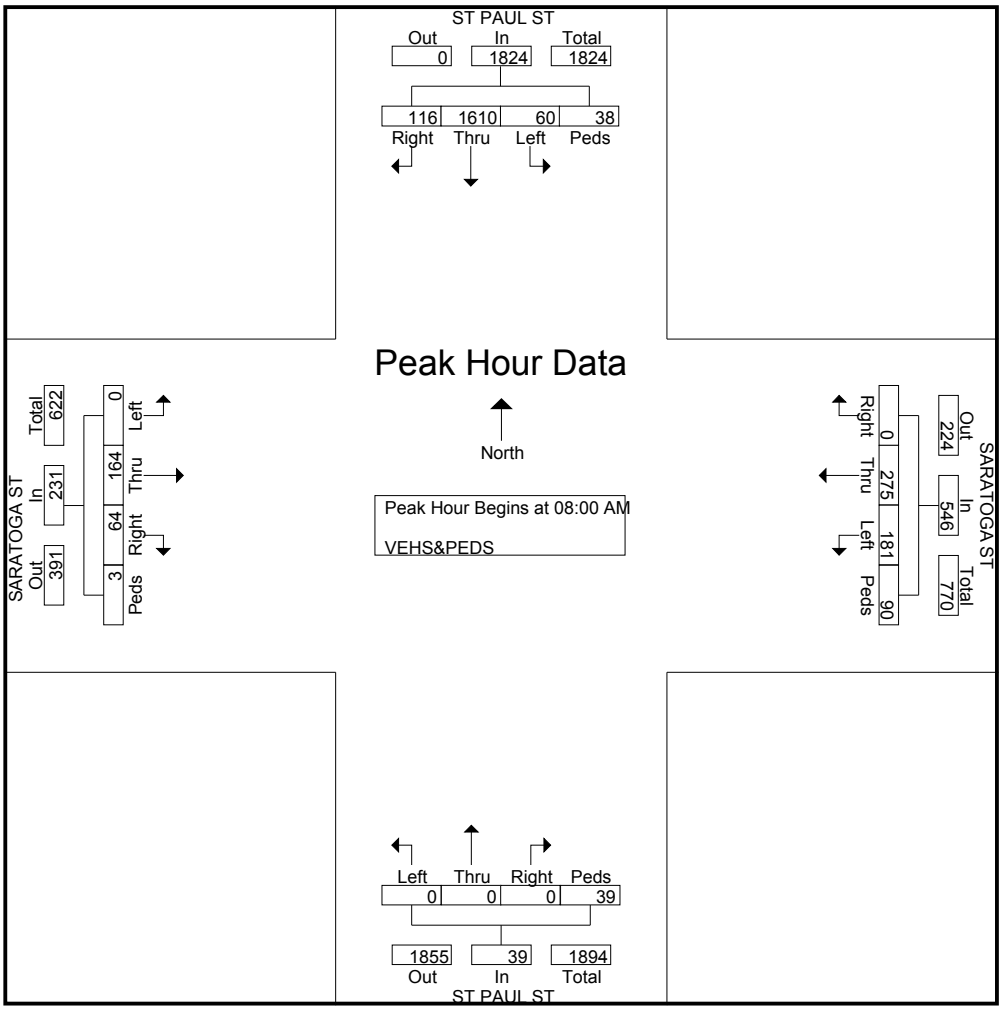


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at Saratoga St
Site Code : 00000000
Start Date : 9/17/2015
Page No : 4

| | ST PAUL ST From North | | | | | SARATOGA ST From East | | | | | ST PAUL ST From South | | | | | SARATOGA ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 08:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 08:00 AM | 28 | 403 | 13 | 6 | 450 | 0 | 60 | 46 | 21 | 127 | 0 | 0 | 0 | 5 | 5 | **18** | 40 | 0 | 0 | 58 | 640 |
| 08:15 AM | 31 | **413** | 12 | 9 | **465** | 0 | 54 | 46 | **32** | 132 | 0 | 0 | 0 | 11 | 11 | 16 | **50** | 0 | **2** | **68** | **676** |
| 08:30 AM | 25 | 391 | **19** | **15** | 450 | 0 | 80 | **47** | 19 | **146** | 0 | 0 | 0 | 8 | 8 | 15 | 30 | 0 | 0 | 45 | 649 |
| 08:45 AM | **32** | 403 | 16 | 8 | 459 | 0 | **81** | 42 | 18 | 141 | 0 | 0 | 0 | **15** | **15** | 15 | 44 | 0 | 1 | 60 | 675 |
| Total Volume | 116 | 1610 | 60 | 38 | 1824 | 0 | 275 | 181 | 90 | 546 | 0 | 0 | 0 | 39 | 39 | 64 | 164 | 0 | 3 | 231 | 2640 |
| % App. Total | 6.4 | 88.3 | 3.3 | 2.1 | | 0 | 50.4 | 33.2 | 16.5 | | 0 | 0 | 0 | 100 | | 27.7 | 71 | 0 | 1.3 | | |
| PHF | .906 | .975 | .789 | .633 | .981 | .000 | .849 | .963 | .703 | .935 | .000 | .000 | .000 | .650 | .650 | .889 | .820 | .000 | .375 | .849 | .976 |

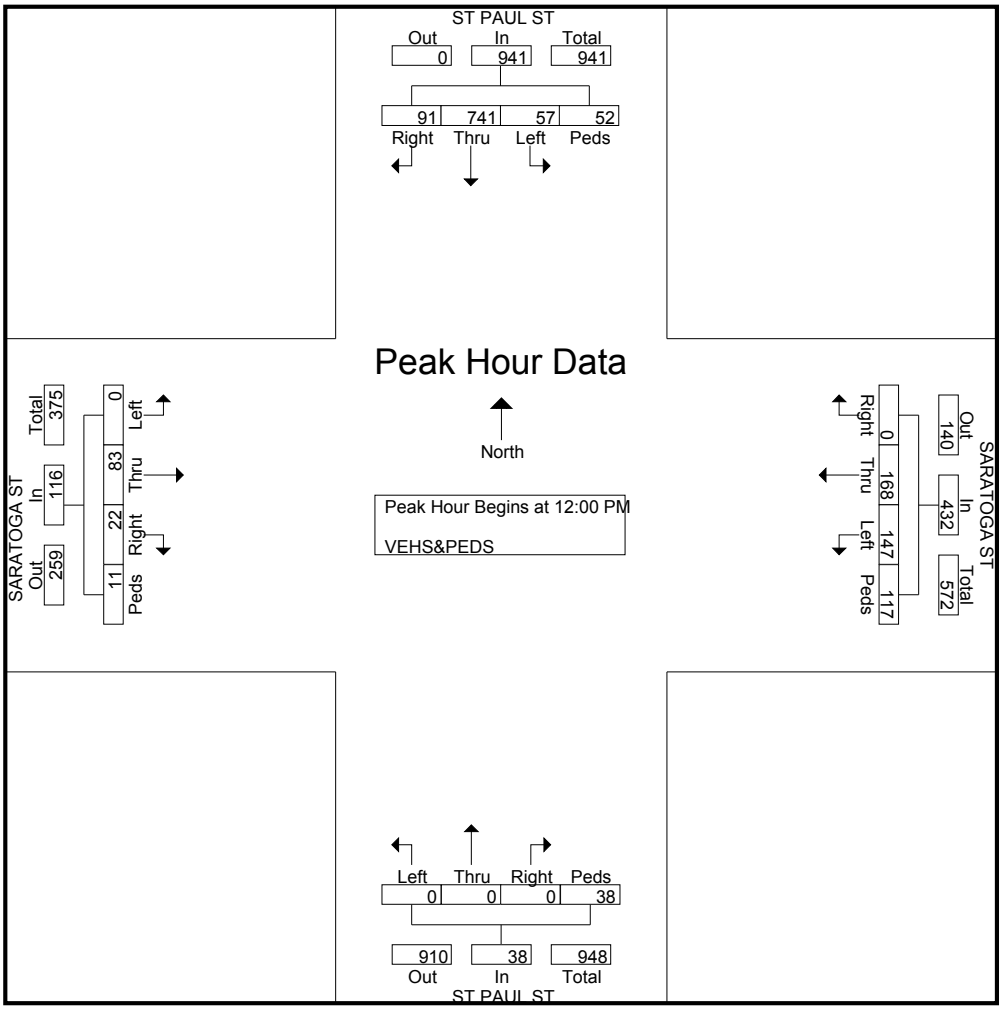


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at Saratoga St
Site Code : 00000000
Start Date : 9/17/2015
Page No : 5

| | ST PAUL ST From North | | | | | SARATOGA ST From East | | | | | ST PAUL ST From South | | | | | SARATOGA ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 12:00 PM | 27 | 171 | **18** | 8 | 224 | 0 | 42 | 36 | 23 | 101 | 0 | 0 | 0 | 8 | 8 | 4 | **24** | 0 | 2 | 30 | 363 |
| 12:15 PM | **30** | 176 | 10 | **16** | 232 | 0 | **44** | **45** | **43** | **132** | 0 | 0 | 0 | 8 | 8 | 3 | 16 | 0 | **6** | 25 | 397 |
| 12:30 PM | 21 | **207** | 13 | 16 | **257** | 0 | 43 | 26 | 34 | 103 | 0 | 0 | 0 | 10 | 10 | 5 | 22 | 0 | 2 | 29 | **399** |
| 12:45 PM | 13 | 187 | 16 | 12 | 228 | 0 | 39 | 40 | 17 | 96 | 0 | 0 | 0 | **12** | **12** | **10** | 21 | 0 | 1 | **32** | 368 |
| Total Volume | 91 | 741 | 57 | 52 | 941 | 0 | 168 | 147 | 117 | 432 | 0 | 0 | 0 | 38 | 38 | 22 | 83 | 0 | 11 | 116 | 1527 |
| % App. Total | 9.7 | 78.7 | 6.1 | 5.5 | | 0 | 38.9 | 34 | 27.1 | | 0 | 0 | 0 | 100 | | 19 | 71.6 | 0 | 9.5 | | |
| PHF | .758 | .895 | .792 | .813 | .915 | .000 | .955 | .817 | .680 | .818 | .000 | .000 | .000 | .792 | .792 | .550 | .865 | .000 | .458 | .906 | .957 |

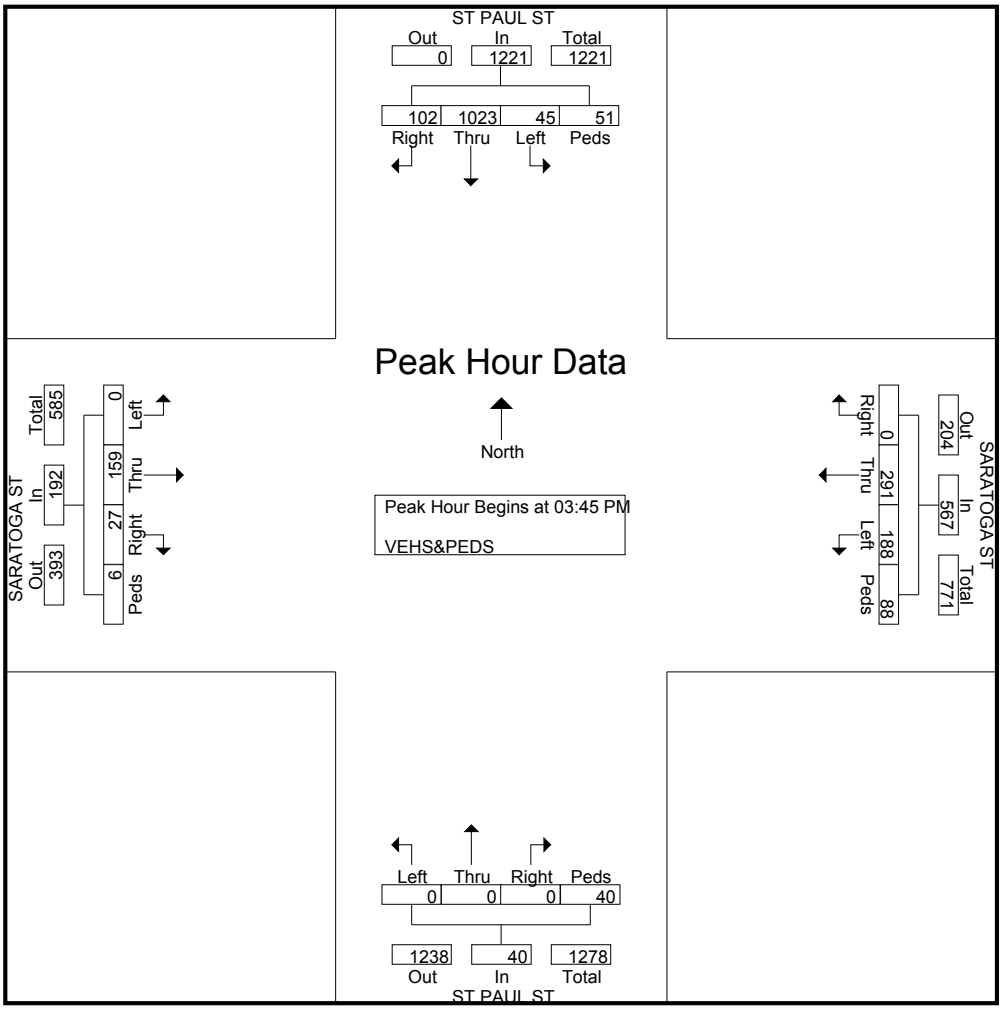


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at Saratoga St
Site Code : 00000000
Start Date : 9/17/2015
Page No : 6

| | ST PAUL ST From North | | | | | SARATOGA ST From East | | | | | ST PAUL ST From South | | | | | SARATOGA ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 03:45 PM | | | | | | | | | | | | | | | | | | | | | |
| 03:45 PM | 22 | 266 | **16** | **16** | 320 | 0 | 61 | 39 | 22 | 122 | 0 | 0 | 0 | 6 | 6 | 3 | 39 | 0 | 1 | 43 | 491 |
| 04:00 PM | 27 | 267 | 15 | 12 | **321** | 0 | 66 | 48 | **23** | 137 | 0 | 0 | 0 | 12 | 12 | **9** | 36 | 0 | 1 | 46 | 516 |
| 04:15 PM | **28** | 214 | 9 | 10 | 261 | 0 | 56 | 46 | 20 | 122 | 0 | 0 | 0 | 7 | 7 | 7 | **46** | 0 | **2** | **55** | 445 |
| 04:30 PM | 25 | **276** | 5 | 13 | 319 | 0 | **108** | **55** | 23 | **186** | 0 | 0 | 0 | **15** | **15** | 8 | 38 | 0 | 2 | 48 | **568** |
| Total Volume | 102 | 1023 | 45 | 51 | 1221 | 0 | 291 | 188 | 88 | 567 | 0 | 0 | 0 | 40 | 40 | 27 | 159 | 0 | 6 | 192 | 2020 |
| % App. Total | 8.4 | 83.8 | 3.7 | 4.2 | | 0 | 51.3 | 33.2 | 15.5 | | 0 | 0 | 0 | 100 | | 14.1 | 82.8 | 0 | 3.1 | | |
| PHF | .911 | .927 | .703 | .797 | .951 | .000 | .674 | .855 | .957 | .762 | .000 | .000 | .000 | .667 | .667 | .750 | .864 | .000 | .750 | .873 | .889 |



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

Weather: SUNNY
Counted By: MIKE & VINNIE
Town: BALTIMORE CITY
County: BALTIMORE CITY

File Name : St Paul St at Mulberry St
Site Code : 00000000
Start Date : 10/7/2015
Page No : 1

Groups Printed- VEHS&PEDS

| | ST PAUL ST From North | | | | | MULBERRY ST From East | | | | | ST PAUL ST From South | | | | | MULBERRY ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 29 | 5 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 1 | 7 | 28 | 313 | 4 | 4 | 349 | 390 |
| 07:15 AM | 0 | 85 | 17 | 0 | 102 | 0 | 0 | 0 | 0 | 0 | 7 | 13 | 0 | 0 | 20 | 39 | 336 | 8 | 10 | 393 | 515 |
| 07:30 AM | 0 | 81 | 14 | 0 | 95 | 0 | 0 | 0 | 0 | 0 | 12 | 7 | 0 | 1 | 20 | 45 | 390 | 8 | 9 | 452 | 567 |
| 07:45 AM | 0 | 77 | 11 | 0 | 88 | 0 | 0 | 0 | 0 | 0 | 10 | 5 | 0 | 3 | 18 | 42 | 411 | 8 | 9 | 470 | 576 |
| Total | 0 | 272 | 47 | 0 | 319 | 0 | 0 | 0 | 0 | 0 | 31 | 29 | 0 | 5 | 65 | 154 | 1450 | 28 | 32 | 1664 | 2048 |
| 08:00 AM | 0 | 76 | 9 | 0 | 85 | 0 | 0 | 0 | 0 | 0 | 5 | 10 | 0 | 3 | 18 | 53 | 380 | 8 | 11 | 452 | 555 |
| 08:15 AM | 0 | 132 | 12 | 0 | 144 | 0 | 0 | 0 | 0 | 0 | 17 | 9 | 0 | 1 | 27 | 51 | 414 | 9 | 10 | 484 | 655 |
| 08:30 AM | 0 | 96 | 23 | 0 | 119 | 0 | 0 | 0 | 0 | 0 | 4 | 15 | 0 | 1 | 20 | 34 | 359 | 12 | 12 | 417 | 556 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 43 | 329 | 8 | 12 | 392 | 394 |
| Total | 0 | 304 | 44 | 0 | 348 | 0 | 0 | 0 | 0 | 0 | 26 | 34 | 0 | 7 | 67 | 181 | 1482 | 37 | 45 | 1745 | 2160 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 11:00 AM | 0 | 62 | 7 | 0 | 69 | 0 | 0 | 0 | 0 | 0 | 5 | 14 | 0 | 0 | 19 | 30 | 196 | 10 | 4 | 240 | 328 |
| 11:15 AM | 0 | 61 | 15 | 0 | 76 | 0 | 0 | 0 | 0 | 0 | 5 | 7 | 0 | 0 | 12 | 18 | 180 | 12 | 3 | 213 | 301 |
| 11:30 AM | 0 | 59 | 10 | 0 | 69 | 0 | 0 | 0 | 0 | 0 | 2 | 12 | 0 | 0 | 14 | 24 | 206 | 2 | 8 | 240 | 323 |
| 11:45 AM | 0 | 60 | 7 | 0 | 67 | 0 | 0 | 0 | 0 | 0 | 6 | 16 | 0 | 0 | 22 | 25 | 187 | 5 | 7 | 224 | 313 |
| Total | 0 | 242 | 39 | 0 | 281 | 0 | 0 | 0 | 0 | 0 | 18 | 49 | 0 | 0 | 67 | 97 | 769 | 29 | 22 | 917 | 1265 |
| 12:00 PM | 0 | 53 | 14 | 0 | 67 | 0 | 0 | 0 | 0 | 0 | 2 | 12 | 0 | 0 | 14 | 20 | 209 | 4 | 7 | 240 | 321 |
| 12:15 PM | 0 | 54 | 3 | 0 | 57 | 0 | 0 | 0 | 1 | 1 | 4 | 20 | 0 | 0 | 24 | 20 | 213 | 4 | 8 | 245 | 327 |
| 12:30 PM | 0 | 64 | 13 | 0 | 77 | 0 | 0 | 0 | 1 | 1 | 7 | 19 | 0 | 0 | 26 | 32 | 220 | 2 | 4 | 258 | 362 |
| 12:45 PM | 0 | 70 | 7 | 0 | 77 | 0 | 0 | 0 | 2 | 2 | 9 | 7 | 0 | 0 | 16 | 33 | 216 | 8 | 7 | 264 | 359 |
| Total | 0 | 241 | 37 | 0 | 278 | 0 | 0 | 0 | 4 | 4 | 22 | 58 | 0 | 0 | 80 | 105 | 858 | 18 | 26 | 1007 | 1369 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 03:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 03:15 PM | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 03:30 PM | 0 | 84 | 15 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 20 | 20 | 0 | 0 | 40 | 14 | 305 | 5 | 17 | 341 | 480 |
| 03:45 PM | 0 | 69 | 9 | 0 | 78 | 0 | 0 | 0 | 1 | 1 | 13 | 25 | 0 | 0 | 38 | 17 | 267 | 2 | 17 | 303 | 420 |
| Total | 0 | 156 | 24 | 0 | 180 | 0 | 0 | 0 | 1 | 1 | 33 | 45 | 0 | 0 | 78 | 32 | 572 | 7 | 34 | 645 | 904 |
| 04:00 PM | 0 | 75 | 17 | 0 | 92 | 0 | 0 | 0 | 0 | 0 | 21 | 18 | 0 | 0 | 39 | 17 | 310 | 1 | 9 | 337 | 468 |
| 04:15 PM | 0 | 66 | 18 | 0 | 84 | 0 | 0 | 0 | 0 | 0 | 19 | 16 | 0 | 0 | 35 | 13 | 342 | 7 | 15 | 377 | 496 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at Mulberry St
Site Code : 00000000
Start Date : 10/7/2015
Page No : 2

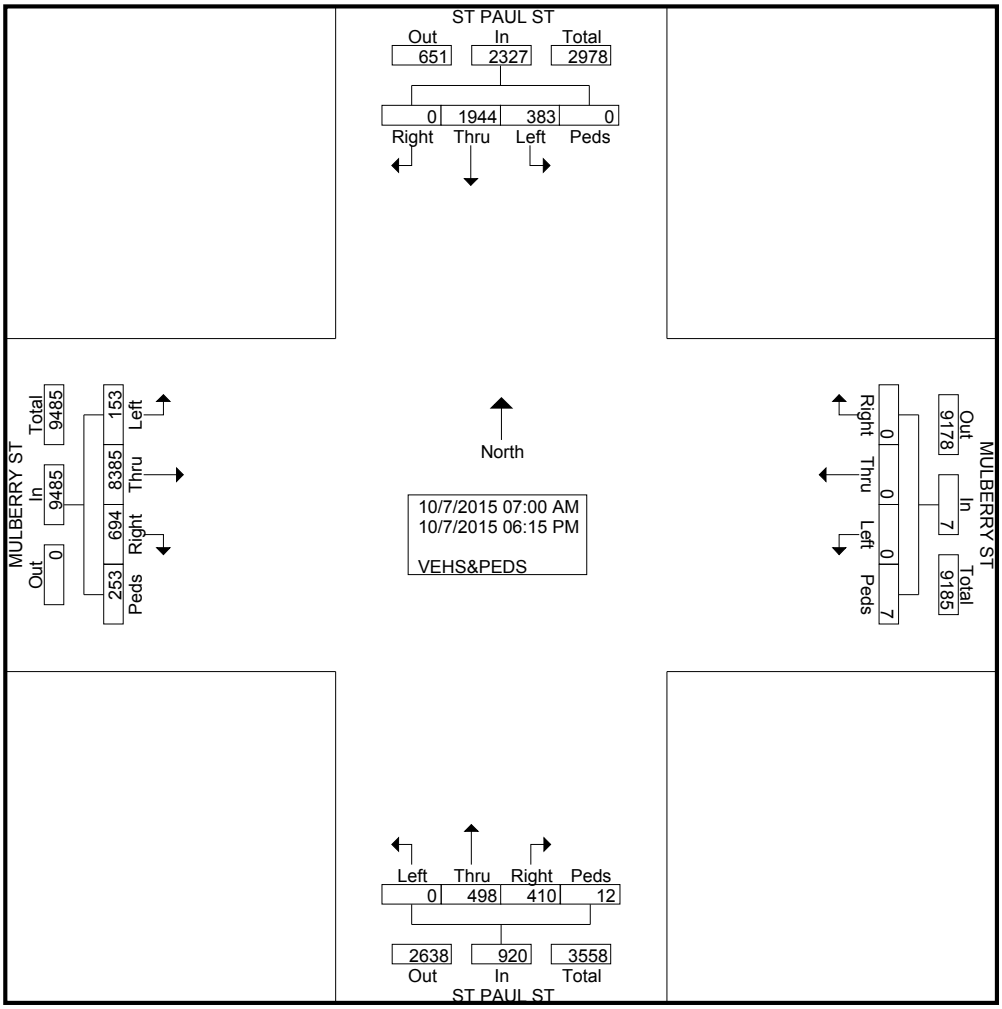
Groups Printed- VEHS&PEDS

| | ST PAUL ST From North | | | | | MULBERRY ST From East | | | | | ST PAUL ST From South | | | | | MULBERRY ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 04:30 PM | 0 | 71 | 14 | 0 | 85 | 0 | 0 | 0 | 0 | 0 | 39 | 44 | 0 | 0 | 83 | 17 | 317 | 4 | 11 | 349 | 517 |
| 04:45 PM | 0 | 66 | 13 | 0 | 79 | 0 | 0 | 0 | 0 | 0 | 30 | 36 | 0 | 0 | 66 | 11 | 349 | 1 | 9 | 370 | 515 |
| Total | 0 | 278 | 62 | 0 | 340 | 0 | 0 | 0 | 0 | 0 | 109 | 114 | 0 | 0 | 223 | 58 | 1318 | 13 | 44 | 1433 | 1996 |
| 05:00 PM | 0 | 89 | 33 | 0 | 122 | 0 | 0 | 0 | 1 | 1 | 50 | 37 | 0 | 0 | 87 | 7 | 364 | 7 | 15 | 393 | 603 |
| 05:15 PM | 0 | 75 | 19 | 0 | 94 | 0 | 0 | 0 | 0 | 0 | 38 | 43 | 0 | 0 | 81 | 18 | 355 | 3 | 6 | 382 | 557 |
| 05:30 PM | 0 | 83 | 18 | 0 | 101 | 0 | 0 | 0 | 0 | 0 | 22 | 36 | 0 | 0 | 58 | 11 | 322 | 4 | 12 | 349 | 508 |
| 05:45 PM | 0 | 68 | 12 | 0 | 80 | 0 | 0 | 0 | 1 | 1 | 18 | 22 | 0 | 0 | 40 | 13 | 332 | 2 | 2 | 349 | 470 |
| Total | 0 | 315 | 82 | 0 | 397 | 0 | 0 | 0 | 2 | 2 | 128 | 138 | 0 | 0 | 266 | 49 | 1373 | 16 | 35 | 1473 | 2138 |
| 06:00 PM | 0 | 60 | 20 | 0 | 80 | 0 | 0 | 0 | 0 | 0 | 21 | 23 | 0 | 0 | 44 | 10 | 285 | 1 | 6 | 302 | 426 |
| 06:15 PM | 0 | 76 | 28 | 0 | 104 | 0 | 0 | 0 | 0 | 0 | 22 | 8 | 0 | 0 | 30 | 8 | 278 | 4 | 9 | 299 | 433 |
| Grand Total | 0 | 1944 | 383 | 0 | 2327 | 0 | 0 | 0 | 7 | 7 | 410 | 498 | 0 | 12 | 920 | 694 | 8385 | 153 | 253 | 9485 | 12739 |
| Apprch % | 0 | 83.5 | 16.5 | 0 | | 0 | 0 | 0 | 100 | | 44.6 | 54.1 | 0 | 1.3 | | 7.3 | 88.4 | 1.6 | 2.7 | | |
| Total % | 0 | 15.3 | 3 | 0 | 18.3 | 0 | 0 | 0 | 0.1 | 0.1 | 3.2 | 3.9 | 0 | 0.1 | 7.2 | 5.4 | 65.8 | 1.2 | 2 | 74.5 | |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at Mulberry St
Site Code : 00000000
Start Date : 10/7/2015
Page No : 3

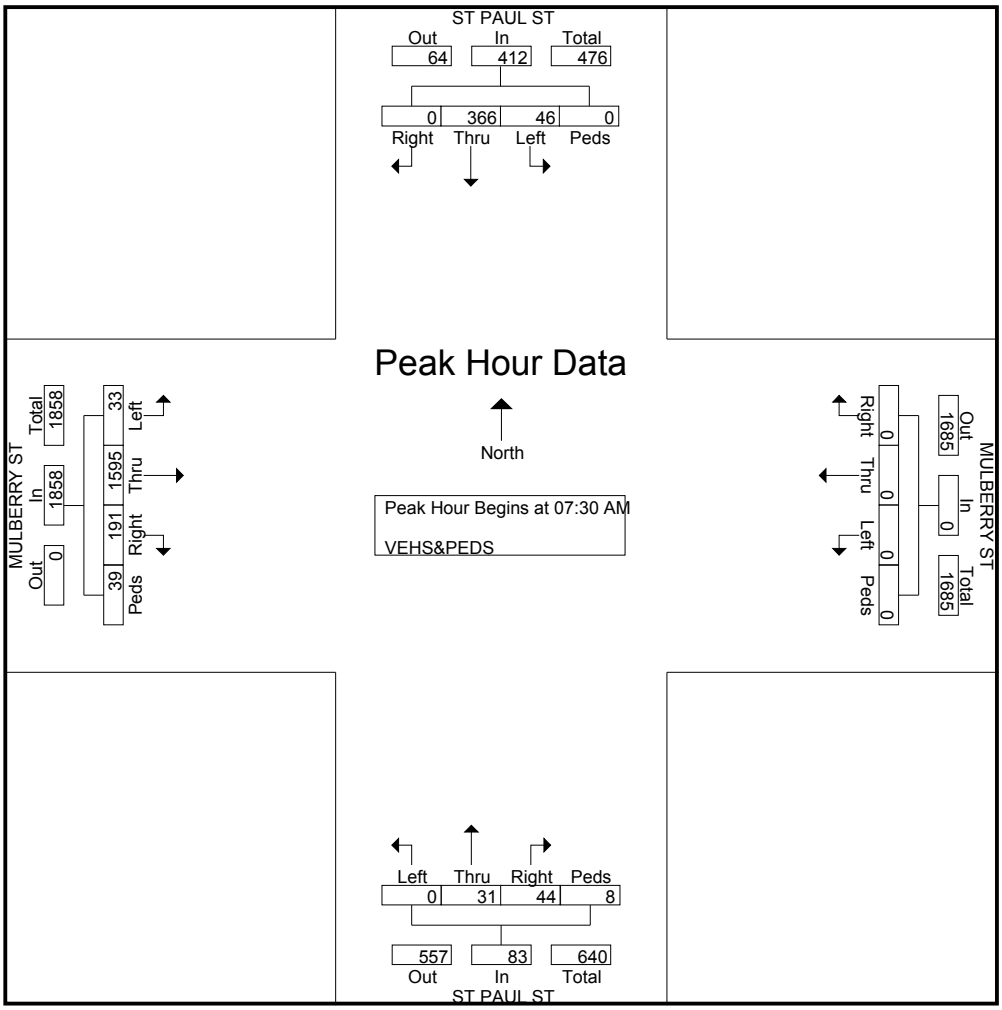


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at Mulberry St
Site Code : 00000000
Start Date : 10/7/2015
Page No : 4

| | ST PAUL ST From North | | | | | MULBERRY ST From East | | | | | ST PAUL ST From South | | | | | MULBERRY ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:30 AM | 0 | 81 | **14** | 0 | 95 | 0 | 0 | 0 | 0 | 0 | 12 | 7 | 0 | 1 | 20 | 45 | 390 | 8 | 9 | 452 | 567 |
| 07:45 AM | 0 | 77 | 11 | 0 | 88 | 0 | 0 | 0 | 0 | 0 | 10 | 5 | 0 | **3** | 18 | 42 | 411 | 8 | 9 | 470 | 576 |
| 08:00 AM | 0 | 76 | 9 | 0 | 85 | 0 | 0 | 0 | 0 | 0 | 5 | **10** | 0 | 3 | 18 | **53** | 380 | 8 | **11** | 452 | 555 |
| 08:15 AM | 0 | **132** | 12 | 0 | **144** | 0 | 0 | 0 | 0 | 0 | **17** | 9 | 0 | 1 | **27** | 51 | **414** | **9** | 10 | **484** | **655** |
| Total Volume | 0 | 366 | 46 | 0 | 412 | 0 | 0 | 0 | 0 | 0 | 44 | 31 | 0 | 8 | 83 | 191 | 1595 | 33 | 39 | 1858 | 2353 |
| % App. Total | 0 | 88.8 | 11.2 | 0 | | 0 | 0 | 0 | 0 | | 53 | 37.3 | 0 | 9.6 | | 10.3 | 85.8 | 1.8 | 2.1 | | |
| PHF | .000 | .693 | .821 | .000 | .715 | .000 | .000 | .000 | .000 | .000 | .647 | .775 | .000 | .667 | .769 | .901 | .963 | .917 | .886 | .960 | .898 |

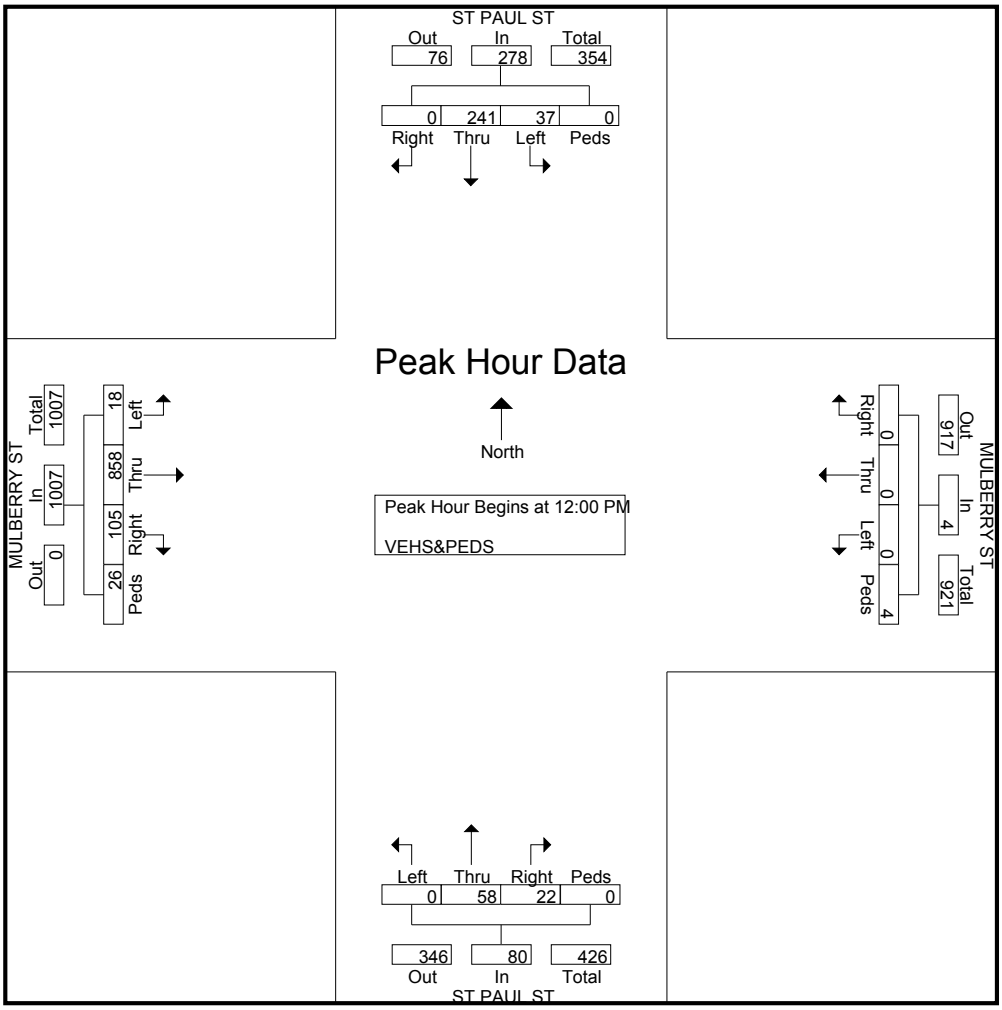


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at Mulberry St
Site Code : 00000000
Start Date : 10/7/2015
Page No : 5

| | ST PAUL ST From North | | | | | MULBERRY ST From East | | | | | ST PAUL ST From South | | | | | MULBERRY ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 12:00 PM | 0 | 53 | **14** | 0 | 67 | 0 | 0 | 0 | 0 | 0 | 2 | 12 | 0 | 0 | 14 | 20 | 209 | 4 | 7 | 240 | 321 |
| 12:15 PM | 0 | 54 | 3 | 0 | 57 | 0 | 0 | 0 | 1 | 1 | 4 | **20** | 0 | 0 | 24 | 20 | 213 | 4 | **8** | 245 | 327 |
| 12:30 PM | 0 | 64 | 13 | 0 | **77** | 0 | 0 | 0 | 1 | 1 | 7 | 19 | 0 | 0 | **26** | 32 | **220** | 2 | 4 | 258 | **362** |
| 12:45 PM | 0 | **70** | 7 | 0 | 77 | 0 | 0 | 0 | **2** | **2** | **9** | 7 | 0 | 0 | 16 | **33** | 216 | **8** | 7 | **264** | 359 |
| Total Volume | 0 | 241 | 37 | 0 | 278 | 0 | 0 | 0 | 4 | 4 | 22 | 58 | 0 | 0 | 80 | 105 | 858 | 18 | 26 | 1007 | 1369 |
| % App. Total | 0 | 86.7 | 13.3 | 0 | | 0 | 0 | 0 | 100 | | 27.5 | 72.5 | 0 | 0 | | 10.4 | 85.2 | 1.8 | 2.6 | | |
| PHF | .000 | .861 | .661 | .000 | .903 | .000 | .000 | .000 | .500 | .500 | .611 | .725 | .000 | .000 | .769 | .795 | .975 | .563 | .813 | .954 | .945 |

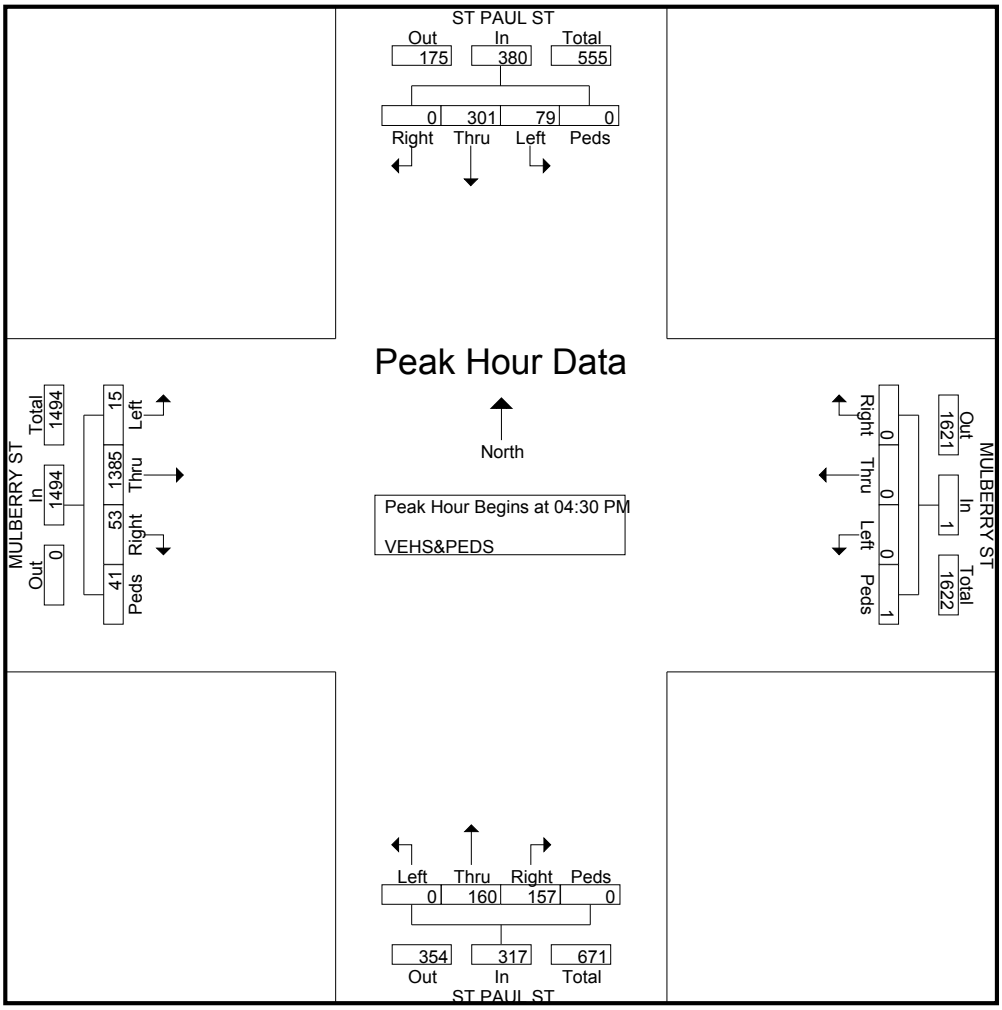


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at Mulberry St
Site Code : 00000000
Start Date : 10/7/2015
Page No : 6

| | ST PAUL ST From North | | | | | MULBERRY ST From East | | | | | ST PAUL ST From South | | | | | MULBERRY ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:30 PM | 0 | 71 | 14 | 0 | 85 | 0 | 0 | 0 | 0 | 0 | 39 | **44** | 0 | 0 | 83 | 17 | 317 | 4 | 11 | 349 | 517 |
| 04:45 PM | 0 | 66 | 13 | 0 | 79 | 0 | 0 | 0 | 0 | 0 | 30 | 36 | 0 | 0 | 66 | 11 | 349 | 1 | 9 | 370 | 515 |
| 05:00 PM | 0 | **89** | **33** | 0 | **122** | 0 | 0 | 0 | **1** | **1** | **50** | 37 | 0 | 0 | **87** | 7 | **364** | **7** | **15** | **393** | **603** |
| 05:15 PM | 0 | 75 | 19 | 0 | 94 | 0 | 0 | 0 | 0 | 0 | 38 | 43 | 0 | 0 | 81 | **18** | 355 | 3 | 6 | 382 | 557 |
| Total Volume | 0 | 301 | 79 | 0 | 380 | 0 | 0 | 0 | 1 | 1 | 157 | 160 | 0 | 0 | 317 | 53 | 1385 | 15 | 41 | 1494 | 2192 |
| % App. Total | 0 | 79.2 | 20.8 | 0 | | 0 | 0 | 0 | 100 | | 49.5 | 50.5 | 0 | 0 | | 3.5 | 92.7 | 1 | 2.7 | | |
| PHF | .000 | .846 | .598 | .000 | .779 | .000 | .000 | .000 | .250 | .250 | .785 | .909 | .000 | .000 | .911 | .736 | .951 | .536 | .683 | .950 | .909 |



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

Weather: SUNNY
Counted By: STEPHANIE & GARY
Town: BALTIMORE CITY
County: BALTIMORE CITY

File Name : St Paul St at Franklin St
Site Code : 00000000
Start Date : 10/7/2015
Page No : 1

Groups Printed- VEHS&PEDS

| | ST PAUL ST From North | | | | | FRANKLIN ST From East | | | | | ST PAUL ST From South | | | | | FRANKLIN ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 115 | 42 | 0 | 1 | 158 | 9 | 336 | 28 | 0 | 373 | 0 | 1 | 5 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 538 |
| 07:15 AM | 91 | 29 | 0 | 1 | 121 | 17 | 363 | 36 | 0 | 416 | 0 | 4 | 8 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 549 |
| 07:30 AM | 82 | 41 | 0 | 3 | 126 | 18 | 417 | 44 | 0 | 479 | 0 | 5 | 6 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 616 |
| 07:45 AM | 93 | 46 | 0 | 0 | 139 | 21 | 424 | 44 | 0 | 489 | 0 | 10 | 5 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 643 |
| Total | 381 | 158 | 0 | 5 | 544 | 65 | 1540 | 152 | 0 | 1757 | 0 | 20 | 24 | 1 | 45 | 0 | 0 | 0 | 0 | 0 | 2346 |
| 08:00 AM | 91 | 45 | 0 | 0 | 136 | 21 | 410 | 27 | 0 | 458 | 0 | 7 | 6 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 607 |
| 08:15 AM | 84 | 60 | 0 | 1 | 145 | 20 | 402 | 58 | 0 | 480 | 0 | 6 | 6 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 637 |
| 08:30 AM | 98 | 61 | 0 | 5 | 164 | 24 | 394 | 42 | 0 | 460 | 0 | 11 | 11 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 646 |
| 08:45 AM | 85 | 60 | 0 | 0 | 145 | 12 | 333 | 40 | 0 | 385 | 0 | 9 | 10 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 549 |
| Total | 358 | 226 | 0 | 6 | 590 | 77 | 1539 | 167 | 0 | 1783 | 0 | 33 | 33 | 0 | 66 | 0 | 0 | 0 | 0 | 0 | 2439 |
| 11:00 AM | 31 | 35 | 0 | 0 | 66 | 10 | 215 | 20 | 0 | 245 | 0 | 8 | 14 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 333 |
| 11:15 AM | 36 | 41 | 0 | 1 | 78 | 12 | 226 | 23 | 0 | 261 | 0 | 8 | 4 | 1 | 13 | 0 | 0 | 0 | 0 | 0 | 352 |
| 11:30 AM | 32 | 46 | 0 | 3 | 81 | 4 | 224 | 19 | 0 | 247 | 0 | 4 | 6 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 338 |
| 11:45 AM | 41 | 32 | 0 | 2 | 75 | 11 | 229 | 20 | 0 | 260 | 0 | 5 | 12 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 352 |
| Total | 140 | 154 | 0 | 6 | 300 | 37 | 894 | 82 | 0 | 1013 | 0 | 25 | 36 | 1 | 62 | 0 | 0 | 0 | 0 | 0 | 1375 |
| 12:00 PM | 27 | 39 | 0 | 4 | 70 | 14 | 232 | 16 | 0 | 262 | 0 | 5 | 8 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 345 |
| 12:15 PM | 37 | 30 | 0 | 2 | 69 | 17 | 237 | 14 | 3 | 271 | 0 | 5 | 11 | 2 | 18 | 0 | 0 | 0 | 0 | 0 | 358 |
| 12:30 PM | 45 | 45 | 0 | 2 | 92 | 13 | 234 | 21 | 0 | 268 | 0 | 2 | 13 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 375 |
| 12:45 PM | 39 | 47 | 0 | 1 | 87 | 16 | 246 | 20 | 0 | 282 | 0 | 7 | 8 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 384 |
| Total | 148 | 161 | 0 | 9 | 318 | 60 | 949 | 71 | 3 | 1083 | 0 | 19 | 40 | 2 | 61 | 0 | 0 | 0 | 0 | 0 | 1462 |
| 03:30 PM | 48 | 50 | 0 | 3 | 101 | 10 | 321 | 32 | 0 | 363 | 0 | 2 | 14 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 480 |
| 03:45 PM | 34 | 40 | 0 | 1 | 75 | 17 | 385 | 27 | 0 | 429 | 0 | 3 | 16 | 1 | 20 | 0 | 0 | 0 | 0 | 0 | 524 |
| Total | 82 | 90 | 0 | 4 | 176 | 27 | 706 | 59 | 0 | 792 | 0 | 5 | 30 | 1 | 36 | 0 | 0 | 0 | 0 | 0 | 1004 |
| 04:00 PM | 55 | 42 | 0 | 1 | 98 | 8 | 373 | 27 | 0 | 408 | 0 | 3 | 19 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 528 |
| 04:15 PM | 65 | 40 | 0 | 3 | 108 | 8 | 396 | 25 | 0 | 429 | 0 | 6 | 14 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 557 |
| 04:30 PM | 77 | 44 | 0 | 1 | 122 | 18 | 433 | 33 | 0 | 484 | 0 | 8 | 28 | 0 | 36 | 0 | 0 | 0 | 0 | 0 | 642 |
| 04:45 PM | 65 | 45 | 0 | 1 | 111 | 9 | 463 | 24 | 1 | 497 | 0 | 4 | 30 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 642 |
| Total | 262 | 171 | 0 | 6 | 439 | 43 | 1665 | 109 | 1 | 1818 | 0 | 21 | 91 | 0 | 112 | 0 | 0 | 0 | 0 | 0 | 2369 |

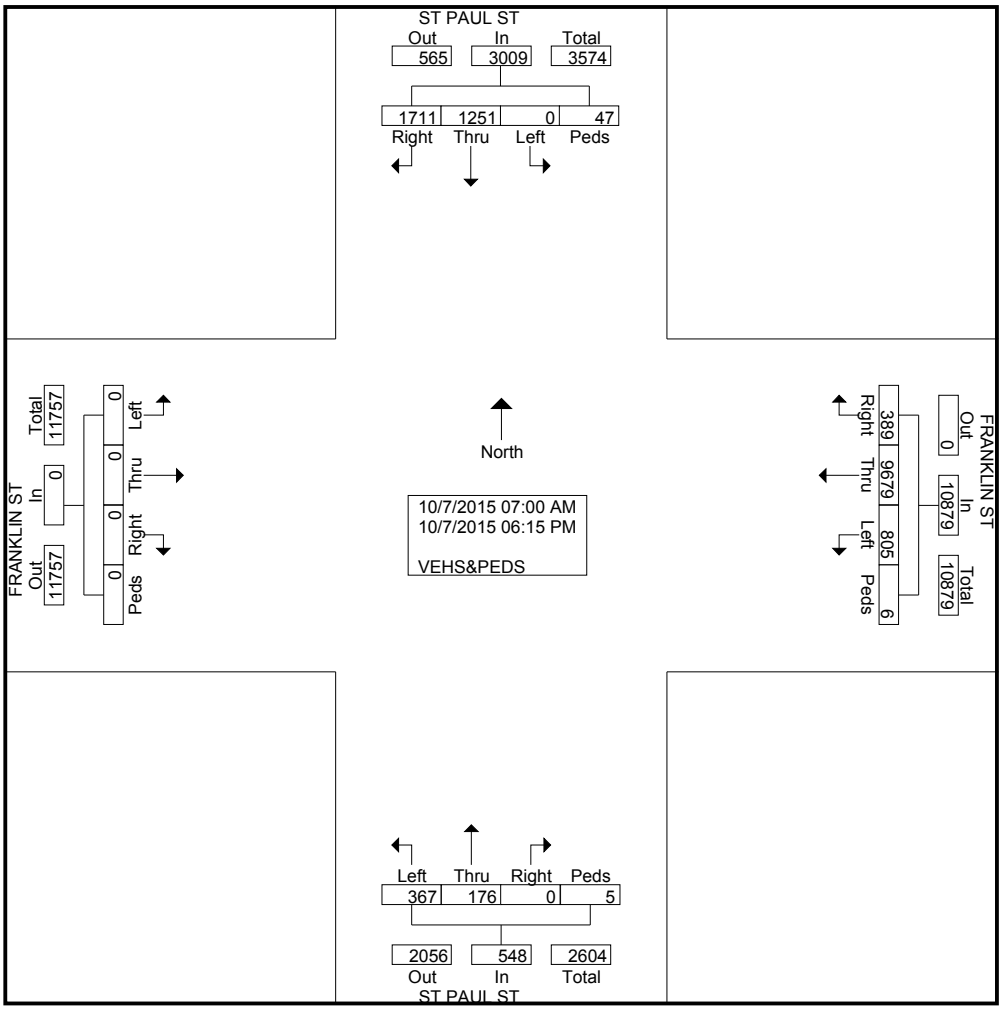
# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at Franklin St
Site Code : 00000000
Start Date : 10/7/2015
Page No : 2

Groups Printed- VEHS&PEDS

| | ST PAUL ST From North | | | | | FRANKLIN ST From East | | | | | ST PAUL ST From South | | | | | FRANKLIN ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 05:00 PM | 64 | 53 | 0 | 1 | 118 | 16 | 452 | 25 | 0 | 493 | 0 | 11 | 27 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 649 |
| 05:15 PM | 57 | 47 | 0 | 1 | 105 | 13 | 436 | 27 | 0 | 476 | 0 | 12 | 25 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 618 |
| 05:30 PM | 63 | 44 | 0 | 2 | 109 | 15 | 454 | 37 | 0 | 506 | 0 | 13 | 20 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 648 |
| 05:45 PM | 58 | 42 | 0 | 2 | 102 | 9 | 374 | 26 | 2 | 411 | 0 | 6 | 10 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 529 |
| Total | 242 | 186 | 0 | 6 | 434 | 53 | 1716 | 115 | 2 | 1886 | 0 | 42 | 82 | 0 | 124 | 0 | 0 | 0 | 0 | 0 | 2444 |
| 06:00 PM | 53 | 49 | 0 | 2 | 104 | 11 | 325 | 19 | 0 | 355 | 0 | 5 | 20 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 484 |
| 06:15 PM | 45 | 56 | 0 | 3 | 104 | 16 | 345 | 31 | 0 | 392 | 0 | 6 | 11 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 513 |
| Grand Total | 1711 | 1251 | 0 | 47 | 3009 | 389 | 9679 | 805 | 6 | 10879 | 0 | 176 | 367 | 5 | 548 | 0 | 0 | 0 | 0 | 0 | 14436 |
| Apprch % | 56.9 | 41.6 | 0 | 1.6 | | 3.6 | 89 | 7.4 | 0.1 | | 0 | 32.1 | 67 | 0.9 | | 0 | 0 | 0 | 0 | | |
| Total % | 11.9 | 8.7 | 0 | 0.3 | 20.8 | 2.7 | 67 | 5.6 | 0 | 75.4 | 0 | 1.2 | 2.5 | 0 | 3.8 | 0 | 0 | 0 | 0 | 0 | |

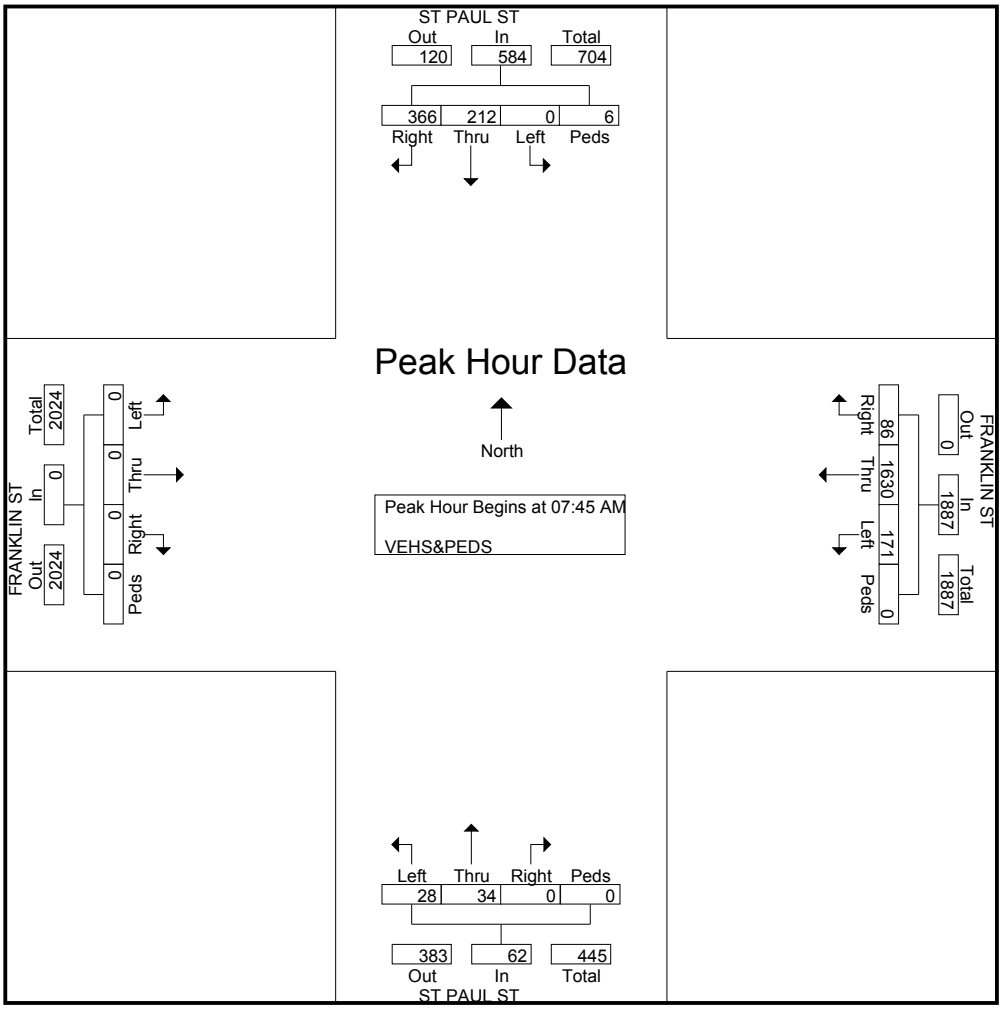


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at Franklin St
Site Code : 00000000
Start Date : 10/7/2015
Page No : 3

| | ST PAUL ST From North | | | | | FRANKLIN ST From East | | | | | ST PAUL ST From South | | | | | FRANKLIN ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:45 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:45 AM | 93 | 46 | 0 | 0 | 139 | 21 | **424** | 44 | 0 | **489** | 0 | 10 | 5 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 643 |
| 08:00 AM | 91 | 45 | 0 | 0 | 136 | 21 | 410 | 27 | 0 | 458 | 0 | 7 | 6 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 607 |
| 08:15 AM | 84 | 60 | 0 | 1 | 145 | 20 | 402 | **58** | 0 | 480 | 0 | 6 | 6 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 637 |
| 08:30 AM | **98** | **61** | 0 | **5** | **164** | **24** | 394 | 42 | 0 | 460 | 0 | **11** | **11** | 0 | **22** | 0 | 0 | 0 | 0 | 0 | **646** |
| Total Volume | 366 | 212 | 0 | 6 | 584 | 86 | 1630 | 171 | 0 | 1887 | 0 | 34 | 28 | 0 | 62 | 0 | 0 | 0 | 0 | 0 | 2533 |
| % App. Total | 62.7 | 36.3 | 0 | 1 | | 4.6 | 86.4 | 9.1 | 0 | | 0 | 54.8 | 45.2 | 0 | | 0 | 0 | 0 | 0 | | |
| PHF | .934 | .869 | .000 | .300 | .890 | .896 | .961 | .737 | .000 | .965 | .000 | .773 | .636 | .000 | .705 | .000 | .000 | .000 | .000 | .000 | .980 |



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at Franklin St
Site Code : 00000000
Start Date : 10/7/2015
Page No : 4

| | ST PAUL ST From North | | | | | FRANKLIN ST From East | | | | | ST PAUL ST From South | | | | | FRANKLIN ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 12:00 PM | 27 | 39 | 0 | **4** | 70 | 14 | 232 | 16 | 0 | 262 | 0 | 5 | 8 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 345 |
| 12:15 PM | 37 | 30 | 0 | 2 | 69 | **17** | 237 | 14 | **3** | 271 | 0 | 5 | 11 | **2** | **18** | 0 | 0 | 0 | 0 | 0 | 358 |
| 12:30 PM | **45** | 45 | 0 | 2 | **92** | 13 | 234 | **21** | 0 | 268 | 0 | 2 | **13** | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 375 |
| 12:45 PM | 39 | **47** | 0 | 1 | 87 | 16 | **246** | 20 | 0 | **282** | 0 | **7** | 8 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | **384** |
| Total Volume | 148 | 161 | 0 | 9 | 318 | 60 | 949 | 71 | 3 | 1083 | 0 | 19 | 40 | 2 | 61 | 0 | 0 | 0 | 0 | 0 | 1462 |
| % App. Total | 46.5 | 50.6 | 0 | 2.8 | | 5.5 | 87.6 | 6.6 | 0.3 | | 0 | 31.1 | 65.6 | 3.3 | | 0 | 0 | 0 | 0 | | |
| PHF | .822 | .856 | .000 | .563 | .864 | .882 | .964 | .845 | .250 | .960 | .000 | .679 | .769 | .250 | .847 | .000 | .000 | .000 | .000 | .000 | .952 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*


File Name : St Paul St at Franklin St
Site Code : 00000000
Start Date : 10/7/2015
Page No : 5

| | ST PAUL ST From North | | | | | FRANKLIN ST From East | | | | | ST PAUL ST From South | | | | | FRANKLIN ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:45 PM | **65** | 45 | 0 | 1 | 111 | 9 | **463** | 24 | **1** | 497 | 0 | 4 | **30** | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 642 |
| 05:00 PM | 64 | **53** | 0 | 1 | **118** | **16** | 452 | 25 | 0 | 493 | 0 | 11 | 27 | 0 | **38** | 0 | 0 | 0 | 0 | 0 | **649** |
| 05:15 PM | 57 | 47 | 0 | 1 | 105 | 13 | 436 | 27 | 0 | 476 | 0 | 12 | 25 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 618 |
| 05:30 PM | 63 | 44 | 0 | **2** | 109 | 15 | 454 | **37** | 0 | **506** | 0 | **13** | 20 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 648 |
| Total Volume | 249 | 189 | 0 | 5 | 443 | 53 | 1805 | 113 | 1 | 1972 | 0 | 40 | 102 | 0 | 142 | 0 | 0 | 0 | 0 | 0 | 2557 |
| % App. Total | 56.2 | 42.7 | 0 | 1.1 | | 2.7 | 91.5 | 5.7 | 0.1 | | 0 | 28.2 | 71.8 | 0 | | 0 | 0 | 0 | 0 | | |
| PHF | .958 | .892 | .000 | .625 | .939 | .828 | .975 | .764 | .250 | .974 | .000 | .769 | .850 | .000 | .934 | .000 | .000 | .000 | .000 | .000 | .985 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : Centre_StPaul_AM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | Centre St From East | | | | | St Paul St From South | | | | | Centre St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 127 | 216 | 21 | 14 | 378 | 0 | 0 | 0 | 15 | 15 | 0 | 0 | 0 | 11 | 11 | 16 | 108 | 0 | 7 | 131 | 535 |
| 07:15 AM | 111 | 189 | 13 | 15 | 328 | 0 | 0 | 0 | 19 | 19 | 0 | 0 | 0 | 7 | 7 | 19 | 136 | 0 | 7 | 162 | 516 |
| 07:30 AM | 148 | 252 | 19 | 22 | 441 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 14 | 14 | 20 | 143 | 0 | 9 | 172 | 641 |
| 07:45 AM | 137 | 233 | 18 | 17 | 405 | 0 | 0 | 0 | 27 | 27 | 0 | 0 | 0 | 16 | 16 | 21 | 185 | 0 | 14 | 220 | 668 |
| Total | 523 | 890 | 71 | 68 | 1552 | 0 | 0 | 0 | 75 | 75 | 0 | 0 | 0 | 48 | 48 | 76 | 572 | 0 | 37 | 685 | 2360 |
| 08:00 AM | 144 | 245 | 26 | 19 | 434 | 0 | 0 | 0 | 22 | 22 | 0 | 0 | 0 | 11 | 11 | 28 | 186 | 0 | 12 | 226 | 693 |
| 08:15 AM | 146 | 248 | 22 | 34 | 450 | 0 | 0 | 0 | 36 | 36 | 0 | 0 | 0 | 15 | 15 | 36 | 212 | 0 | 13 | 261 | 762 |
| 08:30 AM | 164 | 280 | 29 | 27 | 500 | 0 | 0 | 0 | 30 | 30 | 0 | 0 | 0 | 17 | 17 | 34 | 167 | 0 | 12 | 213 | 760 |
| 08:45 AM | 136 | 232 | 23 | 26 | 417 | 0 | 0 | 0 | 21 | 21 | 0 | 0 | 0 | 14 | 14 | 41 | 128 | 0 | 15 | 184 | 636 |
| Total | 590 | 1005 | 100 | 106 | 1801 | 0 | 0 | 0 | 109 | 109 | 0 | 0 | 0 | 57 | 57 | 139 | 693 | 0 | 52 | 884 | 2851 |
| Grand Total | 1113 | 1895 | 171 | 174 | 3353 | 0 | 0 | 0 | 184 | 184 | 0 | 0 | 0 | 105 | 105 | 215 | 1265 | 0 | 89 | 1569 | 5211 |
| Apprch % | 33.2 | 56.5 | 5.1 | 5.2 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 13.7 | 80.6 | 0 | 5.7 | | |
| Total % | 21.4 | 36.4 | 3.3 | 3.3 | 64.3 | 0 | 0 | 0 | 3.5 | 3.5 | 0 | 0 | 0 | 2 | 2 | 4.1 | 24.3 | 0 | 1.7 | 30.1 | |
| Unshifted | 1113 | 1895 | 171 | 174 | 3353 | 0 | 0 | 0 | 184 | 184 | 0 | 0 | 0 | 105 | 105 | 215 | 1265 | 0 | 89 | 1569 | 5211 |
| % Unshifted | 100 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : Centre_StPaul_AM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 2

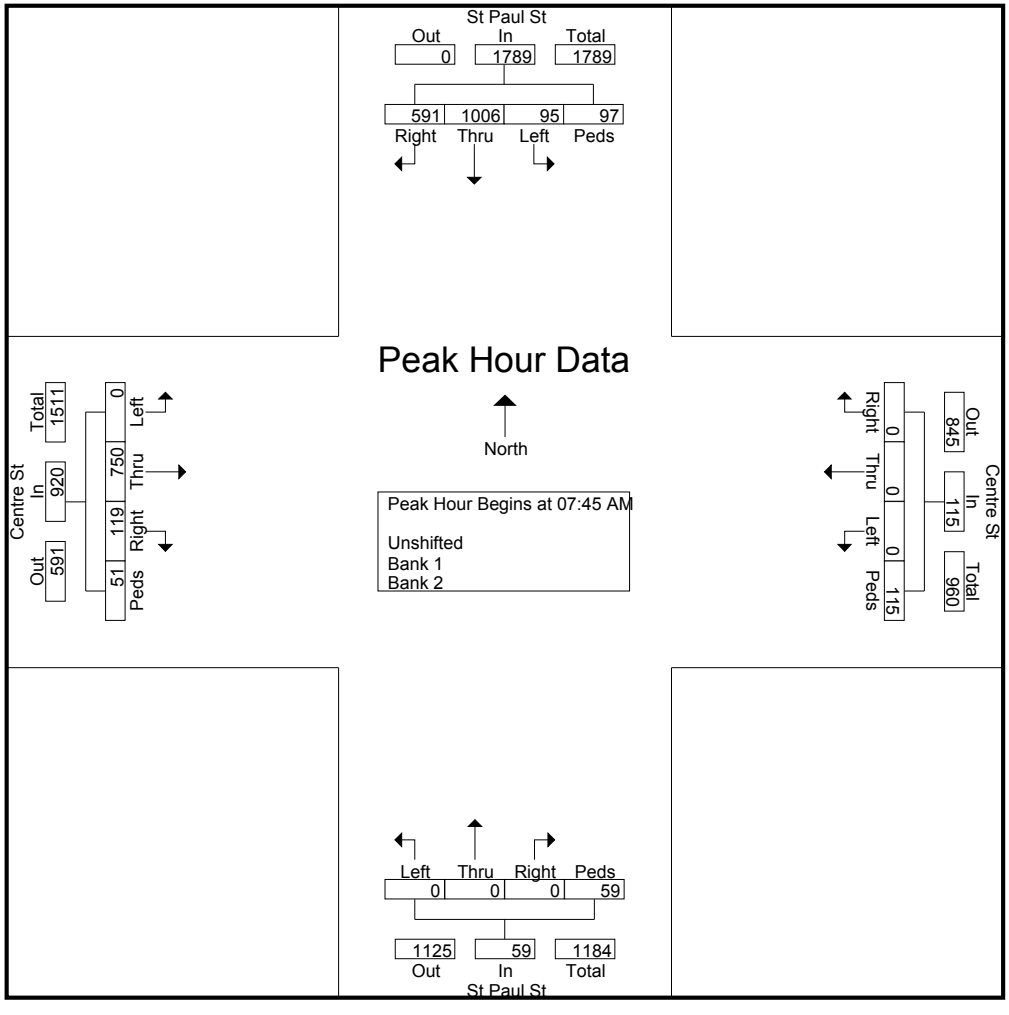
| | St Paul St From North | | | | | Centre St From East | | | | | St Paul St From South | | | | | Centre St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:45 AM | | | | | | | | | | | | | | | | | | | | | |
| **07:45 AM** | **137** | **233** | **18** | **17** | **405** | **0** | **0** | **0** | **27** | **27** | **0** | **0** | **0** | **16** | **16** | **21** | **185** | **0** | 14 | 220 | 668 |
| 08:00 AM | 144 | 245 | 26 | 19 | 434 | 0 | 0 | 0 | 22 | 22 | 0 | 0 | 0 | 11 | 11 | 28 | 186 | 0 | 12 | 226 | 693 |
| 08:15 AM | 146 | 248 | 22 | 34 | 450 | 0 | 0 | 0 | 36 | 36 | 0 | 0 | 0 | 15 | 15 | **36** | **212** | 0 | 13 | **261** | **762** |
| 08:30 AM | **164** | **280** | **29** | 27 | **500** | 0 | 0 | 0 | 30 | 30 | 0 | 0 | 0 | **17** | **17** | 34 | 167 | 0 | 12 | 213 | 760 |
| Total Volume | 591 | 1006 | 95 | 97 | 1789 | 0 | 0 | 0 | 115 | 115 | 0 | 0 | 0 | 59 | 59 | 119 | 750 | 0 | 51 | 920 | 2883 |
| % App. Total | 33 | 56.2 | 5.3 | 5.4 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 12.9 | 81.5 | 0 | 5.5 | | |
| PHF | .901 | .898 | .819 | .713 | .895 | .000 | .000 | .000 | .799 | .799 | .000 | .000 | .000 | .868 | .868 | .826 | .884 | .000 | .911 | .881 | .946 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : Centre_StPaul_AM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 3



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : Centre_StPaul_AM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 4

| | St Paul St From North | | | | | Centre St From East | | | | | St Paul St From South | | | | | Centre St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

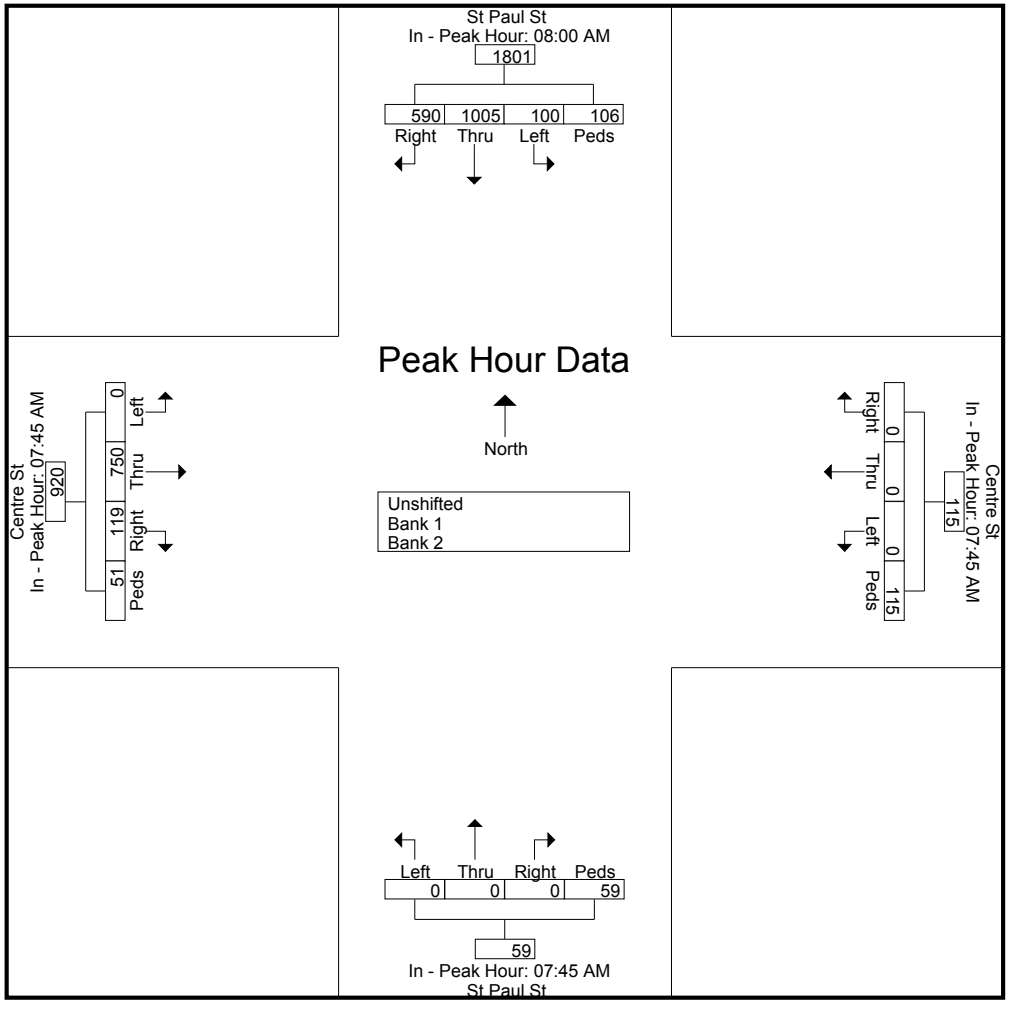
| | 08:00 AM | | | | | 07:45 AM | | | | | 07:45 AM | | | | | 07:45 AM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **144** | **245** | **26** | **19** | **434** | **0** | **0** | **0** | **27** | **27** | **0** | **0** | **0** | **16** | **16** | **21** | **185** | **0** | 14 | 220 |
| +15 mins. | 146 | 248 | 22 | 34 | 450 | 0 | 0 | 0 | 22 | 22 | 0 | 0 | 0 | 11 | 11 | 28 | 186 | 0 | 12 | 226 |
| +30 mins. | 164 | 280 | **29** | 27 | **500** | 0 | 0 | 0 | **36** | **36** | 0 | 0 | 0 | 15 | 15 | **36** | **212** | 0 | 13 | **261** |
| +45 mins. | 136 | 232 | 23 | 26 | 417 | 0 | 0 | 0 | 30 | 30 | 0 | 0 | 0 | **17** | **17** | 34 | 167 | 0 | 12 | 213 |
| Total Volume | 590 | 1005 | 100 | 106 | 1801 | 0 | 0 | 0 | 115 | 115 | 0 | 0 | 0 | 59 | 59 | 119 | 750 | 0 | 51 | 920 |
| % App. Total | 32.8 | 55.8 | 5.6 | 5.9 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 12.9 | 81.5 | 0 | 5.5 | |
| PHF | .899 | .897 | .862 | .779 | .901 | .000 | .000 | .000 | .799 | .799 | .000 | .000 | .000 | .868 | .868 | .826 | .884 | .000 | .911 | .881 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : Centre_StPaul_AM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 5



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : Centre_StPaul_PM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | Centre St From East | | | | | St Paul St From South | | | | | Centre St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 03:30 PM | 88 | 150 | 30 | 7 | 275 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 9 | 9 | 23 | 220 | 0 | 10 | 253 | 551 |
| 03:45 PM | 111 | 189 | 26 | 12 | 338 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 6 | 6 | 16 | 196 | 0 | 6 | 218 | 574 |
| Total | 199 | 339 | 56 | 19 | 613 | 0 | 0 | 0 | 26 | 26 | 0 | 0 | 0 | 15 | 15 | 39 | 416 | 0 | 16 | 471 | 1125 |
| 04:00 PM | 90 | 153 | 20 | 6 | 269 | 0 | 0 | 0 | 22 | 22 | 0 | 0 | 0 | 4 | 4 | 21 | 219 | 0 | 7 | 247 | 542 |
| 04:15 PM | 108 | 183 | 18 | 8 | 317 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 4 | 4 | 15 | 212 | 0 | 12 | 239 | 574 |
| 04:30 PM | 97 | 166 | 18 | 14 | 295 | 0 | 0 | 0 | 18 | 18 | 0 | 0 | 0 | 10 | 10 | 19 | 260 | 0 | 14 | 293 | 616 |
| 04:45 PM | 85 | 145 | 23 | 25 | 278 | 0 | 0 | 0 | 22 | 22 | 0 | 0 | 0 | 13 | 13 | 14 | 253 | 0 | 17 | 284 | 597 |
| Total | 380 | 647 | 79 | 53 | 1159 | 0 | 0 | 0 | 76 | 76 | 0 | 0 | 0 | 31 | 31 | 69 | 944 | 0 | 50 | 1063 | 2329 |
| 05:00 PM | 90 | 154 | 39 | 10 | 293 | 0 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 9 | 9 | 23 | 260 | 0 | 9 | 292 | 614 |
| 05:15 PM | 117 | 200 | 16 | 23 | 356 | 0 | 0 | 0 | 30 | 30 | 0 | 0 | 0 | 14 | 14 | 15 | 209 | 0 | 9 | 233 | 633 |
| 05:30 PM | 90 | 154 | 26 | 13 | 283 | 0 | 0 | 0 | 23 | 23 | 0 | 0 | 0 | 10 | 10 | 15 | 239 | 0 | 8 | 262 | 578 |
| 05:45 PM | 100 | 169 | 29 | 17 | 315 | 0 | 0 | 0 | 21 | 21 | 0 | 0 | 0 | 5 | 5 | 12 | 180 | 0 | 9 | 201 | 542 |
| Total | 397 | 677 | 110 | 63 | 1247 | 0 | 0 | 0 | 94 | 94 | 0 | 0 | 0 | 38 | 38 | 65 | 888 | 0 | 35 | 988 | 2367 |
| 06:00 PM | 81 | 137 | 28 | 13 | 259 | 0 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 12 | 12 | 32 | 180 | 0 | 10 | 222 | 513 |
| 06:15 PM | 86 | 146 | 23 | 9 | 264 | 0 | 0 | 0 | 28 | 28 | 0 | 0 | 0 | 15 | 15 | 19 | 147 | 0 | 7 | 173 | 480 |
| Grand Total | 1143 | 1946 | 296 | 157 | 3542 | 0 | 0 | 0 | 244 | 244 | 0 | 0 | 0 | 111 | 111 | 224 | 2575 | 0 | 118 | 2917 | 6814 |
| Apprch % | 32.3 | 54.9 | 8.4 | 4.4 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 7.7 | 88.3 | 0 | 4 | | |
| Total % | 16.8 | 28.6 | 4.3 | 2.3 | 52 | 0 | 0 | 0 | 3.6 | 3.6 | 0 | 0 | 0 | 1.6 | 1.6 | 3.3 | 37.8 | 0 | 1.7 | 42.8 | |
| Unshifted | 1143 | 1946 | 296 | 157 | 3542 | 0 | 0 | 0 | 244 | 244 | 0 | 0 | 0 | 111 | 111 | 224 | 2575 | 0 | 118 | 2917 | 6814 |
| % Unshifted | 100 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : Centre_StPaul_PM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 2

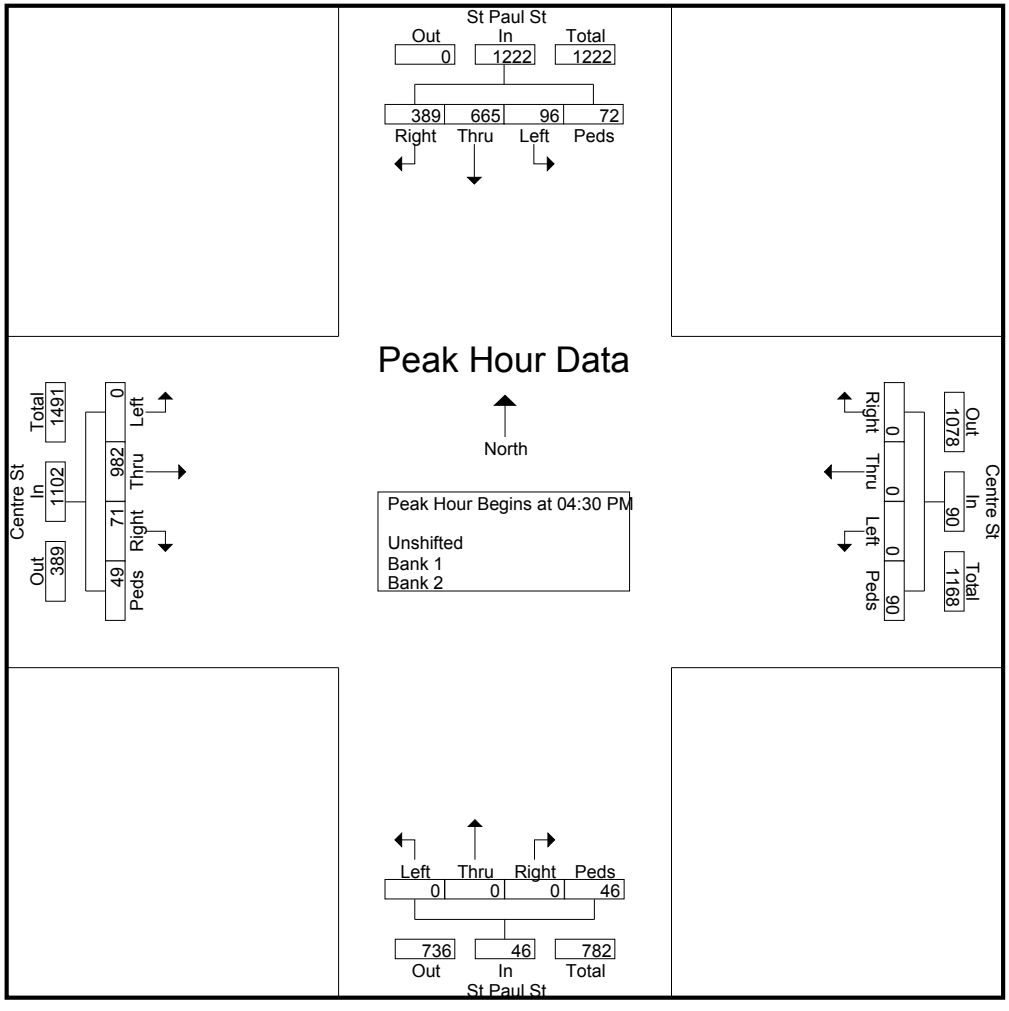
| | St Paul St From North | | | | | Centre St From East | | | | | St Paul St From South | | | | | Centre St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | | | | | |
| **04:30 PM** | **97** | **166** | **18** | **14** | **295** | **0** | **0** | **0** | **18** | **18** | **0** | **0** | **0** | **10** | **10** | **19** | 260 | 0 | 14 | 293 | 616 |
| 04:45 PM | 85 | 145 | 23 | 25 | 278 | 0 | 0 | 0 | 22 | 22 | 0 | 0 | 0 | 13 | 13 | 14 | 253 | 0 | 17 | 284 | 597 |
| 05:00 PM | 90 | 154 | **39** | 10 | 293 | 0 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 9 | 9 | **23** | 260 | 0 | 9 | 292 | 614 |
| 05:15 PM | **117** | **200** | 16 | 23 | **356** | 0 | 0 | 0 | **30** | **30** | 0 | 0 | 0 | **14** | **14** | 15 | 209 | 0 | 9 | 233 | **633** |
| Total Volume | 389 | 665 | 96 | 72 | 1222 | 0 | 0 | 0 | 90 | 90 | 0 | 0 | 0 | 46 | 46 | 71 | 982 | 0 | 49 | 1102 | 2460 |
| % App. Total | 31.8 | 54.4 | 7.9 | 5.9 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 6.4 | 89.1 | 0 | 4.4 | | |
| PHF | .831 | .831 | .615 | .720 | .858 | .000 | .000 | .000 | .750 | .750 | .000 | .000 | .000 | .821 | .821 | .772 | .944 | .000 | .721 | .940 | .972 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : Centre_StPaul_PM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 3



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : Centre_StPaul_PM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 4

| | St Paul St From North | | | | | Centre St From East | | | | | St Paul St From South | | | | | Centre St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

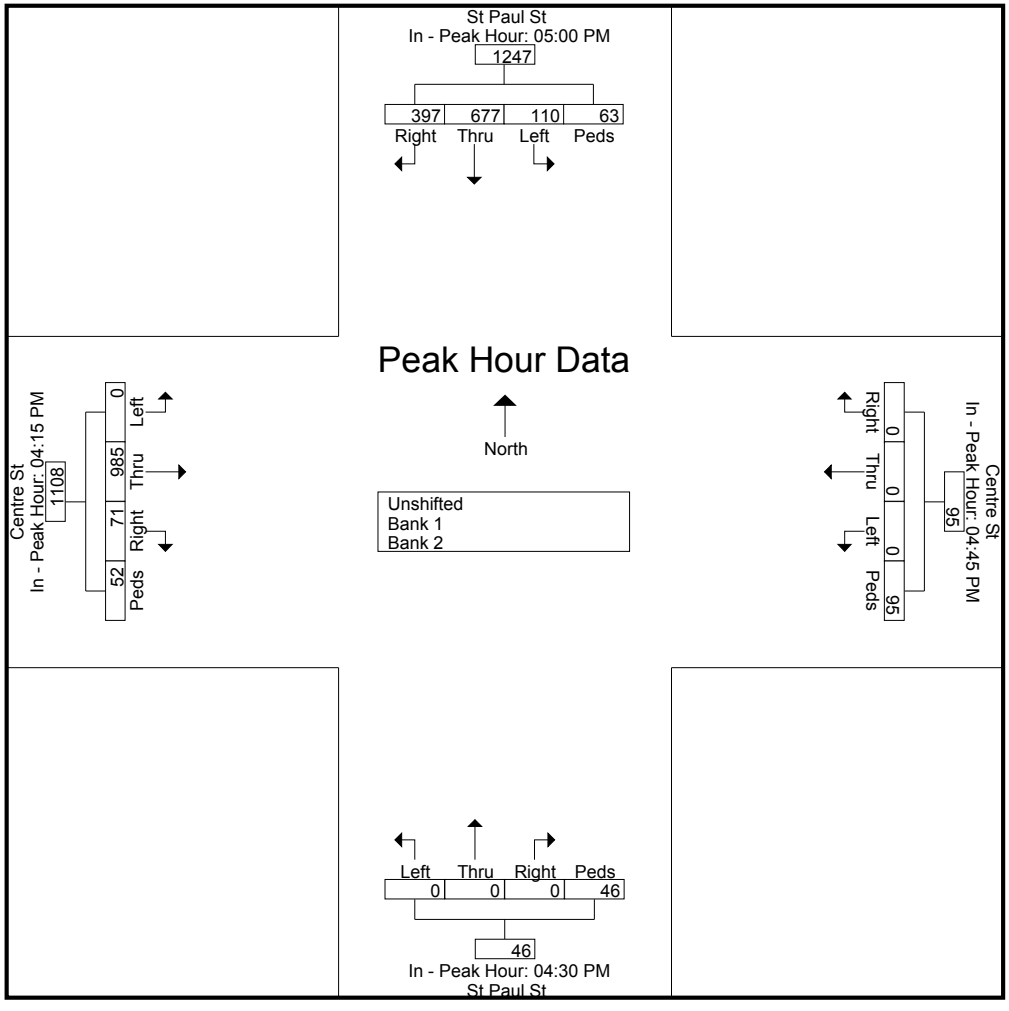
| | **05:00 PM** | | | | | **04:45 PM** | | | | | **04:30 PM** | | | | | **04:15 PM** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **90** | **154** | 39 | 10 | 293 | 0 | 0 | 0 | 22 | 22 | 0 | 0 | 0 | 10 | 10 | 15 | 212 | 0 | 12 | 239 |
| +15 mins. | 117 | 200 | 16 | 23 | **356** | 0 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 13 | 13 | 19 | **260** | 0 | 14 | **293** |
| +30 mins. | 90 | 154 | 26 | 13 | 283 | 0 | 0 | 0 | **30** | **30** | 0 | 0 | 0 | 9 | 9 | 14 | 253 | 0 | **17** | 284 |
| +45 mins. | 100 | 169 | 29 | 17 | 315 | 0 | 0 | 0 | 23 | 23 | 0 | 0 | 0 | **14** | **14** | **23** | 260 | 0 | 9 | 292 |
| Total Volume | 397 | 677 | 110 | 63 | 1247 | 0 | 0 | 0 | 95 | 95 | 0 | 0 | 0 | 46 | 46 | 71 | 985 | 0 | 52 | 1108 |
| % App. Total | 31.8 | 54.3 | 8.8 | 5.1 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 6.4 | 88.9 | 0 | 4.7 | |
| PHF | .848 | .846 | .705 | .685 | .876 | .000 | .000 | .000 | .792 | .792 | .000 | .000 | .000 | .821 | .821 | .772 | .947 | .000 | .765 | .945 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : Centre_StPaul_PM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 5



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_StPaul_AM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 1

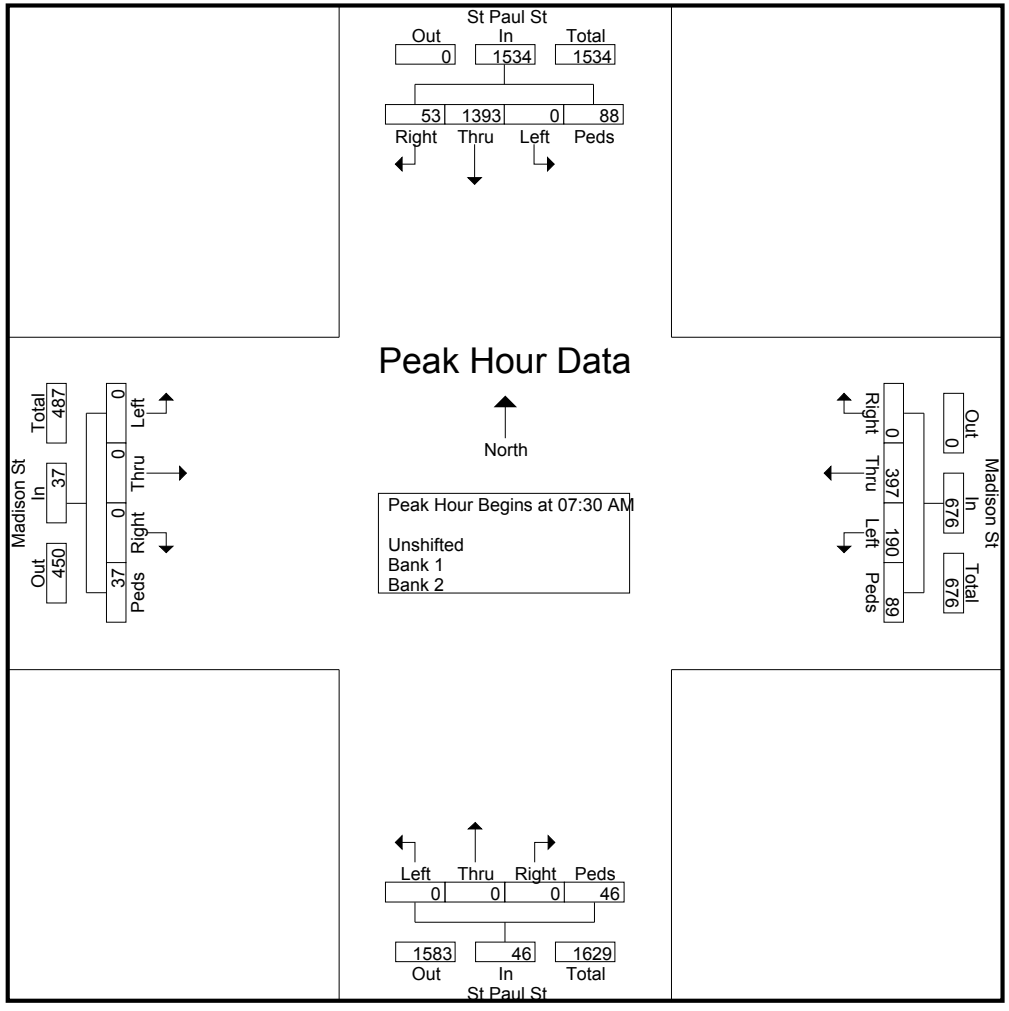
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | Madison St From East | | | | | St Paul St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 7 | 346 | 0 | 13 | 366 | 0 | 70 | 32 | 12 | 114 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 12 | 12 | 498 |
| 07:15 AM | 10 | 356 | 0 | 18 | 384 | 0 | 79 | 40 | 19 | 138 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 6 | 6 | 533 |
| 07:30 AM | 11 | 349 | 0 | 18 | 378 | 0 | 120 | 45 | 28 | 193 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 7 | 7 | 590 |
| 07:45 AM | 14 | 343 | 0 | 25 | 382 | 0 | 89 | 49 | 30 | 168 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | 12 | 12 | 575 |
| Total | 42 | 1394 | 0 | 74 | 1510 | 0 | 358 | 166 | 89 | 613 | 0 | 0 | 0 | 36 | 36 | 0 | 0 | 0 | 37 | 37 | 2196 |
| 08:00 AM | 19 | 347 | 0 | 19 | 385 | 0 | 109 | 48 | 17 | 174 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 8 | 8 | 579 |
| 08:15 AM | 9 | 354 | 0 | 26 | 389 | 0 | 79 | 48 | 14 | 141 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 10 | 10 | 549 |
| 08:30 AM | 14 | 313 | 0 | 29 | 356 | 0 | 84 | 48 | 21 | 153 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 10 | 10 | 523 |
| 08:45 AM | 13 | 332 | 0 | 15 | 360 | 0 | 67 | 25 | 12 | 104 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 4 | 4 | 478 |
| Total | 55 | 1346 | 0 | 89 | 1490 | 0 | 339 | 169 | 64 | 572 | 0 | 0 | 0 | 35 | 35 | 0 | 0 | 0 | 32 | 32 | 2129 |
| Grand Total | 97 | 2740 | 0 | 163 | 3000 | 0 | 697 | 335 | 153 | 1185 | 0 | 0 | 0 | 71 | 71 | 0 | 0 | 0 | 69 | 69 | 4325 |
| Apprch % | 3.2 | 91.3 | 0 | 5.4 | | 0 | 58.8 | 28.3 | 12.9 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| Total % | 2.2 | 63.4 | 0 | 3.8 | 69.4 | 0 | 16.1 | 7.7 | 3.5 | 27.4 | 0 | 0 | 0 | 1.6 | 1.6 | 0 | 0 | 0 | 1.6 | 1.6 | |
| Unshifted | 97 | 2740 | 0 | 163 | 3000 | 0 | 697 | 335 | 153 | 1185 | 0 | 0 | 0 | 71 | 71 | 0 | 0 | 0 | 69 | 69 | 4325 |
| % Unshifted | 100 | 100 | 0 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | St Paul St From North | | | | | Madison St From East | | | | | St Paul St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| **07:30 AM** | **11** | **349** | **0** | **18** | **378** | **0** | 120 | 45 | 28 | 193 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 7 | 7 | 590 |
| 07:45 AM | 14 | 343 | 0 | 25 | 382 | 0 | 89 | 49 | **30** | 168 | 0 | 0 | 0 | **13** | **13** | 0 | 0 | 0 | **12** | **12** | 575 |
| 08:00 AM | **19** | 347 | 0 | 19 | 385 | 0 | 109 | 48 | 17 | 174 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 8 | 8 | 579 |
| 08:15 AM | 9 | **354** | 0 | **26** | **389** | 0 | 79 | 48 | 14 | 141 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 10 | 10 | 549 |
| Total Volume | 53 | 1393 | 0 | 88 | 1534 | 0 | 397 | 190 | 89 | 676 | 0 | 0 | 0 | 46 | 46 | 0 | 0 | 0 | 37 | 37 | 2293 |
| % App. Total | 3.5 | 90.8 | 0 | 5.7 | | 0 | 58.7 | 28.1 | 13.2 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| PHF | .697 | .984 | .000 | .846 | .986 | .000 | .827 | .969 | .742 | .876 | .000 | .000 | .000 | .885 | .885 | .000 | .000 | .000 | .771 | .771 | .972 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_StPaul_AM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_StPaul_AM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 3

| | St Paul St From North | | | | | Madison St From East | | | | | St Paul St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

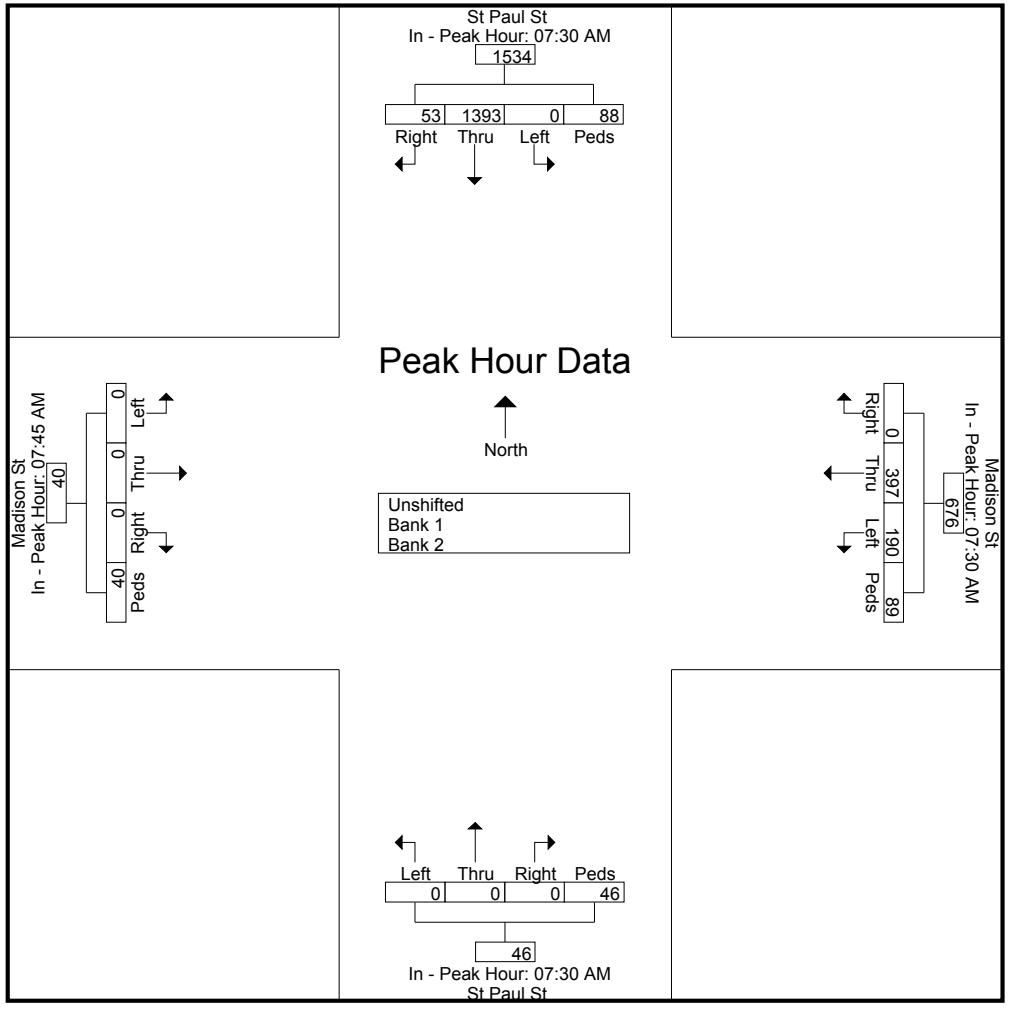
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 07:30 AM | | | | | 07:30 AM | | | | | 07:30 AM | | | | | 07:45 AM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **11** | **349** | **0** | **18** | **378** | **0** | 120 | 45 | 28 | 193 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 12 | 12 |
| +15 mins. | 14 | 343 | 0 | 25 | 382 | 0 | 89 | **49** | **30** | 168 | 0 | 0 | 0 | **13** | **13** | 0 | 0 | 0 | 8 | 8 |
| +30 mins. | **19** | 347 | 0 | 19 | 385 | 0 | 109 | 48 | 17 | 174 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 10 | 10 |
| +45 mins. | 9 | **354** | 0 | **26** | **389** | 0 | 79 | 48 | 14 | 141 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 10 | 10 |
| Total Volume | 53 | 1393 | 0 | 88 | 1534 | 0 | 397 | 190 | 89 | 676 | 0 | 0 | 0 | 46 | 46 | 0 | 0 | 0 | 40 | 40 |
| % App. Total | 3.5 | 90.8 | 0 | 5.7 | | 0 | 58.7 | 28.1 | 13.2 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | |
| PHF | .697 | .984 | .000 | .846 | .986 | .000 | .827 | .969 | .742 | .876 | .000 | .000 | .000 | .885 | .885 | .000 | .000 | .000 | .833 | .833 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_StPaul_AM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_StPaul_MD
Site Code : 00000000
Start Date : 9/15/2015
Page No : 1

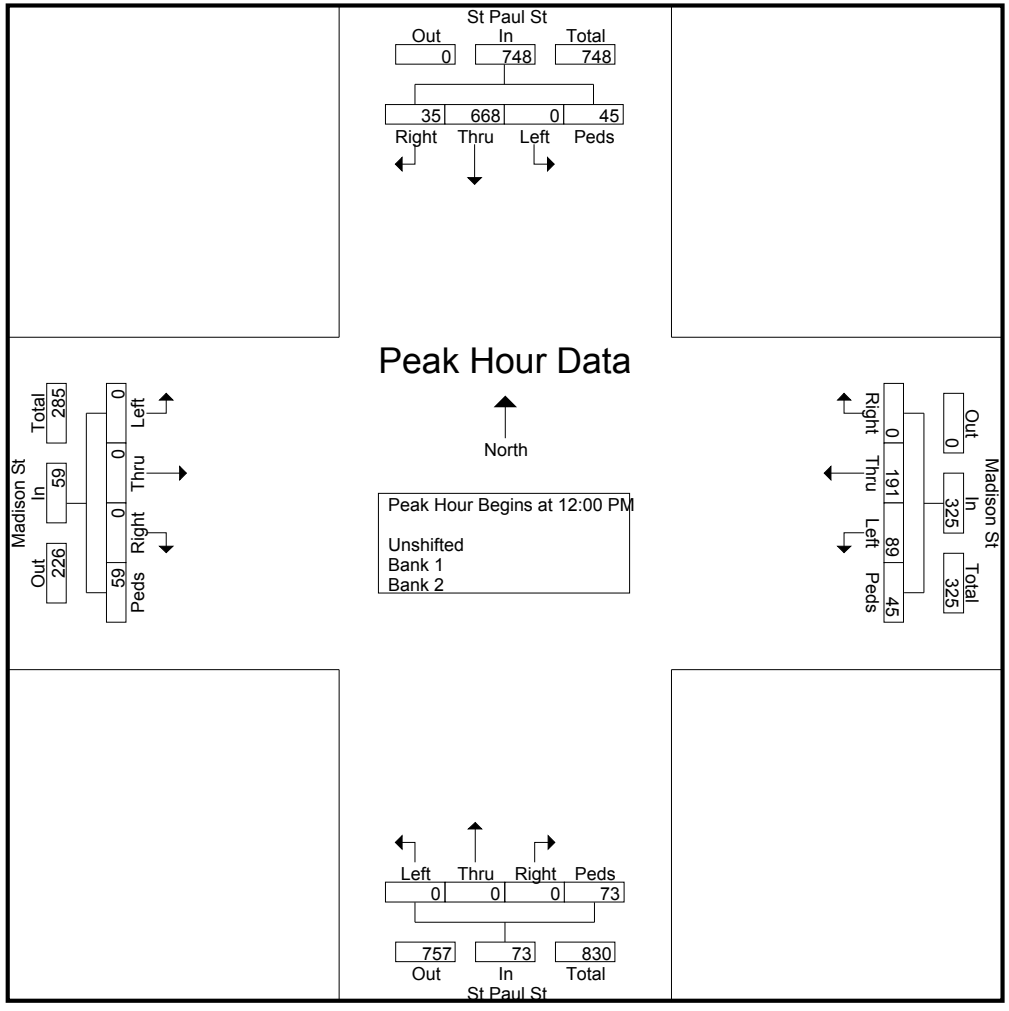
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | Madison St From East | | | | | St Paul St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 11:00 AM | 7 | 189 | 0 | 14 | 210 | 0 | 26 | 16 | 14 | 56 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 10 | 10 | 285 |
| 11:15 AM | 8 | 153 | 0 | 7 | 168 | 0 | 45 | 21 | 14 | 80 | 0 | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 5 | 5 | 260 |
| 11:30 AM | 8 | 161 | 0 | 14 | 183 | 0 | 41 | 14 | 19 | 74 | 0 | 0 | 0 | 23 | 23 | 0 | 0 | 0 | 5 | 5 | 285 |
| 11:45 AM | 9 | 149 | 0 | 13 | 171 | 0 | 52 | 17 | 14 | 83 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 12 | 12 | 276 |
| Total | 32 | 652 | 0 | 48 | 732 | 0 | 164 | 68 | 61 | 293 | 0 | 0 | 0 | 49 | 49 | 0 | 0 | 0 | 32 | 32 | 1106 |
| 12:00 PM | 4 | 158 | 0 | 9 | 171 | 0 | 35 | 15 | 15 | 65 | 0 | 0 | 0 | 28 | 28 | 0 | 0 | 0 | 12 | 12 | 276 |
| 12:15 PM | 8 | 164 | 0 | 9 | 181 | 0 | 63 | 30 | 10 | 103 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 15 | 15 | 311 |
| 12:30 PM | 8 | 183 | 0 | 10 | 201 | 0 | 44 | 19 | 14 | 77 | 0 | 0 | 0 | 17 | 17 | 0 | 0 | 0 | 16 | 16 | 311 |
| 12:45 PM | 15 | 163 | 0 | 17 | 195 | 0 | 49 | 25 | 6 | 80 | 0 | 0 | 0 | 16 | 16 | 0 | 0 | 0 | 16 | 16 | 307 |
| Total | 35 | 668 | 0 | 45 | 748 | 0 | 191 | 89 | 45 | 325 | 0 | 0 | 0 | 73 | 73 | 0 | 0 | 0 | 59 | 59 | 1205 |
| Grand Total | 67 | 1320 | 0 | 93 | 1480 | 0 | 355 | 157 | 106 | 618 | 0 | 0 | 0 | 122 | 122 | 0 | 0 | 0 | 91 | 91 | 2311 |
| Apprch % | 4.5 | 89.2 | 0 | 6.3 | | 0 | 57.4 | 25.4 | 17.2 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| Total % | 2.9 | 57.1 | 0 | 4 | 64 | 0 | 15.4 | 6.8 | 4.6 | 26.7 | 0 | 0 | 0 | 5.3 | 5.3 | 0 | 0 | 0 | 3.9 | 3.9 | |
| Unshifted | 67 | 1320 | 0 | 93 | 1480 | 0 | 355 | 157 | 106 | 618 | 0 | 0 | 0 | 122 | 122 | 0 | 0 | 0 | 91 | 91 | 2311 |
| % Unshifted | 100 | 100 | 0 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | St Paul St From North | | | | | Madison St From East | | | | | St Paul St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| **12:00 PM** | **4** | **158** | **0** | **9** | **171** | **0** | **35** | **15** | 15 | 65 | 0 | 0 | 0 | 28 | 28 | 0 | 0 | 0 | 12 | 12 | 276 |
| 12:15 PM | 8 | 164 | 0 | 9 | 181 | 0 | 63 | **30** | 10 | **103** | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 15 | 15 | **311** |
| 12:30 PM | 8 | **183** | 0 | 10 | **201** | 0 | 44 | 19 | 14 | 77 | 0 | 0 | 0 | 17 | 17 | 0 | 0 | 0 | **16** | **16** | 311 |
| 12:45 PM | **15** | 163 | 0 | **17** | 195 | 0 | 49 | 25 | 6 | 80 | 0 | 0 | 0 | 16 | 16 | 0 | 0 | 0 | 16 | 16 | 307 |
| Total Volume | 35 | 668 | 0 | 45 | 748 | 0 | 191 | 89 | 45 | 325 | 0 | 0 | 0 | 73 | 73 | 0 | 0 | 0 | 59 | 59 | 1205 |
| % App. Total | 4.7 | 89.3 | 0 | 6 | | 0 | 58.8 | 27.4 | 13.8 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| PHF | .583 | .913 | .000 | .662 | .930 | .000 | .758 | .742 | .750 | .789 | .000 | .000 | .000 | .652 | .652 | .000 | .000 | .000 | .922 | .922 | .969 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_StPaul_MD
Site Code : 00000000
Start Date : 9/15/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_StPaul_MD
Site Code : 00000000
Start Date : 9/15/2015
Page No : 3

| | St Paul St From North | | | | | Madison St From East | | | | | St Paul St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

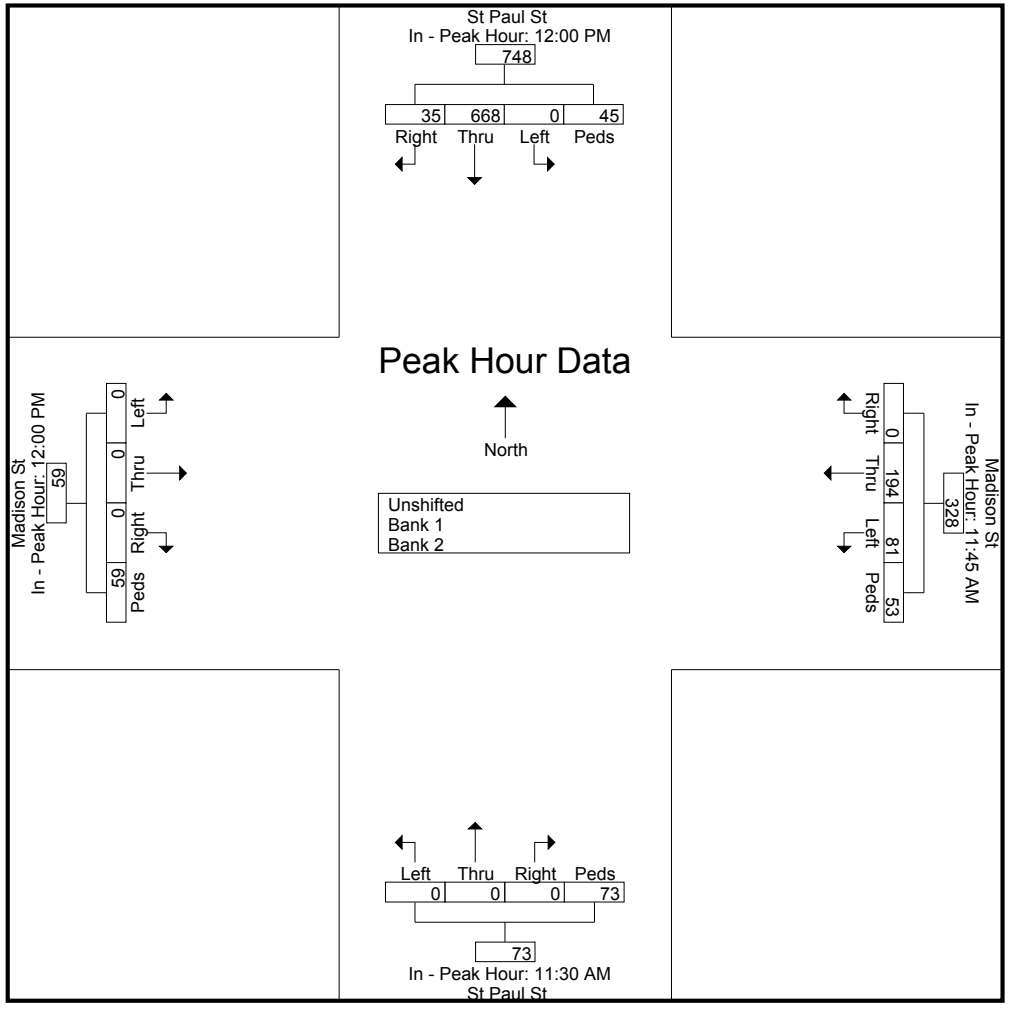
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 12:00 PM | | | | | 11:45 AM | | | | | 11:30 AM | | | | | 12:00 PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **4** | **158** | **0** | **9** | **171** | **0** | **52** | **17** | **14** | **83** | **0** | **0** | **0** | **23** | **23** | **0** | **0** | **0** | **12** | **12** |
| **+15 mins.** | **8** | **164** | **0** | **9** | **181** | **0** | **35** | **15** | 15 | 65 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 15 | 15 |
| +30 mins. | 8 | 183 | 0 | 10 | 201 | 0 | 63 | **30** | 10 | **103** | 0 | 0 | 0 | **28** | **28** | 0 | 0 | 0 | **16** | **16** |
| +45 mins. | **15** | 163 | 0 | **17** | 195 | 0 | 44 | 19 | 14 | 77 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 16 | 16 |
| Total Volume | 35 | 668 | 0 | 45 | 748 | 0 | 194 | 81 | 53 | 328 | 0 | 0 | 0 | 73 | 73 | 0 | 0 | 0 | 59 | 59 |
| % App. Total | 4.7 | 89.3 | 0 | 6 | | 0 | 59.1 | 24.7 | 16.2 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | |
| PHF | .583 | .913 | .000 | .662 | .930 | .000 | .770 | .675 | .883 | .796 | .000 | .000 | .000 | .652 | .652 | .000 | .000 | .000 | .922 | .922 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_StPaul_MD
Site Code : 00000000
Start Date : 9/15/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_StPaul_PM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 1

**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | Madison St From East | | | | | St Paul St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 03:30 PM | 12 | 242 | 0 | 7 | 261 | 0 | 68 | 11 | 10 | 89 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 10 | 10 | 365 |
| 03:45 PM | 9 | 190 | 0 | 9 | 208 | 0 | 79 | 32 | 5 | 116 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 6 | 6 | 333 |
| Total | 21 | 432 | 0 | 16 | 469 | 0 | 147 | 43 | 15 | 205 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 16 | 16 | 698 |
| 04:00 PM | 21 | 214 | 0 | 5 | 240 | 0 | 65 | 22 | 7 | 94 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 9 | 9 | 355 |
| 04:15 PM | 12 | 196 | 0 | 9 | 217 | 0 | 79 | 39 | 12 | 130 | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 13 | 13 | 371 |
| 04:30 PM | 17 | 240 | 0 | 16 | 273 | 0 | 88 | 23 | 10 | 121 | 0 | 0 | 0 | 8 | 8 | 2 | 0 | 0 | 15 | 17 | 419 |
| 04:45 PM | 22 | 184 | 0 | 20 | 226 | 0 | 82 | 30 | 8 | 120 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 10 | 10 | 366 |
| Total | 72 | 834 | 0 | 50 | 956 | 0 | 314 | 114 | 37 | 465 | 0 | 0 | 0 | 41 | 41 | 2 | 0 | 0 | 47 | 49 | 1511 |
| 05:00 PM | 14 | 251 | 0 | 10 | 275 | 0 | 65 | 26 | 13 | 104 | 0 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 19 | 19 | 418 |
| 05:15 PM | 17 | 206 | 0 | 19 | 242 | 0 | 75 | 25 | 8 | 108 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 16 | 16 | 380 |
| 05:30 PM | 15 | 254 | 0 | 12 | 281 | 0 | 77 | 20 | 13 | 110 | 0 | 0 | 0 | 29 | 29 | 0 | 0 | 0 | 19 | 19 | 439 |
| 05:45 PM | 9 | 213 | 0 | 16 | 238 | 0 | 72 | 18 | 10 | 100 | 0 | 0 | 0 | 17 | 17 | 0 | 0 | 0 | 11 | 11 | 366 |
| Total | 55 | 924 | 0 | 57 | 1036 | 0 | 289 | 89 | 44 | 422 | 0 | 0 | 0 | 80 | 80 | 0 | 0 | 0 | 65 | 65 | 1603 |
| 06:00 PM | 9 | 209 | 0 | 16 | 234 | 0 | 64 | 17 | 19 | 100 | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 19 | 19 | 364 |
| 06:15 PM | 6 | 160 | 0 | 10 | 176 | 0 | 56 | 16 | 15 | 87 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 8 | 8 | 280 |
| Grand Total | 163 | 2559 | 0 | 149 | 2871 | 0 | 870 | 279 | 130 | 1279 | 0 | 0 | 0 | 149 | 149 | 2 | 0 | 0 | 155 | 157 | 4456 |
| Apprch % | 5.7 | 89.1 | 0 | 5.2 | | 0 | 68 | 21.8 | 10.2 | | 0 | 0 | 0 | 100 | | 1.3 | 0 | 0 | 98.7 | | |
| Total % | 3.7 | 57.4 | 0 | 3.3 | 64.4 | 0 | 19.5 | 6.3 | 2.9 | 28.7 | 0 | 0 | 0 | 3.3 | 3.3 | 0 | 0 | 0 | 3.5 | 3.5 | |
| Unshifted | 163 | 2559 | 0 | 149 | 2871 | 0 | 870 | 279 | 130 | 1279 | 0 | 0 | 0 | 149 | 149 | 2 | 0 | 0 | 155 | 157 | 4456 |
| % Unshifted | 100 | 100 | 0 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 | 0 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

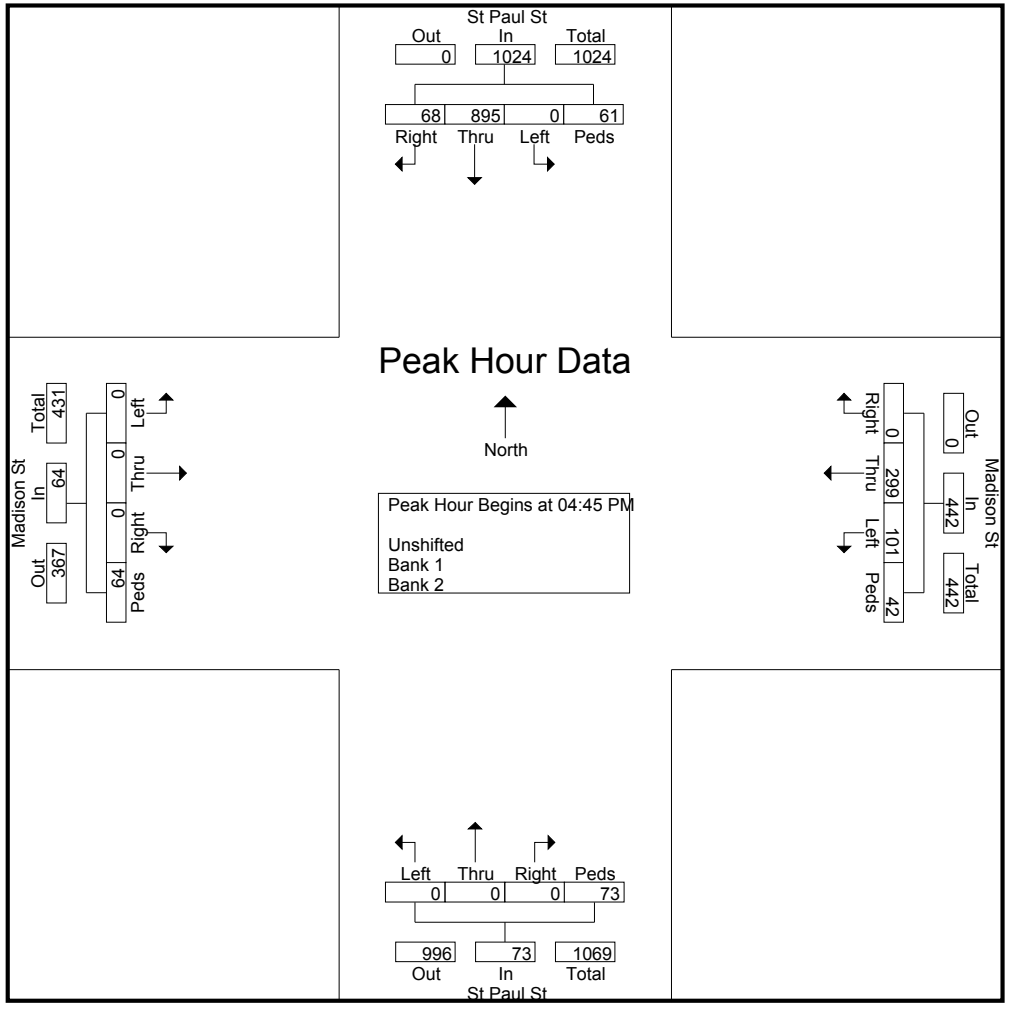
Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_StPaul_PM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 2

| | St Paul St From North | | | | | Madison St From East | | | | | St Paul St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| **04:45 PM** | 22 | 184 | 0 | 20 | 226 | 0 | 82 | 30 | 8 | **120** | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 10 | 10 | 366 |
| 05:00 PM | 14 | 251 | 0 | 10 | 275 | 0 | 65 | 26 | **13** | 104 | 0 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | **19** | **19** | 418 |
| 05:15 PM | 17 | 206 | 0 | 19 | 242 | 0 | 75 | 25 | 8 | 108 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 16 | 16 | 380 |
| 05:30 PM | 15 | **254** | 0 | 12 | **281** | 0 | 77 | 20 | 13 | 110 | 0 | 0 | 0 | **29** | **29** | 0 | 0 | 0 | 19 | 19 | **439** |
| Total Volume | 68 | 895 | 0 | 61 | 1024 | 0 | 299 | 101 | 42 | 442 | 0 | 0 | 0 | 73 | 73 | 0 | 0 | 0 | 64 | 64 | 1603 |
| % App. Total | 6.6 | 87.4 | 0 | 6 | | 0 | 67.6 | 22.9 | 9.5 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| PHF | .773 | .881 | .000 | .763 | .911 | .000 | .912 | .842 | .808 | .921 | .000 | .000 | .000 | .629 | .629 | .000 | .000 | .000 | .842 | .842 | .913 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_StPaul_PM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 3



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_StPaul_PM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 4

| | St Paul St From North | | | | | Madison St From East | | | | | St Paul St From South | | | | | Madison St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

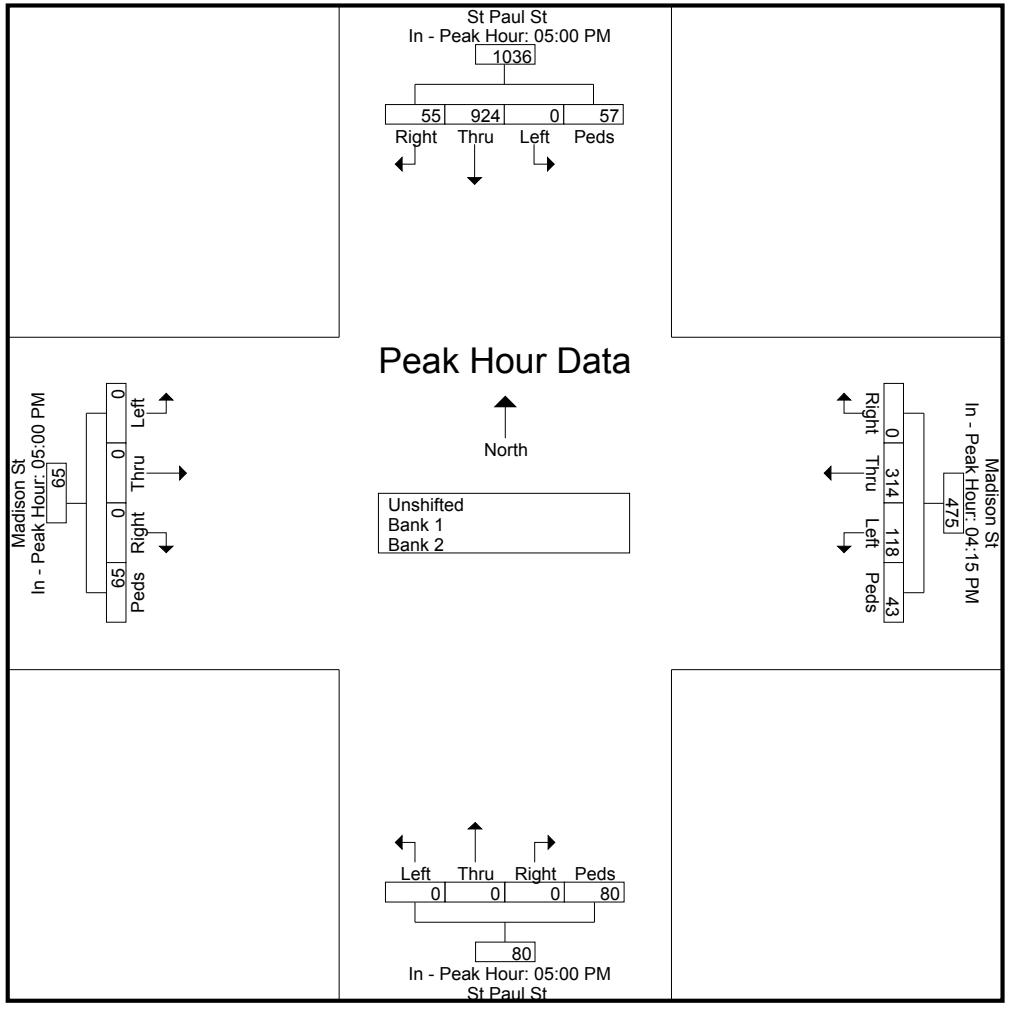
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 05:00 PM | | | | | 04:15 PM | | | | | 05:00 PM | | | | | 05:00 PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **14** | **251** | **0** | **10** | **275** | **0** | **79** | 39 | 12 | 130 | 0 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 19 | 19 |
| +15 mins. | **17** | 206 | 0 | **19** | 242 | 0 | **88** | 23 | 10 | 121 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 16 | 16 |
| +30 mins. | 15 | **254** | 0 | 12 | **281** | 0 | 82 | 30 | 8 | 120 | 0 | 0 | 0 | **29** | **29** | 0 | 0 | 0 | 19 | 19 |
| +45 mins. | 9 | 213 | 0 | 16 | 238 | 0 | 65 | 26 | **13** | 104 | 0 | 0 | 0 | 17 | 17 | 0 | 0 | 0 | 11 | 11 |
| Total Volume | 55 | 924 | 0 | 57 | 1036 | 0 | 314 | 118 | 43 | 475 | 0 | 0 | 0 | 80 | 80 | 0 | 0 | 0 | 65 | 65 |
| % App. Total | 5.3 | 89.2 | 0 | 5.5 | | 0 | 66.1 | 24.8 | 9.1 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | |
| PHF | .809 | .909 | .000 | .750 | .922 | .000 | .892 | .756 | .827 | .913 | .000 | .000 | .000 | .690 | .690 | .000 | .000 | .000 | .855 | .855 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Madison_StPaul_PM
Site Code : 00000000
Start Date : 9/15/2015
Page No : 5



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_StPaul_AM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 1

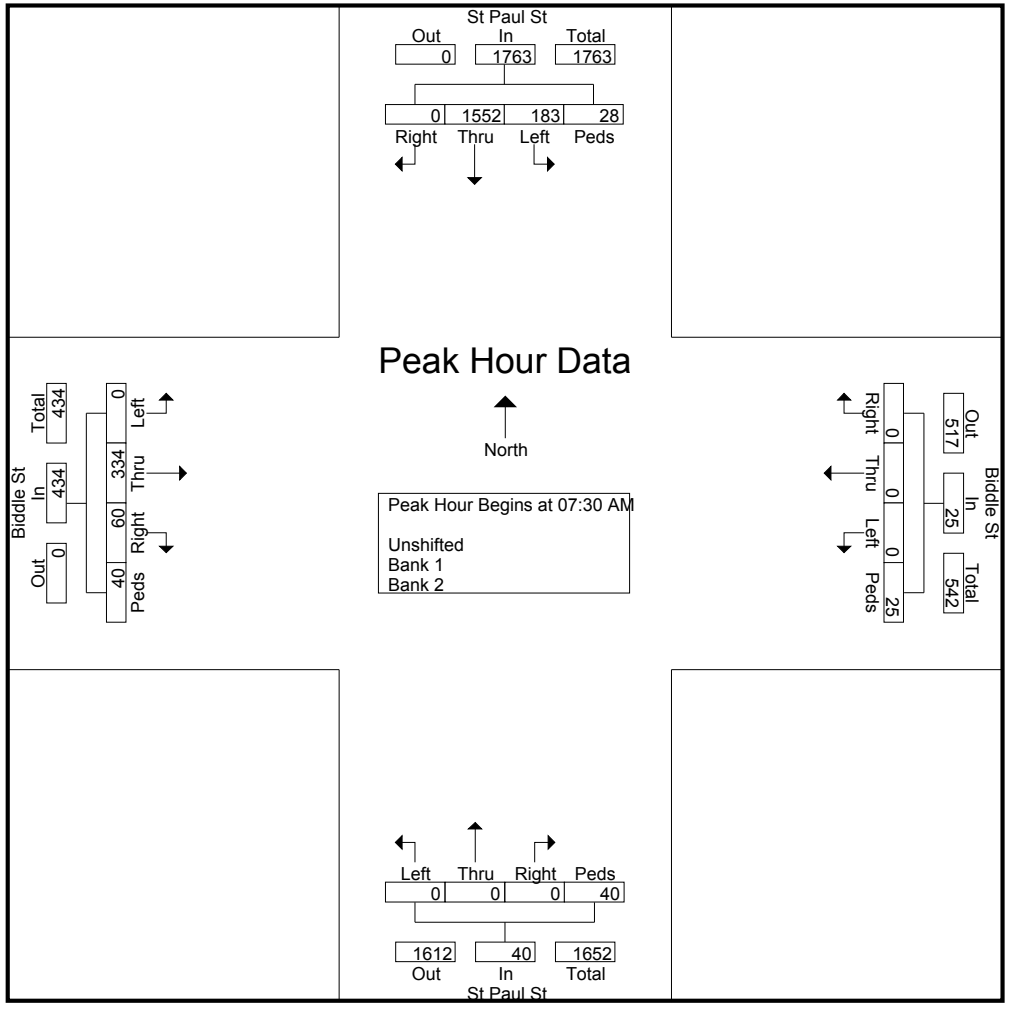
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | Biddle St From East | | | | | St Paul St From South | | | | | Biddle St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 338 | 41 | 13 | 392 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 2 | 2 | 17 | 94 | 0 | 5 | 116 | 512 |
| 07:15 AM | 0 | 384 | 46 | 4 | 434 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 7 | 7 | 13 | 76 | 0 | 6 | 95 | 539 |
| 07:30 AM | 0 | 387 | 41 | 9 | 437 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 12 | 12 | 14 | 87 | 0 | 9 | 110 | 564 |
| 07:45 AM | 0 | 399 | 43 | 3 | 445 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 15 | 15 | 13 | 76 | 0 | 8 | 97 | 561 |
| Total | 0 | 1508 | 171 | 29 | 1708 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 36 | 36 | 57 | 333 | 0 | 28 | 418 | 2176 |
| 08:00 AM | 0 | 377 | 54 | 3 | 434 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 5 | 5 | 16 | 110 | 0 | 17 | 143 | 588 |
| 08:15 AM | 0 | 389 | 45 | 13 | 447 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 8 | 8 | 17 | 61 | 0 | 6 | 84 | 549 |
| 08:30 AM | 0 | 357 | 42 | 5 | 404 | 0 | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 5 | 5 | 15 | 78 | 0 | 9 | 102 | 518 |
| 08:45 AM | 0 | 348 | 44 | 10 | 402 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 15 | 15 | 18 | 56 | 0 | 11 | 85 | 505 |
| Total | 0 | 1471 | 185 | 31 | 1687 | 0 | 0 | 0 | 26 | 26 | 0 | 0 | 0 | 33 | 33 | 66 | 305 | 0 | 43 | 414 | 2160 |
| Grand Total | 0 | 2979 | 356 | 60 | 3395 | 0 | 0 | 0 | 40 | 40 | 0 | 0 | 0 | 69 | 69 | 123 | 638 | 0 | 71 | 832 | 4336 |
| Apprch % | 0 | 87.7 | 10.5 | 1.8 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 14.8 | 76.7 | 0 | 8.5 | | |
| Total % | 0 | 68.7 | 8.2 | 1.4 | 78.3 | 0 | 0 | 0 | 0.9 | 0.9 | 0 | 0 | 0 | 1.6 | 1.6 | 2.8 | 14.7 | 0 | 1.6 | 19.2 | |
| Unshifted | 0 | 2979 | 356 | 60 | 3395 | 0 | 0 | 0 | 40 | 40 | 0 | 0 | 0 | 69 | 69 | 123 | 638 | 0 | 71 | 832 | 4336 |
| % Unshifted | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | St Paul St From North | | | | | Biddle St From East | | | | | St Paul St From South | | | | | Biddle St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| **07:30 AM** | **0** | **387** | **41** | **9** | **437** | **0** | **0** | **0** | **5** | **5** | **0** | **0** | **0** | **12** | **12** | **14** | **87** | **0** | **9** | **110** | **564** |
| **07:45 AM** | **0** | 399 | 43 | 3 | 445 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 15 | 15 | 13 | 76 | 0 | 8 | 97 | 561 |
| 08:00 AM | 0 | 377 | 54 | 3 | 434 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 5 | 5 | 16 | **110** | 0 | **17** | **143** | **588** |
| 08:15 AM | 0 | 389 | 45 | **13** | **447** | 0 | 0 | 0 | **10** | **10** | 0 | 0 | 0 | 8 | 8 | **17** | 61 | 0 | 6 | 84 | 549 |
| Total Volume | 0 | 1552 | 183 | 28 | 1763 | 0 | 0 | 0 | 25 | 25 | 0 | 0 | 0 | 40 | 40 | 60 | 334 | 0 | 40 | 434 | 2262 |
| % App. Total | 0 | 88 | 10.4 | 1.6 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 13.8 | 77 | 0 | 9.2 | | |
| PHF | .000 | .972 | .847 | .538 | .986 | .000 | .000 | .000 | .625 | .625 | .000 | .000 | .000 | .667 | .667 | .882 | .759 | .000 | .588 | .759 | .962 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_StPaul_AM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_StPaul_AM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 3

| | St Paul St From North | | | | | Biddle St From East | | | | | St Paul St From South | | | | | Biddle St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

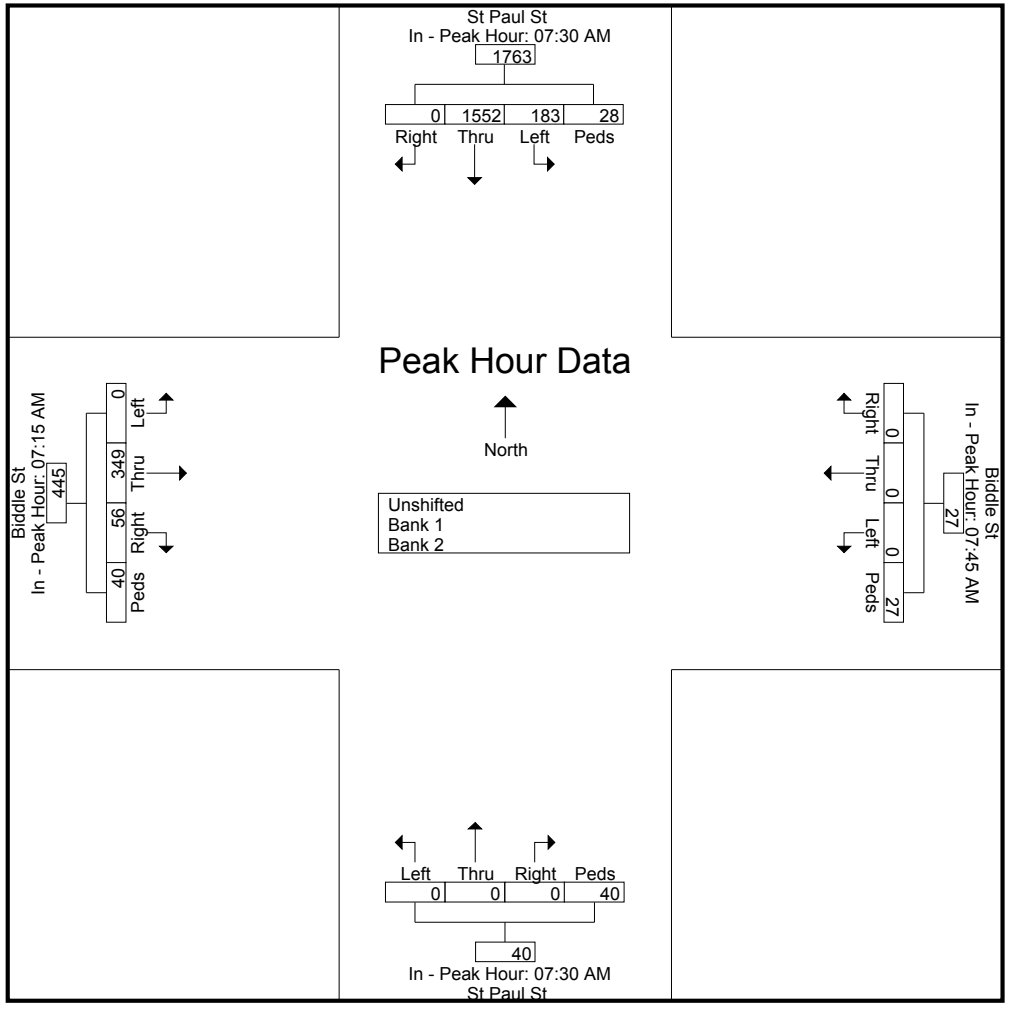
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 07:30 AM | | | | | 07:45 AM | | | | | 07:30 AM | | | | | 07:15 AM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **0** | **387** | **41** | **9** | **437** | **0** | **0** | **0** | **4** | **4** | **0** | **0** | **0** | **12** | **12** | **13** | **76** | **0** | **6** | **95** |
| **+15 mins.** | **0** | 399 | 43 | 3 | 445 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 15 | 15 | 14 | 87 | 0 | 9 | 110 |
| +30 mins. | 0 | 377 | 54 | 3 | 434 | 0 | 0 | 0 | **10** | **10** | 0 | 0 | 0 | 5 | 5 | 13 | 76 | 0 | 8 | 97 |
| +45 mins. | 0 | 389 | 45 | **13** | **447** | 0 | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 8 | 8 | **16** | **110** | 0 | **17** | **143** |
| Total Volume | 0 | 1552 | 183 | 28 | 1763 | 0 | 0 | 0 | 27 | 27 | 0 | 0 | 0 | 40 | 40 | 56 | 349 | 0 | 40 | 445 |
| % App. Total | 0 | 88 | 10.4 | 1.6 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 12.6 | 78.4 | 0 | 9 | |
| PHF | .000 | .972 | .847 | .538 | .986 | .000 | .000 | .000 | .675 | .675 | .000 | .000 | .000 | .667 | .667 | .875 | .793 | .000 | .588 | .778 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_StPaul_AM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_StPaul_MD
Site Code : 00000000
Start Date : 9/10/2015
Page No : 1

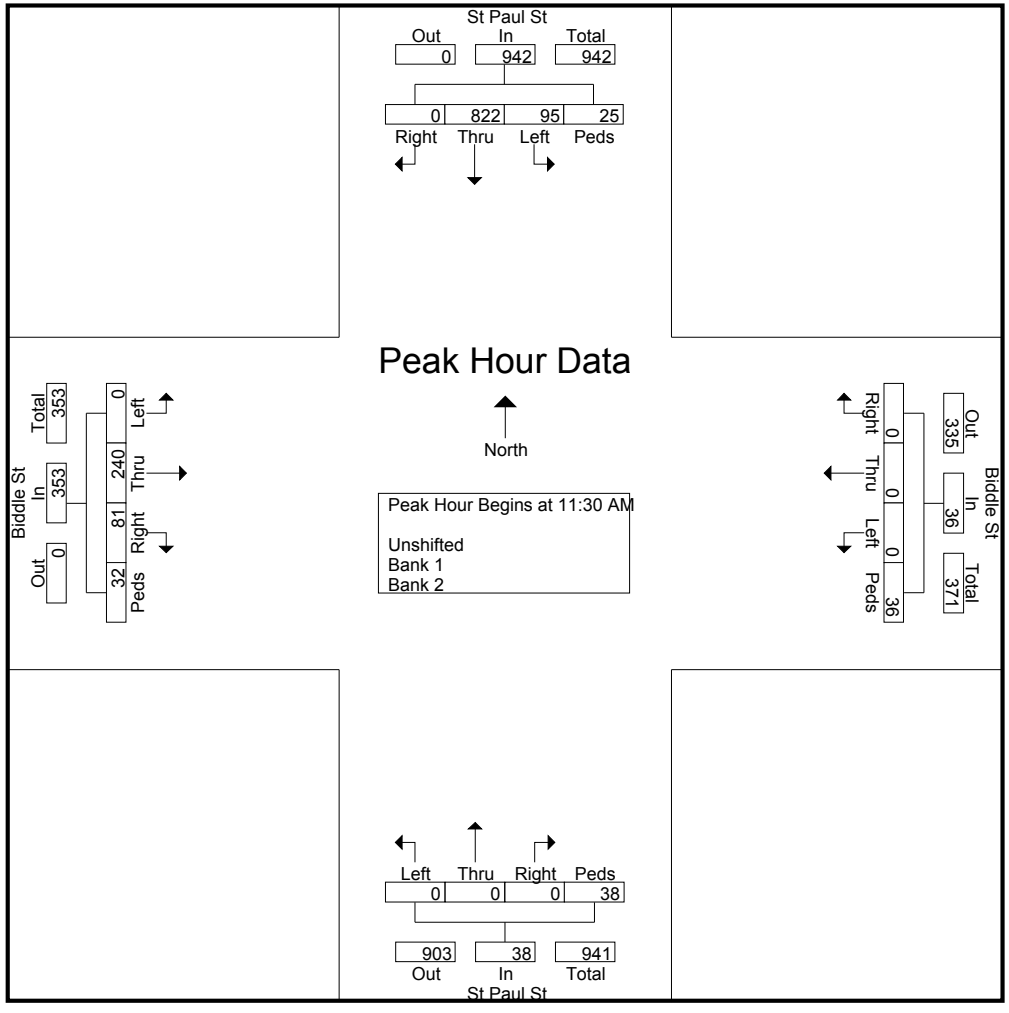
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | Biddle St From East | | | | | St Paul St From South | | | | | Biddle St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 11:00 AM | 0 | 189 | 19 | 2 | 210 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 17 | 38 | 0 | 2 | 57 | 270 |
| 11:15 AM | 0 | 196 | 26 | 6 | 228 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | 5 | 20 | 44 | 0 | 7 | 71 | 305 |
| 11:30 AM | 0 | 210 | 21 | 13 | 244 | 0 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 7 | 7 | 20 | 52 | 0 | 7 | 79 | 350 |
| 11:45 AM | 0 | 188 | 26 | 3 | 217 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 10 | 10 | 25 | 63 | 0 | 10 | 98 | 330 |
| Total | 0 | 783 | 92 | 24 | 899 | 0 | 0 | 0 | 26 | 26 | 0 | 0 | 0 | 25 | 25 | 82 | 197 | 0 | 26 | 305 | 1255 |
| 12:00 PM | 0 | 228 | 22 | 6 | 256 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 14 | 14 | 23 | 58 | 0 | 8 | 89 | 362 |
| 12:15 PM | 0 | 196 | 26 | 3 | 225 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 7 | 7 | 13 | 67 | 0 | 7 | 87 | 327 |
| 12:30 PM | 0 | 207 | 28 | 6 | 241 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 6 | 6 | 23 | 62 | 0 | 7 | 92 | 345 |
| 12:45 PM | 0 | 181 | 20 | 10 | 211 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 5 | 5 | 21 | 60 | 0 | 4 | 85 | 307 |
| Total | 0 | 812 | 96 | 25 | 933 | 0 | 0 | 0 | 23 | 23 | 0 | 0 | 0 | 32 | 32 | 80 | 247 | 0 | 26 | 353 | 1341 |
| Grand Total | 0 | 1595 | 188 | 49 | 1832 | 0 | 0 | 0 | 49 | 49 | 0 | 0 | 0 | 57 | 57 | 162 | 444 | 0 | 52 | 658 | 2596 |
| Apprch % | 0 | 87.1 | 10.3 | 2.7 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 24.6 | 67.5 | 0 | 7.9 | | |
| Total % | 0 | 61.4 | 7.2 | 1.9 | 70.6 | 0 | 0 | 0 | 1.9 | 1.9 | 0 | 0 | 0 | 2.2 | 2.2 | 6.2 | 17.1 | 0 | 2 | 25.3 | |
| Unshifted | 0 | 1595 | 188 | 49 | 1832 | 0 | 0 | 0 | 49 | 49 | 0 | 0 | 0 | 57 | 57 | 162 | 444 | 0 | 52 | 658 | 2596 |
| % Unshifted | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | St Paul St From North | | | | | Biddle St From East | | | | | St Paul St From South | | | | | Biddle St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 11:30 AM | | | | | | | | | | | | | | | | | | | | | |
| **11:30 AM** | **0** | **210** | **21** | 13 | 244 | 0 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 7 | 7 | 20 | 52 | 0 | 7 | 79 | 350 |
| 11:45 AM | 0 | 188 | 26 | 3 | 217 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 10 | 10 | **25** | 63 | 0 | **10** | **98** | 330 |
| 12:00 PM | 0 | **228** | 22 | 6 | **256** | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | **14** | **14** | 23 | 58 | 0 | 8 | 89 | **362** |
| 12:15 PM | 0 | 196 | 26 | 3 | 225 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 7 | 7 | 13 | **67** | 0 | 7 | 87 | 327 |
| Total Volume | 0 | 822 | 95 | 25 | 942 | 0 | 0 | 0 | 36 | 36 | 0 | 0 | 0 | 38 | 38 | 81 | 240 | 0 | 32 | 353 | 1369 |
| % App. Total | 0 | 87.3 | 10.1 | 2.7 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 22.9 | 68 | 0 | 9.1 | | |
| PHF | .000 | .901 | .913 | .481 | .920 | .000 | .000 | .000 | .450 | .450 | .000 | .000 | .000 | .679 | .679 | .810 | .896 | .000 | .800 | .901 | .945 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_StPaul_MD
Site Code : 00000000
Start Date : 9/10/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_StPaul_MD
Site Code : 00000000
Start Date : 9/10/2015
Page No : 3

| | St Paul St From North | | | | | Biddle St From East | | | | | St Paul St From South | | | | | Biddle St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

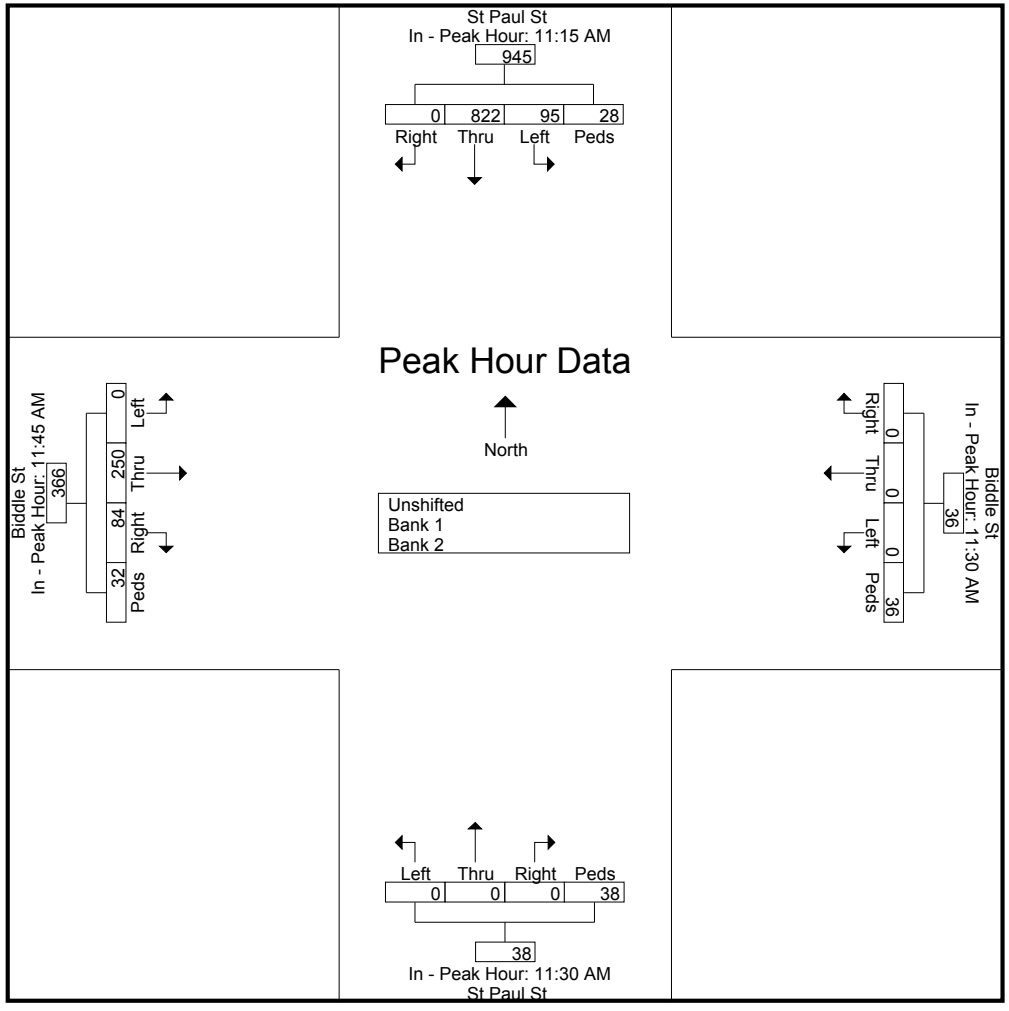
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | **11:15 AM** | | | | | **11:30 AM** | | | | | **11:30 AM** | | | | | **11:45 AM** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **0** | **196** | 26 | 6 | 228 | 0 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 7 | 7 | 25 | 63 | 0 | **10** | **98** |
| +15 mins. | 0 | 210 | 21 | **13** | 244 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 10 | 10 | 23 | 58 | 0 | 8 | 89 |
| +30 mins. | 0 | 188 | 26 | 3 | 217 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | **14** | **14** | 13 | **67** | 0 | 7 | 87 |
| +45 mins. | 0 | **228** | 22 | 6 | **256** | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 7 | 7 | 23 | 62 | 0 | 7 | 92 |
| Total Volume | 0 | 822 | 95 | 28 | 945 | 0 | 0 | 0 | 36 | 36 | 0 | 0 | 0 | 38 | 38 | 84 | 250 | 0 | 32 | 366 |
| % App. Total | 0 | 87 | 10.1 | 3 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 23 | 68.3 | 0 | 8.7 | |
| PHF | .000 | .901 | .913 | .538 | .923 | .000 | .000 | .000 | .450 | .450 | .000 | .000 | .000 | .679 | .679 | .840 | .933 | .000 | .800 | .934 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_StPaul_MD
Site Code : 00000000
Start Date : 9/10/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_StPaul_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 1

**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | Biddle St From East | | | | | St Paul St From South | | | | | Biddle St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 03:30 PM | 0 | 261 | 44 | 9 | 314 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 2 | 2 | 23 | 106 | 0 | 8 | 137 | 457 |
| 03:45 PM | 0 | 224 | 37 | 7 | 268 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 6 | 6 | 19 | 101 | 0 | 8 | 128 | 411 |
| Total | 0 | 485 | 81 | 16 | 582 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | 8 | 8 | 42 | 207 | 0 | 16 | 265 | 868 |
| 04:00 PM | 0 | 266 | 41 | 4 | 311 | 0 | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 7 | 7 | 21 | 99 | 0 | 12 | 132 | 457 |
| 04:15 PM | 0 | 248 | 34 | 7 | 289 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 4 | 4 | 19 | 97 | 0 | 10 | 126 | 427 |
| 04:30 PM | 0 | 274 | 35 | 10 | 319 | 0 | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 7 | 7 | 25 | 137 | 0 | 7 | 169 | 502 |
| 04:45 PM | 0 | 198 | 32 | 11 | 241 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 7 | 7 | 17 | 137 | 0 | 14 | 168 | 428 |
| Total | 0 | 986 | 142 | 32 | 1160 | 0 | 0 | 0 | 34 | 34 | 0 | 0 | 0 | 25 | 25 | 82 | 470 | 0 | 43 | 595 | 1814 |
| 05:00 PM | 0 | 195 | 43 | 11 | 249 | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 16 | 16 | 23 | 156 | 0 | 9 | 188 | 464 |
| 05:15 PM | 0 | 236 | 63 | 10 | 309 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 18 | 18 | 23 | 145 | 0 | 9 | 177 | 514 |
| 05:30 PM | 0 | 238 | 43 | 12 | 293 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 4 | 4 | 25 | 120 | 0 | 7 | 152 | 457 |
| 05:45 PM | 0 | 230 | 42 | 5 | 277 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 11 | 11 | 20 | 97 | 0 | 7 | 124 | 420 |
| Total | 0 | 899 | 191 | 38 | 1128 | 0 | 0 | 0 | 37 | 37 | 0 | 0 | 0 | 49 | 49 | 91 | 518 | 0 | 32 | 641 | 1855 |
| 06:00 PM | 0 | 231 | 37 | 6 | 274 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 10 | 10 | 16 | 90 | 0 | 9 | 115 | 407 |
| 06:15 PM | 0 | 202 | 46 | 6 | 254 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 9 | 9 | 28 | 88 | 0 | 2 | 118 | 390 |
| Grand Total | 0 | 2803 | 497 | 98 | 3398 | 0 | 0 | 0 | 101 | 101 | 0 | 0 | 0 | 101 | 101 | 259 | 1373 | 0 | 102 | 1734 | 5334 |
| Apprch % | 0 | 82.5 | 14.6 | 2.9 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 14.9 | 79.2 | 0 | 5.9 | | |
| Total % | 0 | 52.5 | 9.3 | 1.8 | 63.7 | 0 | 0 | 0 | 1.9 | 1.9 | 0 | 0 | 0 | 1.9 | 1.9 | 4.9 | 25.7 | 0 | 1.9 | 32.5 | |
| Unshifted | 0 | 2803 | 497 | 98 | 3398 | 0 | 0 | 0 | 101 | 101 | 0 | 0 | 0 | 101 | 101 | 259 | 1373 | 0 | 102 | 1734 | 5334 |
| % Unshifted | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

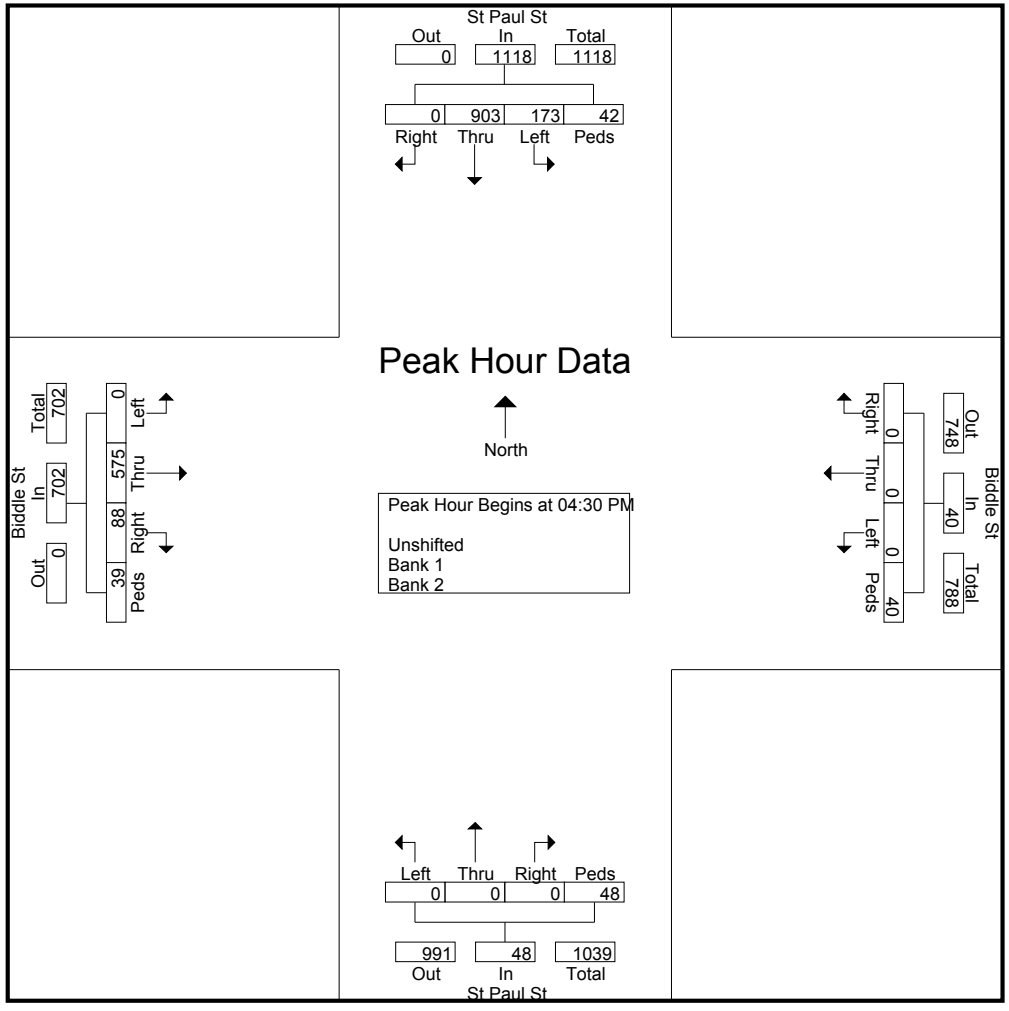
Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_StPaul_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 2

| | St Paul St From North | | | | | Biddle St From East | | | | | St Paul St From South | | | | | Biddle St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | | | | | |
| **04:30 PM** | **0** | 274 | 35 | 10 | 319 | 0 | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 7 | 7 | 25 | 137 | 0 | 7 | 169 | 502 |
| 04:45 PM | 0 | 198 | 32 | 11 | 241 | 0 | 0 | 0 | **12** | **12** | 0 | 0 | 0 | 7 | 7 | 17 | 137 | 0 | **14** | 168 | 428 |
| 05:00 PM | 0 | 195 | 43 | 11 | 249 | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 16 | 16 | 23 | **156** | 0 | 9 | **188** | 464 |
| 05:15 PM | 0 | 236 | **63** | 10 | 309 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | **18** | **18** | 23 | 145 | 0 | 9 | 177 | **514** |
| Total Volume | 0 | 903 | 173 | 42 | 1118 | 0 | 0 | 0 | 40 | 40 | 0 | 0 | 0 | 48 | 48 | 88 | 575 | 0 | 39 | 702 | 1908 |
| % App. Total | 0 | 80.8 | 15.5 | 3.8 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 12.5 | 81.9 | 0 | 5.6 | | |
| PHF | .000 | .824 | .687 | .955 | .876 | .000 | .000 | .000 | .833 | .833 | .000 | .000 | .000 | .667 | .667 | .880 | .921 | .000 | .696 | .934 | .928 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_StPaul_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 3



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_StPaul_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 4

| | St Paul St From North | | | | | Biddle St From East | | | | | St Paul St From South | | | | | Biddle St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

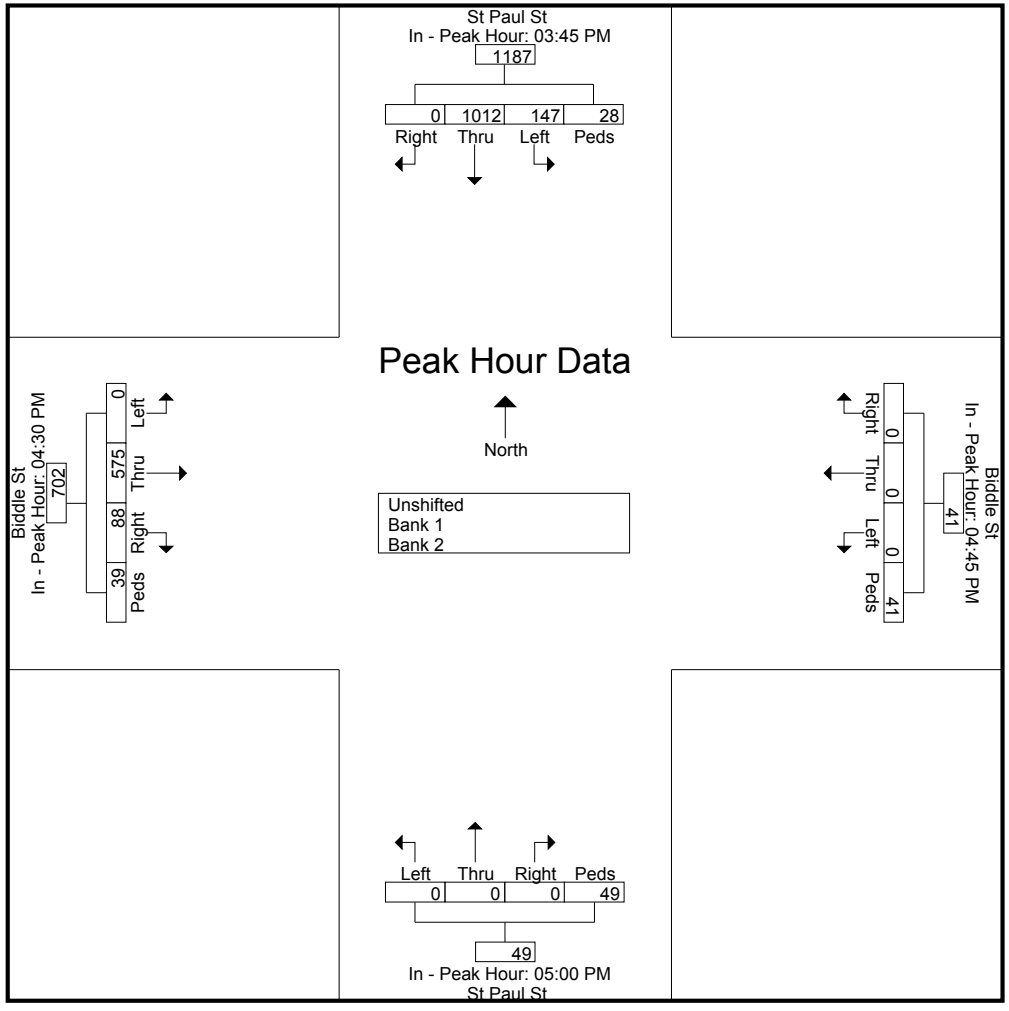
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 03:45 PM | | | | | 04:45 PM | | | | | 05:00 PM | | | | | 04:30 PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **0** | **224** | **37** | **7** | **268** | **0** | **0** | **0** | 12 | 12 | 0 | 0 | 0 | 16 | 16 | 25 | 137 | 0 | 7 | 169 |
| +15 mins. | 0 | 266 | 41 | 4 | 311 | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | **18** | **18** | 17 | 137 | 0 | **14** | 168 |
| +30 mins. | 0 | 248 | 34 | 7 | 289 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 4 | 4 | 23 | **156** | 0 | 9 | **188** |
| +45 mins. | 0 | **274** | 35 | **10** | **319** | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 11 | 11 | 23 | 145 | 0 | 9 | 177 |
| Total Volume | 0 | 1012 | 147 | 28 | 1187 | 0 | 0 | 0 | 41 | 41 | 0 | 0 | 0 | 49 | 49 | 88 | 575 | 0 | 39 | 702 |
| % App. Total | 0 | 85.3 | 12.4 | 2.4 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | 12.5 | 81.9 | 0 | 5.6 | |
| PHF | .000 | .923 | .896 | .700 | .930 | .000 | .000 | .000 | .854 | .854 | .000 | .000 | .000 | .681 | .681 | .880 | .921 | .000 | .696 | .934 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Biddle_StPaul_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 5



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_StPaul_AM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 1

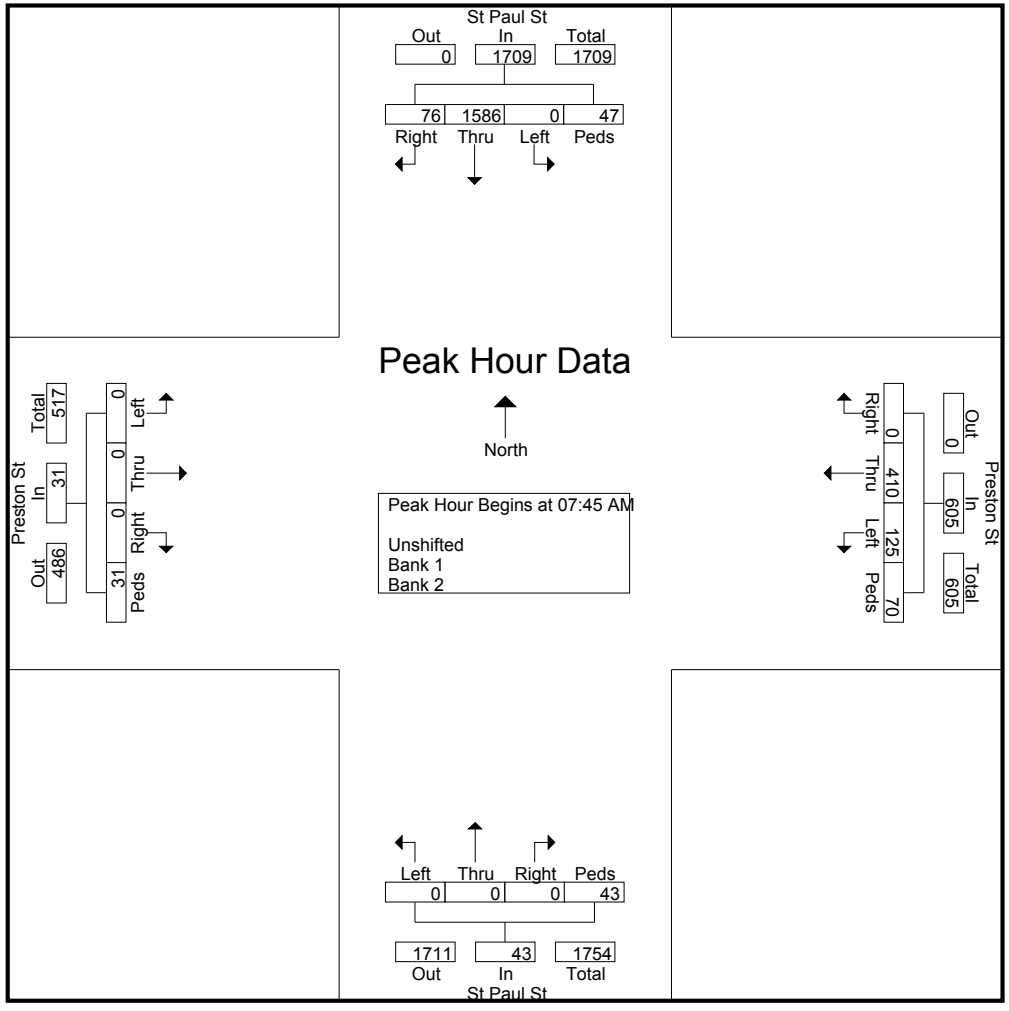
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | Preston St From East | | | | | St Paul St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 18 | 324 | 0 | 8 | 350 | 0 | 73 | 24 | 9 | 106 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 2 | 1 | 3 | 472 |
| 07:15 AM | 23 | 388 | 0 | 10 | 421 | 0 | 85 | 17 | 12 | 114 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 3 | 3 | 543 |
| 07:30 AM | 14 | 384 | 0 | 4 | 402 | 0 | 101 | 37 | 16 | 154 | 0 | 0 | 0 | 18 | 18 | 0 | 0 | 0 | 5 | 5 | 579 |
| 07:45 AM | 16 | 392 | 0 | 16 | 424 | 0 | 107 | 38 | 14 | 159 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 6 | 6 | 598 |
| Total | 71 | 1488 | 0 | 38 | 1597 | 0 | 366 | 116 | 51 | 533 | 0 | 0 | 0 | 45 | 45 | 0 | 0 | 2 | 15 | 17 | 2192 |
| 08:00 AM | 17 | 393 | 0 | 6 | 416 | 0 | 112 | 26 | 17 | 155 | 0 | 0 | 0 | 15 | 15 | 0 | 0 | 0 | 4 | 4 | 590 |
| 08:15 AM | 26 | 414 | 0 | 6 | 446 | 0 | 95 | 38 | 16 | 149 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 8 | 8 | 608 |
| 08:30 AM | 17 | 387 | 0 | 19 | 423 | 0 | 96 | 23 | 23 | 142 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 13 | 13 | 592 |
| 08:45 AM | 25 | 386 | 0 | 9 | 420 | 0 | 92 | 25 | 31 | 148 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 5 | 5 | 587 |
| Total | 85 | 1580 | 0 | 40 | 1705 | 0 | 395 | 112 | 87 | 594 | 0 | 0 | 0 | 48 | 48 | 0 | 0 | 0 | 30 | 30 | 2377 |
| Grand Total | 156 | 3068 | 0 | 78 | 3302 | 0 | 761 | 228 | 138 | 1127 | 0 | 0 | 0 | 93 | 93 | 0 | 0 | 2 | 45 | 47 | 4569 |
| Apprch % | 4.7 | 92.9 | 0 | 2.4 | | 0 | 67.5 | 20.2 | 12.2 | | 0 | 0 | 0 | 100 | | 0 | 0 | 4.3 | 95.7 | | |
| Total % | 3.4 | 67.1 | 0 | 1.7 | 72.3 | 0 | 16.7 | 5 | 3 | 24.7 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 1 | 1 | |
| Unshifted | 156 | 3068 | 0 | 78 | 3302 | 0 | 761 | 228 | 138 | 1127 | 0 | 0 | 0 | 93 | 93 | 0 | 0 | 2 | 45 | 47 | 4569 |
| % Unshifted | 100 | 100 | 0 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 100 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | St Paul St From North | | | | | Preston St From East | | | | | St Paul St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:45 AM | | | | | | | | | | | | | | | | | | | | | |
| **07:45 AM** | **16** | **392** | **0** | **16** | **424** | **0** | **107** | 38 | 14 | 159 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 6 | 6 | 598 |
| 08:00 AM | 17 | 393 | 0 | 6 | 416 | 0 | 112 | 26 | 17 | 155 | 0 | 0 | 0 | 15 | **15** | 0 | 0 | 0 | 4 | 4 | 590 |
| 08:15 AM | **26** | **414** | 0 | 6 | **446** | 0 | 95 | 38 | 16 | 149 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 8 | 8 | **608** |
| 08:30 AM | 17 | 387 | 0 | **19** | 423 | 0 | 96 | 23 | **23** | 142 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | **13** | **13** | 592 |
| Total Volume | 76 | 1586 | 0 | 47 | 1709 | 0 | 410 | 125 | 70 | 605 | 0 | 0 | 0 | 43 | 43 | 0 | 0 | 0 | 31 | 31 | 2388 |
| % App. Total | 4.4 | 92.8 | 0 | 2.8 | | 0 | 67.8 | 20.7 | 11.6 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| PHF | .731 | .958 | .000 | .618 | .958 | .000 | .915 | .822 | .761 | .951 | .000 | .000 | .000 | .717 | .717 | .000 | .000 | .000 | .596 | .596 | .982 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_StPaul_AM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_StPaul_AM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 3

| | St Paul St From North | | | | | Preston St From East | | | | | St Paul St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

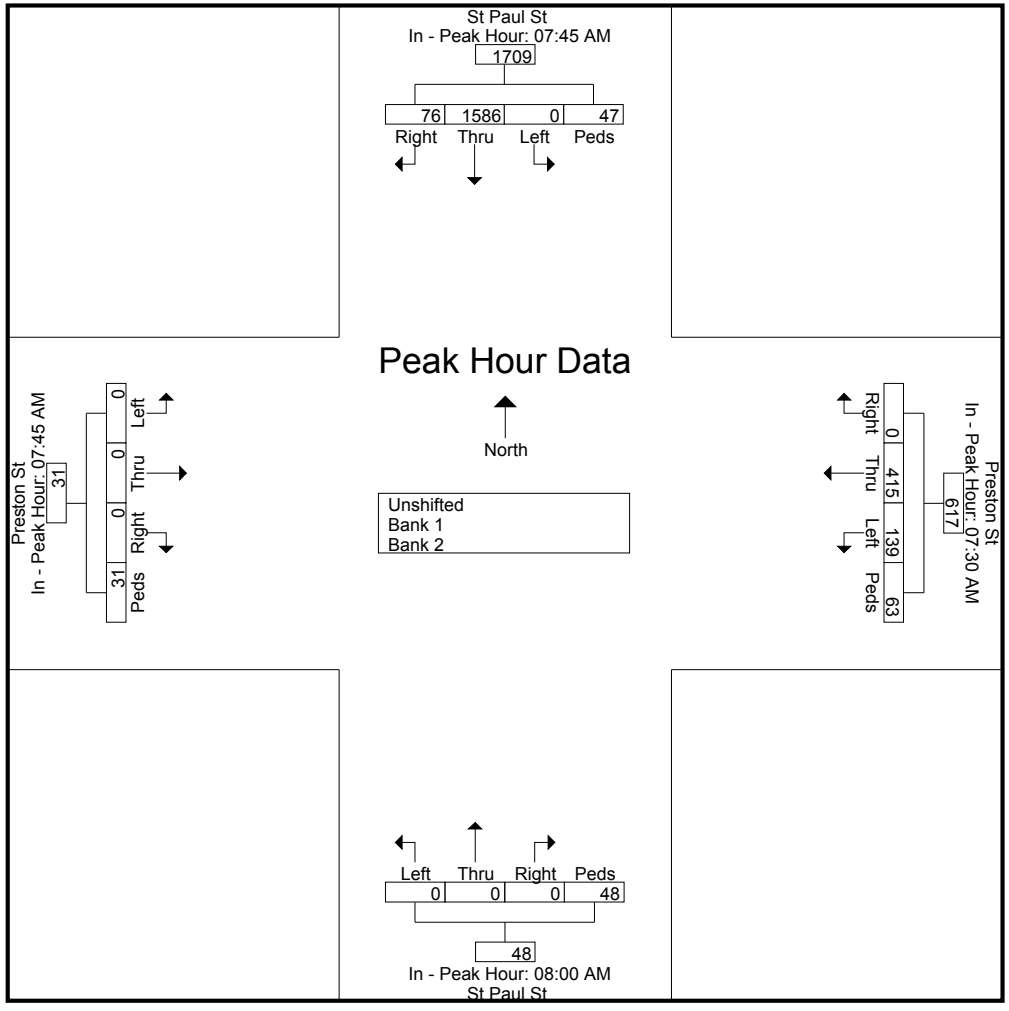
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 07:45 AM | | | | | 07:30 AM | | | | | 08:00 AM | | | | | 07:45 AM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **16** | **392** | **0** | **16** | **424** | **0** | **101** | **37** | **16** | **154** | **0** | **0** | **0** | 15 | 15 | 0 | 0 | 0 | 6 | 6 |
| +15 mins. | 17 | 393 | 0 | 6 | 416 | 0 | 107 | 38 | 14 | 159 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 4 | 4 |
| +30 mins. | **26** | **414** | 0 | 6 | **446** | 0 | **112** | 26 | **17** | 155 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 8 | 8 |
| +45 mins. | 17 | 387 | 0 | **19** | 423 | 0 | 95 | 38 | 16 | 149 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | **13** | **13** |
| Total Volume | 76 | 1586 | 0 | 47 | 1709 | 0 | 415 | 139 | 63 | 617 | 0 | 0 | 0 | 48 | 48 | 0 | 0 | 0 | 31 | 31 |
| % App. Total | 4.4 | 92.8 | 0 | 2.8 | | 0 | 67.3 | 22.5 | 10.2 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | |
| PHF | .731 | .958 | .000 | .618 | .958 | .000 | .926 | .914 | .926 | .970 | .000 | .000 | .000 | .800 | .800 | .000 | .000 | .000 | .596 | .596 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_StPaul_AM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_StPaul_MD
Site Code : 00000000
Start Date : 9/10/2015
Page No : 1

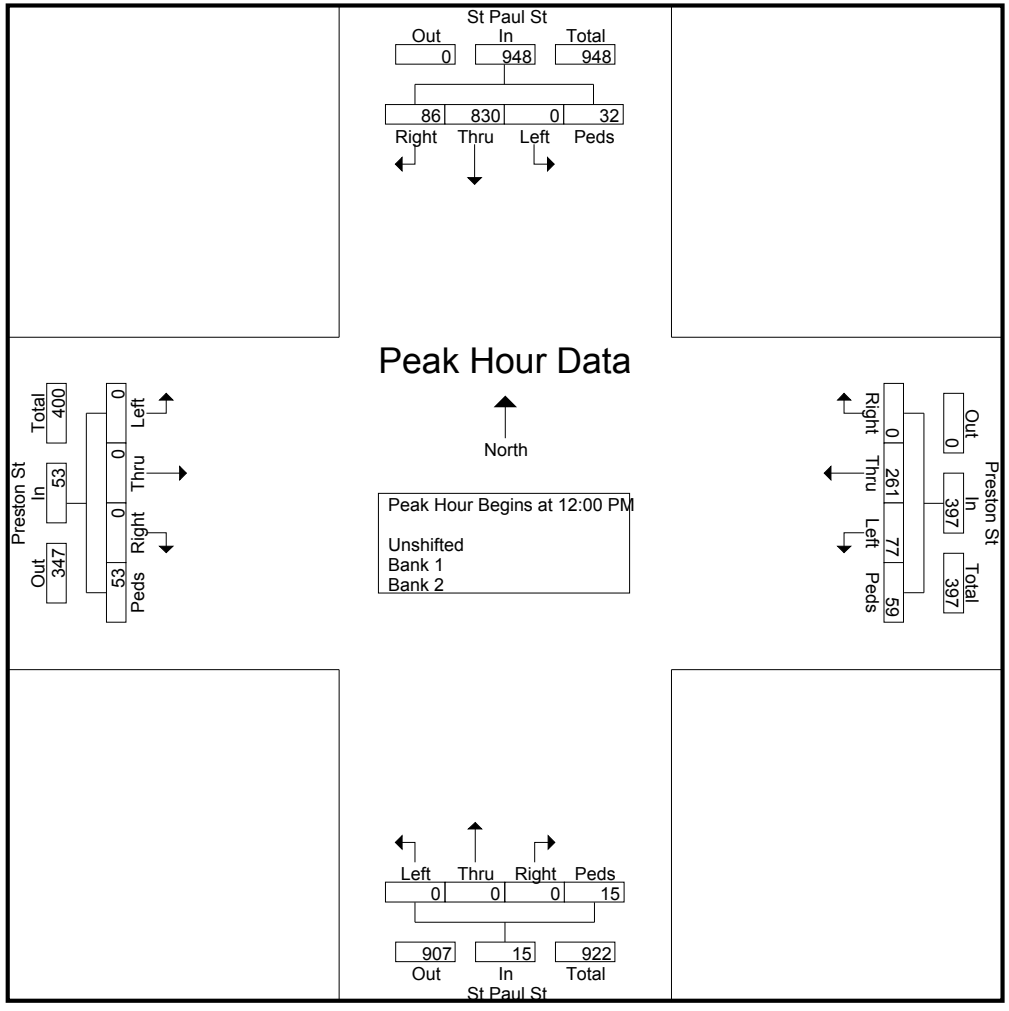
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | Preston St From East | | | | | St Paul St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 11:00 AM | 16 | 159 | 0 | 3 | 178 | 0 | 61 | 28 | 4 | 93 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | 5 | 277 |
| 11:15 AM | 7 | 219 | 0 | 3 | 229 | 0 | 50 | 14 | 3 | 67 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 2 | 2 | 302 |
| 11:30 AM | 18 | 187 | 0 | 19 | 224 | 0 | 45 | 19 | 7 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 6 | 301 |
| 11:45 AM | 18 | 222 | 0 | 9 | 249 | 0 | 50 | 17 | 10 | 77 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 15 | 15 | 345 |
| Total | 59 | 787 | 0 | 34 | 880 | 0 | 206 | 78 | 24 | 308 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 28 | 28 | 1225 |
| 12:00 PM | 10 | 224 | 0 | 9 | 243 | 0 | 58 | 22 | 19 | 99 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 9 | 9 | 355 |
| 12:15 PM | 26 | 208 | 0 | 7 | 241 | 0 | 59 | 21 | 12 | 92 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 15 | 15 | 351 |
| 12:30 PM | 31 | 193 | 0 | 10 | 234 | 0 | 80 | 14 | 8 | 102 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 17 | 17 | 358 |
| 12:45 PM | 19 | 205 | 0 | 6 | 230 | 0 | 64 | 20 | 20 | 104 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 12 | 12 | 349 |
| Total | 86 | 830 | 0 | 32 | 948 | 0 | 261 | 77 | 59 | 397 | 0 | 0 | 0 | 15 | 15 | 0 | 0 | 0 | 53 | 53 | 1413 |
| Grand Total | 145 | 1617 | 0 | 66 | 1828 | 0 | 467 | 155 | 83 | 705 | 0 | 0 | 0 | 24 | 24 | 0 | 0 | 0 | 81 | 81 | 2638 |
| Apprch % | 7.9 | 88.5 | 0 | 3.6 | | 0 | 66.2 | 22 | 11.8 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| Total % | 5.5 | 61.3 | 0 | 2.5 | 69.3 | 0 | 17.7 | 5.9 | 3.1 | 26.7 | 0 | 0 | 0 | 0.9 | 0.9 | 0 | 0 | 0 | 3.1 | 3.1 | |
| Unshifted | 145 | 1617 | 0 | 66 | 1828 | 0 | 467 | 155 | 83 | 705 | 0 | 0 | 0 | 24 | 24 | 0 | 0 | 0 | 81 | 81 | 2638 |
| % Unshifted | 100 | 100 | 0 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | St Paul St From North | | | | | Preston St From East | | | | | St Paul St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| **12:00 PM** | **10** | 224 | 0 | 9 | 243 | 0 | 58 | 22 | 19 | 99 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 9 | 9 | 355 |
| 12:15 PM | 26 | 208 | 0 | 7 | 241 | 0 | 59 | 21 | 12 | 92 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 15 | 15 | 351 |
| 12:30 PM | 31 | 193 | 0 | **10** | 234 | 0 | **80** | 14 | 8 | 102 | 0 | 0 | 0 | **5** | **5** | 0 | 0 | 0 | **17** | **17** | **358** |
| 12:45 PM | 19 | 205 | 0 | 6 | 230 | 0 | 64 | 20 | **20** | **104** | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 12 | 12 | 349 |
| Total Volume | 86 | 830 | 0 | 32 | 948 | 0 | 261 | 77 | 59 | 397 | 0 | 0 | 0 | 15 | 15 | 0 | 0 | 0 | 53 | 53 | 1413 |
| % App. Total | 9.1 | 87.6 | 0 | 3.4 | | 0 | 65.7 | 19.4 | 14.9 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| PHF | .694 | .926 | .000 | .800 | .975 | .000 | .816 | .875 | .738 | .954 | .000 | .000 | .000 | .750 | .750 | .000 | .000 | .000 | .779 | .779 | .987 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_StPaul_MD
Site Code : 00000000
Start Date : 9/10/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_StPaul_MD
Site Code : 00000000
Start Date : 9/10/2015
Page No : 3

| | St Paul St From North | | | | | Preston St From East | | | | | St Paul St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

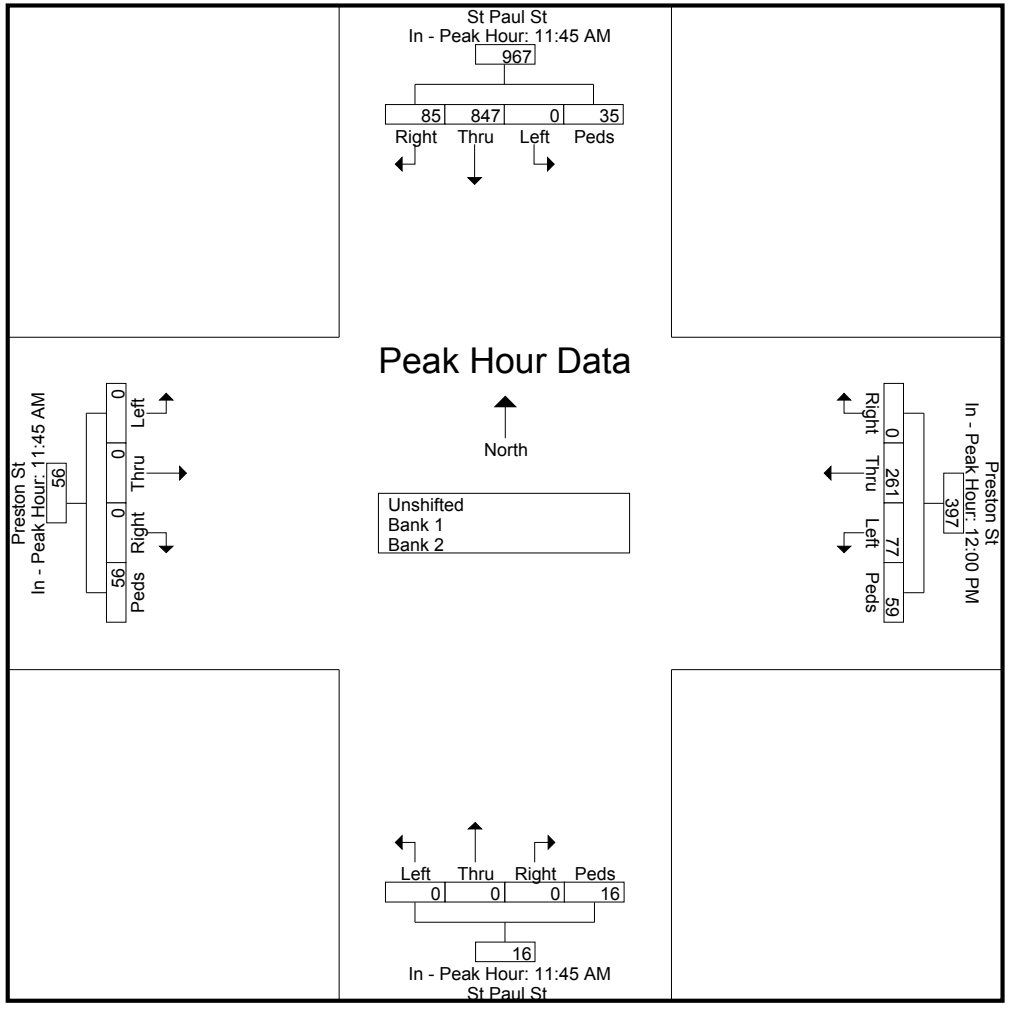
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 11:45 AM | | | | | 12:00 PM | | | | | 11:45 AM | | | | | 11:45 AM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **18** | **222** | **0** | **9** | 249 | 0 | 58 | 22 | 19 | 99 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 15 | 15 |
| +15 mins. | 10 | 224 | 0 | 9 | 243 | 0 | 59 | 21 | 12 | 92 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 9 | 9 |
| +30 mins. | 26 | 208 | 0 | 7 | 241 | 0 | 80 | 14 | 8 | 102 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 15 | 15 |
| +45 mins. | **31** | 193 | 0 | **10** | 234 | 0 | 64 | 20 | **20** | **104** | 0 | 0 | 0 | **5** | **5** | 0 | 0 | 0 | **17** | **17** |
| Total Volume | 85 | 847 | 0 | 35 | 967 | 0 | 261 | 77 | 59 | 397 | 0 | 0 | 0 | 16 | 16 | 0 | 0 | 0 | 56 | 56 |
| % App. Total | 8.8 | 87.6 | 0 | 3.6 | | 0 | 65.7 | 19.4 | 14.9 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | |
| PHF | .685 | .945 | .000 | .875 | .971 | .000 | .816 | .875 | .738 | .954 | .000 | .000 | .000 | .800 | .800 | .000 | .000 | .000 | .824 | .824 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_StPaul_MD
Site Code : 00000000
Start Date : 9/10/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_StPaul_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 1

**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | Preston St From East | | | | | St Paul St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 03:30 PM | 20 | 267 | 0 | 4 | 291 | 0 | 97 | 21 | 8 | 126 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 11 | 11 | 432 |
| 03:45 PM | 22 | 245 | 0 | 7 | 274 | 0 | 84 | 35 | 9 | 128 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 6 | 6 | 410 |
| Total | 42 | 512 | 0 | 11 | 565 | 0 | 181 | 56 | 17 | 254 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 17 | 17 | 842 |
| 04:00 PM | 19 | 246 | 0 | 14 | 279 | 0 | 99 | 27 | 11 | 137 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 7 | 7 | 427 |
| 04:15 PM | 27 | 291 | 0 | 14 | 332 | 0 | 80 | 21 | 8 | 109 | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 16 | 16 | 468 |
| 04:30 PM | 29 | 254 | 0 | 9 | 292 | 0 | 105 | 15 | 10 | 130 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 10 | 10 | 434 |
| 04:45 PM | 39 | 280 | 0 | 13 | 332 | 0 | 110 | 16 | 7 | 133 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 10 | 10 | 480 |
| Total | 114 | 1071 | 0 | 50 | 1235 | 0 | 394 | 79 | 36 | 509 | 0 | 0 | 0 | 22 | 22 | 0 | 0 | 0 | 43 | 43 | 1809 |
| 05:00 PM | 21 | 227 | 0 | 5 | 253 | 0 | 124 | 16 | 14 | 154 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 12 | 12 | 424 |
| 05:15 PM | 31 | 250 | 0 | 8 | 289 | 0 | 99 | 24 | 11 | 134 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | 13 | 13 | 449 |
| 05:30 PM | 38 | 274 | 0 | 10 | 322 | 0 | 99 | 27 | 9 | 135 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 11 | 11 | 478 |
| 05:45 PM | 31 | 265 | 0 | 12 | 308 | 0 | 110 | 18 | 14 | 142 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 14 | 14 | 470 |
| Total | 121 | 1016 | 0 | 35 | 1172 | 0 | 432 | 85 | 48 | 565 | 0 | 0 | 0 | 34 | 34 | 0 | 0 | 0 | 50 | 50 | 1821 |
| 06:00 PM | 25 | 240 | 0 | 23 | 288 | 0 | 114 | 23 | 16 | 153 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 18 | 18 | 471 |
| 06:15 PM | 23 | 238 | 0 | 18 | 279 | 0 | 85 | 16 | 14 | 115 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 18 | 18 | 420 |
| Grand Total | 325 | 3077 | 0 | 137 | 3539 | 0 | 1206 | 259 | 131 | 1596 | 0 | 0 | 0 | 82 | 82 | 0 | 0 | 0 | 146 | 146 | 5363 |
| Apprch % | 9.2 | 86.9 | 0 | 3.9 | | 0 | 75.6 | 16.2 | 8.2 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| Total % | 6.1 | 57.4 | 0 | 2.6 | 66 | 0 | 22.5 | 4.8 | 2.4 | 29.8 | 0 | 0 | 0 | 1.5 | 1.5 | 0 | 0 | 0 | 2.7 | 2.7 | |
| Unshifted | 325 | 3077 | 0 | 137 | 3539 | 0 | 1206 | 259 | 131 | 1596 | 0 | 0 | 0 | 82 | 82 | 0 | 0 | 0 | 146 | 146 | 5363 |
| % Unshifted | 100 | 100 | 0 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

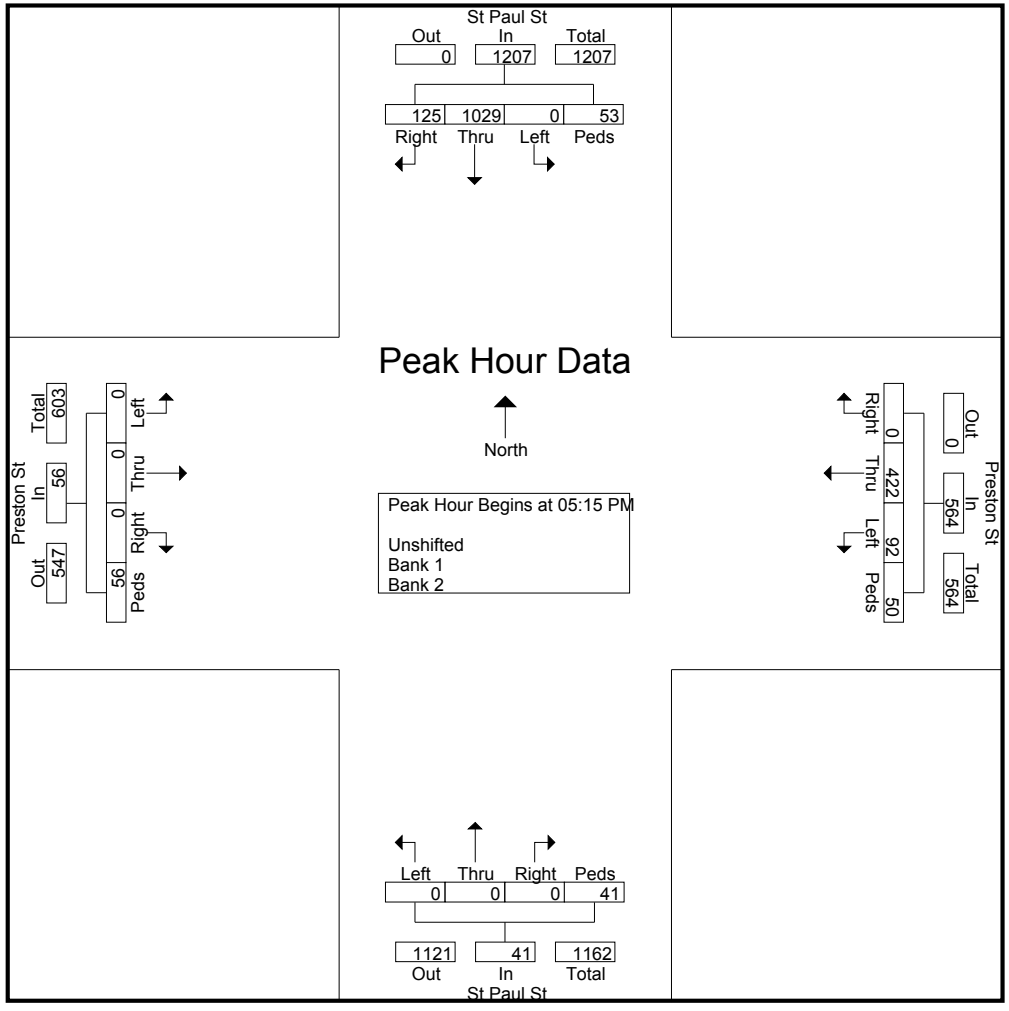
Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_StPaul_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 2

| | St Paul St From North | | | | | Preston St From East | | | | | St Paul St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 05:15 PM | | | | | | | | | | | | | | | | | | | | | |
| **05:15 PM** | **31** | **250** | **0** | **8** | **289** | **0** | **99** | **24** | **11** | **134** | **0** | **0** | **0** | 13 | 13 | 0 | 0 | 0 | 13 | 13 | 449 |
| 05:30 PM | 38 | 274 | 0 | 10 | **322** | 0 | 99 | **27** | 9 | 135 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 11 | 11 | **478** |
| 05:45 PM | 31 | 265 | 0 | 12 | 308 | 0 | 110 | 18 | 14 | 142 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 14 | 14 | 470 |
| 06:00 PM | 25 | 240 | 0 | **23** | 288 | 0 | **114** | 23 | **16** | **153** | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | **18** | **18** | 471 |
| Total Volume | 125 | 1029 | 0 | 53 | 1207 | 0 | 422 | 92 | 50 | 564 | 0 | 0 | 0 | 41 | 41 | 0 | 0 | 0 | 56 | 56 | 1868 |
| % App. Total | 10.4 | 85.3 | 0 | 4.4 | | 0 | 74.8 | 16.3 | 8.9 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| PHF | .822 | .939 | .000 | .576 | .937 | .000 | .925 | .852 | .781 | .922 | .000 | .000 | .000 | .788 | .788 | .000 | .000 | .000 | .778 | .778 | .977 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_StPaul_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 3



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_StPaul_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 4

| | St Paul St From North | | | | | Preston St From East | | | | | St Paul St From South | | | | | Preston St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

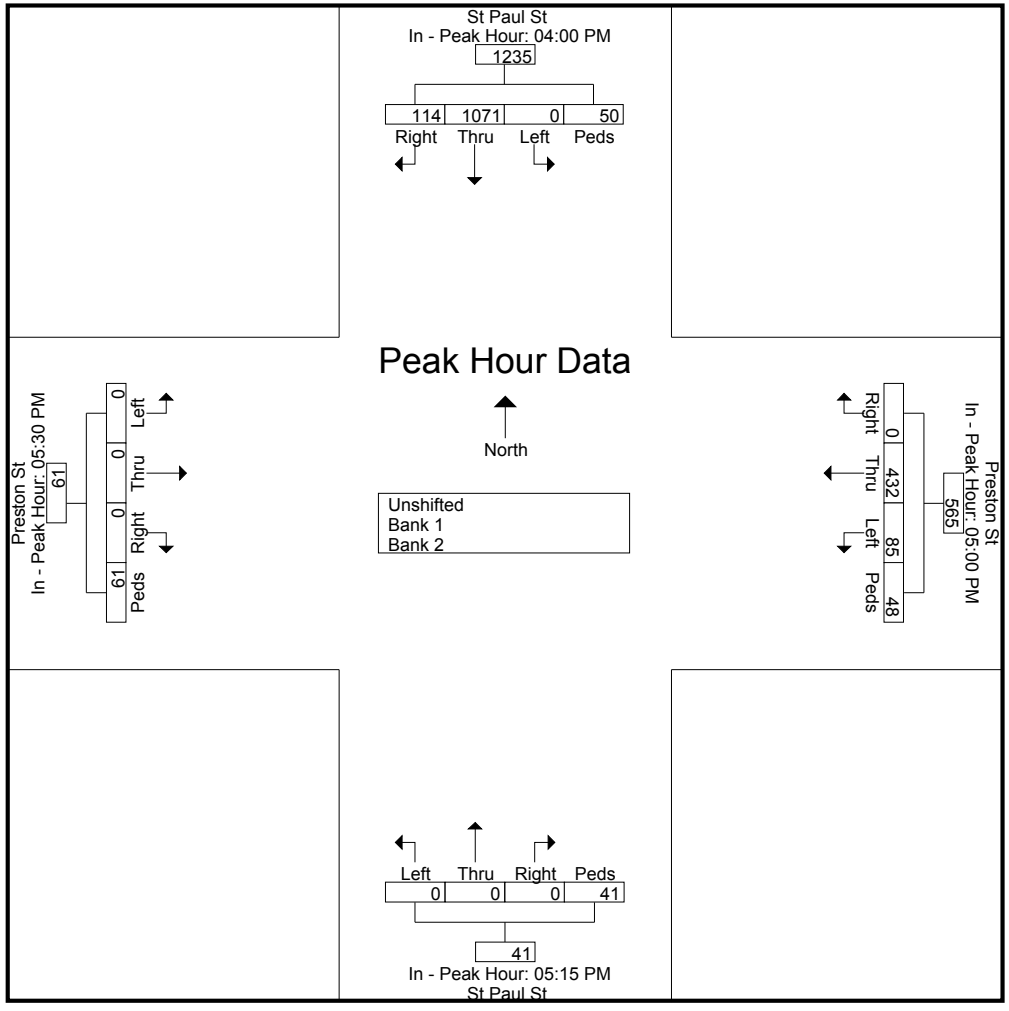
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 04:00 PM | | | | | 05:00 PM | | | | | 05:15 PM | | | | | 05:30 PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **19** | **246** | **0** | 14 | 279 | 0 | 124 | 16 | 14 | 154 | 0 | 0 | 0 | **13** | **13** | 0 | 0 | 0 | 11 | 11 |
| +15 mins. | 27 | **291** | 0 | 14 | **332** | 0 | 99 | 24 | 11 | 134 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 14 | 14 |
| +30 mins. | 29 | 254 | 0 | 9 | 292 | 0 | 99 | **27** | 9 | 135 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | **18** | **18** |
| +45 mins. | **39** | 280 | 0 | 13 | 332 | 0 | 110 | 18 | 14 | 142 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 18 | 18 |
| Total Volume | 114 | 1071 | 0 | 50 | 1235 | 0 | 432 | 85 | 48 | 565 | 0 | 0 | 0 | 41 | 41 | 0 | 0 | 0 | 61 | 61 |
| % App. Total | 9.2 | 86.7 | 0 | 4 | | 0 | 76.5 | 15 | 8.5 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | |
| PHF | .731 | .920 | .000 | .893 | .930 | .000 | .871 | .787 | .857 | .917 | .000 | .000 | .000 | .788 | .788 | .000 | .000 | .000 | .847 | .847 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : Preston_StPaul_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 5



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_AM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 1

**Groups Printed- Unshifted**

| | St Paul St From North | | | | | Mount Royal Ave From East | | | | | St Paul St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 174 | 8 | 4 | 186 | 0 | 79 | 0 | 16 | 95 | 0 | 0 | 0 | 12 | 12 | 8 | 44 | 0 | 13 | 65 | 358 |
| 07:15 AM | 0 | 215 | 17 | 8 | 240 | 0 | 82 | 2 | 12 | 96 | 0 | 0 | 0 | 12 | 12 | 4 | 32 | 0 | 9 | 45 | 393 |
| 07:30 AM | 4 | 229 | 30 | 8 | 271 | 0 | 92 | 1 | 25 | 118 | 0 | 0 | 0 | 20 | 20 | 17 | 49 | 0 | 6 | 72 | 481 |
| 07:45 AM | 0 | 233 | 34 | 6 | 273 | 0 | 106 | 0 | 18 | 124 | 0 | 0 | 0 | 21 | 21 | 11 | 38 | 0 | 11 | 60 | 478 |
| Total | 4 | 851 | 89 | 26 | 970 | 0 | 359 | 3 | 71 | 433 | 0 | 0 | 0 | 65 | 65 | 40 | 163 | 0 | 39 | 242 | 1710 |
| 08:00 AM | 1 | 205 | 36 | 17 | 259 | 0 | 119 | 0 | 29 | 148 | 0 | 0 | 0 | 25 | 25 | 15 | 55 | 0 | 6 | 76 | 508 |
| 08:15 AM | 0 | 201 | 35 | 6 | 242 | 0 | 86 | 1 | 14 | 101 | 0 | 0 | 0 | 22 | 22 | 14 | 50 | 0 | 8 | 72 | 437 |
| 08:30 AM | 0 | 213 | 29 | 3 | 245 | 0 | 104 | 0 | 17 | 121 | 0 | 0 | 0 | 18 | 18 | 13 | 52 | 0 | 3 | 68 | 452 |
| 08:45 AM | 0 | 205 | 30 | 5 | 240 | 0 | 94 | 5 | 14 | 113 | 0 | 0 | 0 | 12 | 12 | 18 | 38 | 0 | 5 | 61 | 426 |
| Total | 1 | 824 | 130 | 31 | 986 | 0 | 403 | 6 | 74 | 483 | 0 | 0 | 0 | 77 | 77 | 60 | 195 | 0 | 22 | 277 | 1823 |
| Grand Total | 5 | 1675 | 219 | 57 | 1956 | 0 | 762 | 9 | 145 | 916 | 0 | 0 | 0 | 142 | 142 | 100 | 358 | 0 | 61 | 519 | 3533 |
| Apprch % | 0.3 | 85.6 | 11.2 | 2.9 | | 0 | 83.2 | 1 | 15.8 | | 0 | 0 | 0 | 100 | | 19.3 | 69 | 0 | 11.8 | | |
| Total % | 0.1 | 47.4 | 6.2 | 1.6 | 55.4 | 0 | 21.6 | 0.3 | 4.1 | 25.9 | 0 | 0 | 0 | 4 | 4 | 2.8 | 10.1 | 0 | 1.7 | 14.7 | |

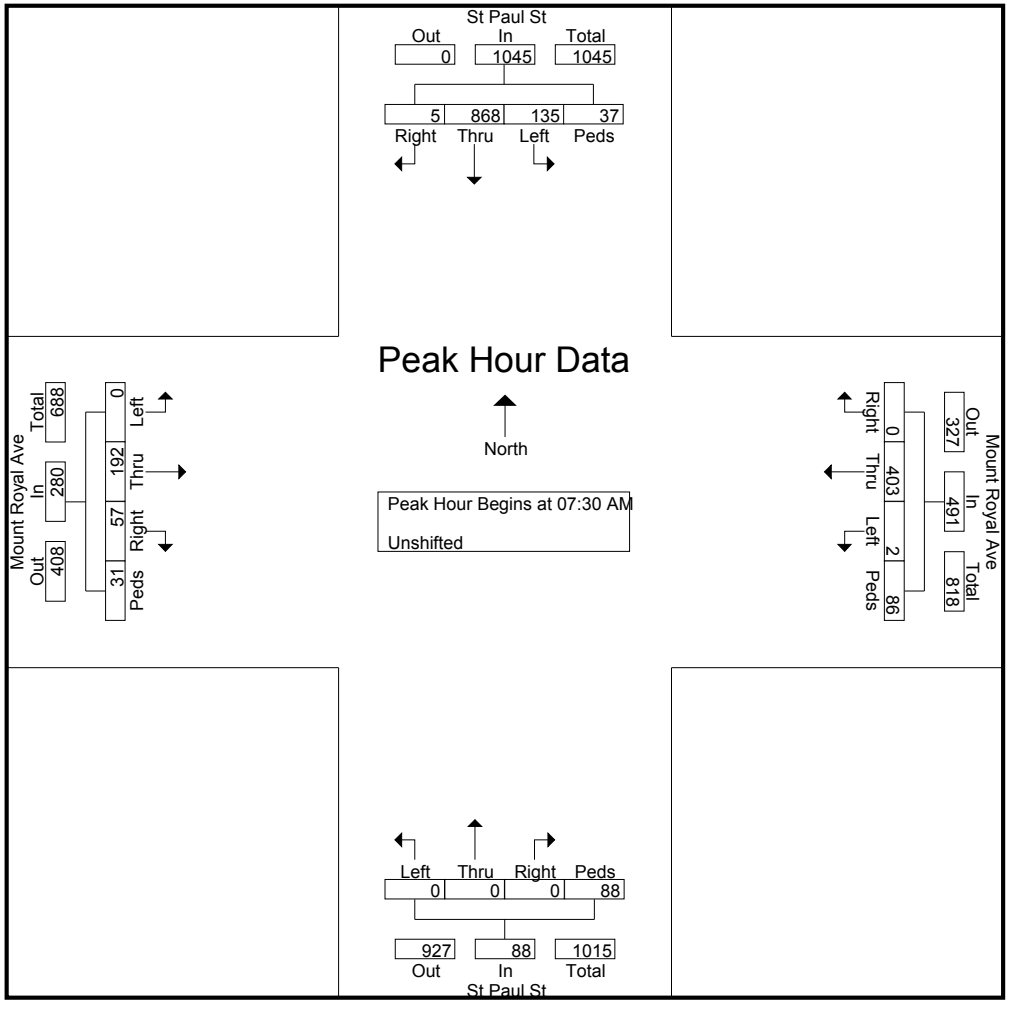
| | St Paul St From North | | | | | Mount Royal Ave From East | | | | | St Paul St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| **07:30 AM** | 4 | 229 | 30 | 8 | 271 | 0 | 92 | 1 | 25 | 118 | 0 | 0 | 0 | 20 | 20 | 17 | 49 | 0 | 6 | 72 | 481 |
| 07:45 AM | 0 | 233 | 34 | 6 | **273** | 0 | 106 | 0 | 18 | 124 | 0 | 0 | 0 | 21 | 21 | 11 | 38 | 0 | **11** | 60 | 478 |
| 08:00 AM | 1 | 205 | **36** | **17** | 259 | 0 | **119** | 0 | **29** | **148** | 0 | 0 | 0 | **25** | **25** | 15 | **55** | 0 | 6 | **76** | **508** |
| 08:15 AM | 0 | 201 | 35 | 6 | 242 | 0 | 86 | 1 | 14 | 101 | 0 | 0 | 0 | 22 | 22 | 14 | 50 | 0 | 8 | 72 | 437 |
| Total Volume | 5 | 868 | 135 | 37 | 1045 | 0 | 403 | 2 | 86 | 491 | 0 | 0 | 0 | 88 | 88 | 57 | 192 | 0 | 31 | 280 | 1904 |
| % App. Total | 0.5 | 83.1 | 12.9 | 3.5 | | 0 | 82.1 | 0.4 | 17.5 | | 0 | 0 | 0 | 100 | | 20.4 | 68.6 | 0 | 11.1 | | |
| PHF | .313 | .931 | .938 | .544 | .957 | .000 | .847 | .500 | .741 | .829 | .000 | .000 | .000 | .880 | .880 | .838 | .873 | .000 | .705 | .921 | .937 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_AM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 2



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_AM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 3

| | St Paul St From North | | | | | Mount Royal Ave From East | | | | | St Paul St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

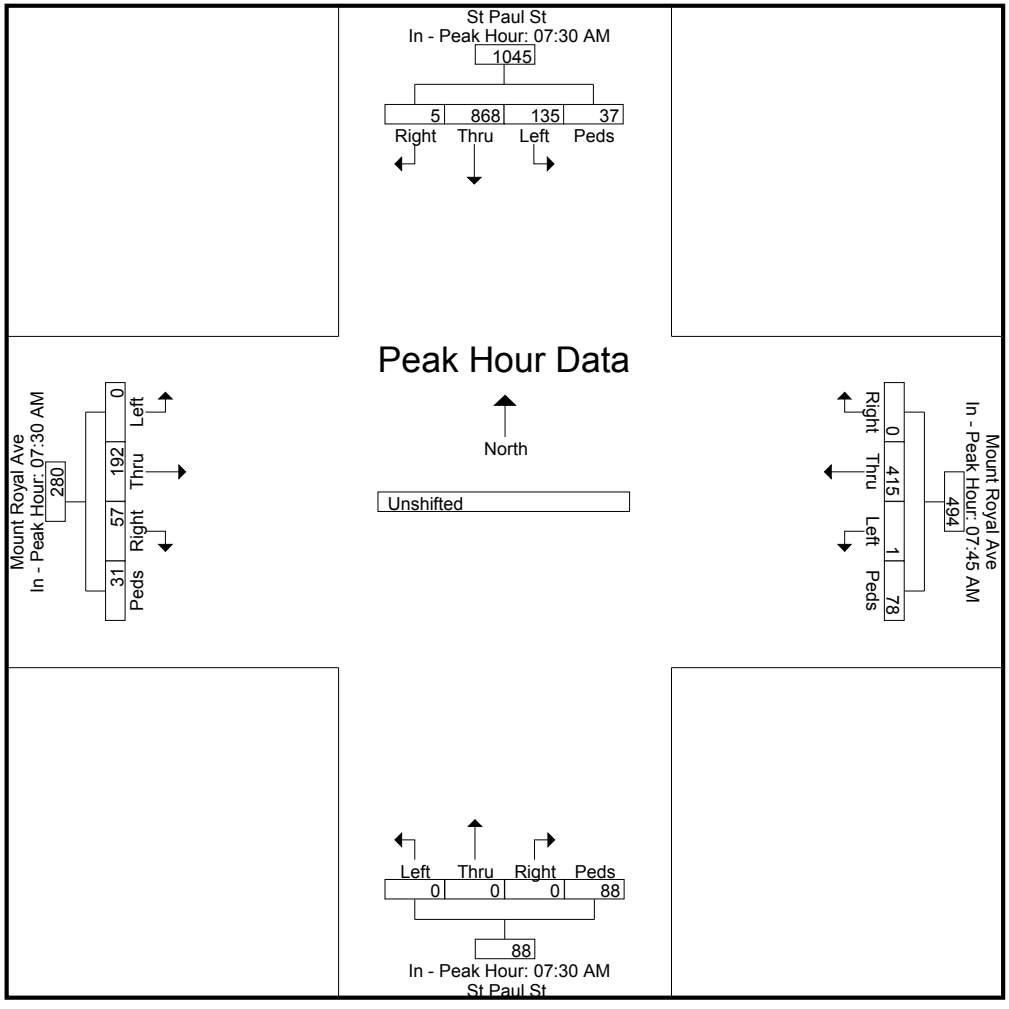
| | 07:30 AM | | | | | 07:45 AM | | | | | 07:30 AM | | | | | 07:30 AM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | 4 | 229 | 30 | 8 | 271 | 0 | 106 | 0 | 18 | 124 | 0 | 0 | 0 | 20 | 20 | 17 | 49 | 0 | 6 | 72 |
| +15 mins. | 0 | 233 | 34 | 6 | 273 | 0 | **119** | 0 | **29** | **148** | 0 | 0 | 0 | 21 | 21 | 11 | 38 | 0 | **11** | 60 |
| +30 mins. | 1 | 205 | **36** | **17** | 259 | 0 | 86 | **1** | 14 | 101 | 0 | 0 | 0 | **25** | **25** | 15 | **55** | 0 | 6 | **76** |
| +45 mins. | 0 | 201 | 35 | 6 | 242 | 0 | 104 | 0 | 17 | 121 | 0 | 0 | 0 | 22 | 22 | 14 | 50 | 0 | 8 | 72 |
| Total Volume | 5 | 868 | 135 | 37 | 1045 | 0 | 415 | 1 | 78 | 494 | 0 | 0 | 0 | 88 | 88 | 57 | 192 | 0 | 31 | 280 |
| % App. Total | 0.5 | 83.1 | 12.9 | 3.5 | | 0 | 84 | 0.2 | 15.8 | | 0 | 0 | 0 | 100 | | 20.4 | 68.6 | 0 | 11.1 | |
| PHF | .313 | .931 | .938 | .544 | .957 | .000 | .872 | .250 | .672 | .834 | .000 | .000 | .000 | .880 | .880 | .838 | .873 | .000 | .705 | .921 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_AM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 4



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_AM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 1

**Groups Printed- 83 Off Ramp**

| | St Paul St From North | | | | | Mount Royal Ave From East | | | | | St Paul St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 126 | 0 | 0 | 126 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 126 |
| 07:15 AM | 0 | 155 | 0 | 0 | 155 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 155 |
| 07:30 AM | 0 | 166 | 0 | 0 | 166 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 166 |
| 07:45 AM | 0 | 169 | 0 | 0 | 169 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 169 |
| Total | 0 | 616 | 0 | 0 | 616 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 616 |
| 08:00 AM | 0 | 148 | 0 | 0 | 148 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 148 |
| 08:15 AM | 0 | 145 | 0 | 0 | 145 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 145 |
| 08:30 AM | 0 | 154 | 0 | 0 | 154 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 154 |
| 08:45 AM | 0 | 148 | 0 | 0 | 148 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 148 |
| Total | 0 | 595 | 0 | 0 | 595 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 595 |
| Grand Total | 0 | 1211 | 0 | 0 | 1211 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1211 |
| Apprch % | 0 | 100 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | |
| Total % | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

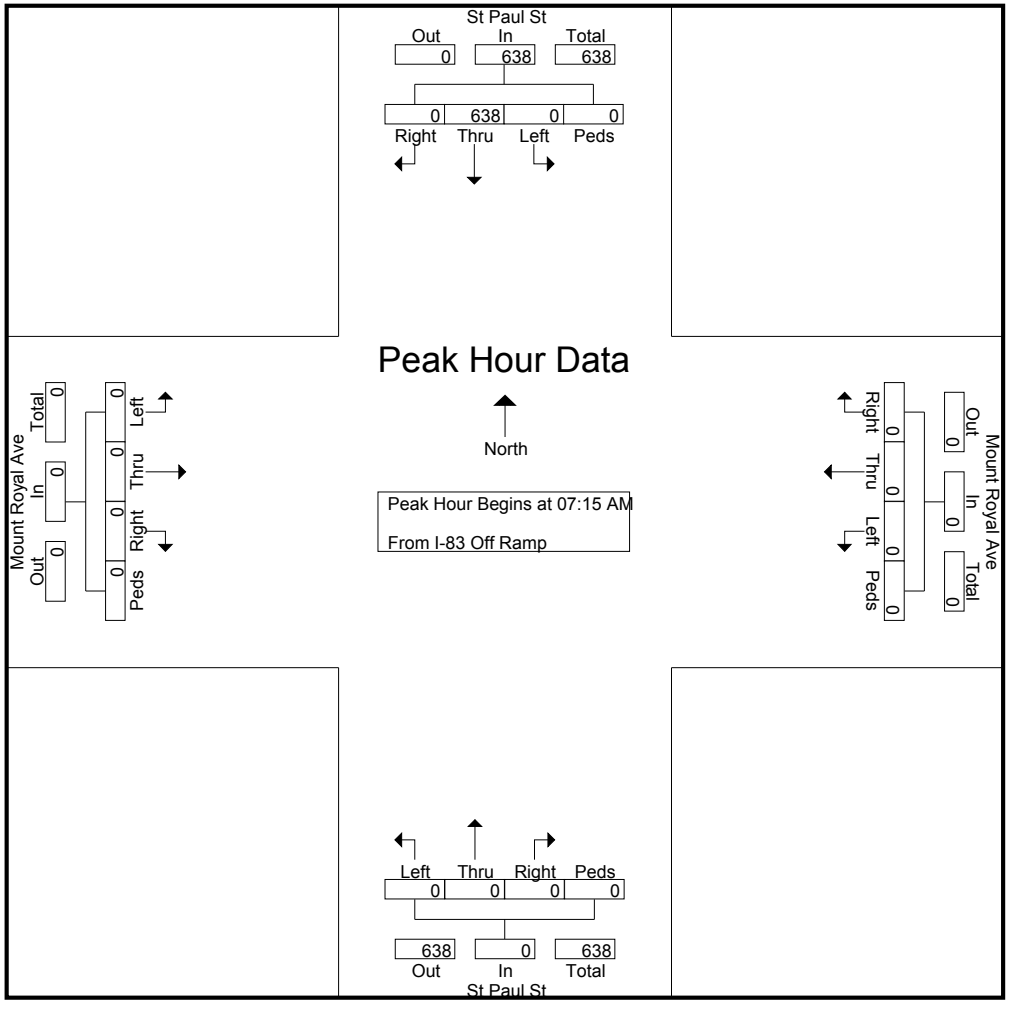
| | St Paul St From North | | | | | Mount Royal Ave From East | | | | | St Paul St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:15 AM | 0 | 155 | 0 | 0 | 155 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 155 |
| 07:30 AM | 0 | 166 | 0 | 0 | 166 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 166 |
| 07:45 AM | 0 | 169 | | | 169 | | | | | | | | | | | | | | | | 169 |
| 08:00 AM | 0 | 148 | 0 | 0 | 148 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 148 |
| Total Volume | 0 | 638 | 0 | 0 | 638 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 638 |
| % App. Total | 0 | 100 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | |
| PHF | .000 | .944 | .000 | .000 | .944 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .944 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_AM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 2



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_AM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 3

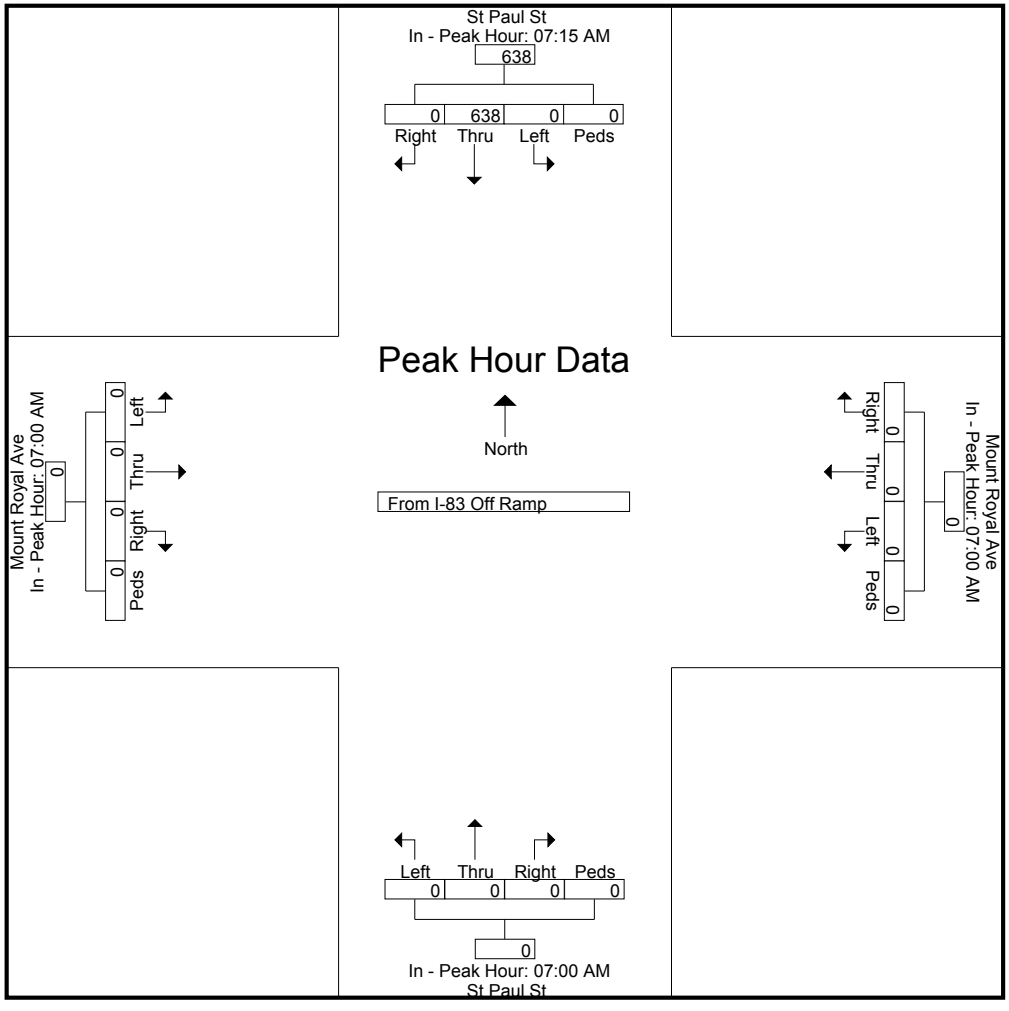
| | St Paul St From North | | | | | Mount Royal Ave From East | | | | | St Paul St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| **Peak Hour for Each Approach Begins at:** | | | | | | | | | | | | | | | | | | | | | |
| | 07:15 AM | | | | | 07:00 AM | | | | | 07:00 AM | | | | | 07:00 AM | | | | | |
| +0 mins. | 0 | 155 | 0 | 0 | 155 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| +15 mins. | 0 | 166 | 0 | 0 | 166 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| +30 mins. | 0 | 169 | | | 169 | | | | | | | | | | | | | | | | |
| +45 mins. | 0 | 148 | 0 | 0 | 148 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total Volume | 0 | 638 | 0 | 0 | 638 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| % App. Total | 0 | 100 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | |
| PHF | .000 | .944 | .000 | .000 | .944 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_AM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 4



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_PM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 1

**Groups Printed- Unshifted**

| | St Paul St From North | | | | | Mount Royal Ave From East | | | | | St Paul St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 03:30 PM | 2 | 183 | 18 | 5 | 208 | 0 | 137 | 2 | 12 | 151 | 0 | 0 | 0 | 5 | 5 | 19 | 42 | 0 | 5 | 66 | 430 |
| 03:45 PM | 2 | 198 | 17 | 2 | 219 | 0 | 119 | 1 | 7 | 127 | 0 | 0 | 0 | 8 | 8 | 8 | 40 | 0 | 6 | 54 | 408 |
| Total | 4 | 381 | 35 | 7 | 427 | 0 | 256 | 3 | 19 | 278 | 0 | 0 | 0 | 13 | 13 | 27 | 82 | 0 | 11 | 120 | 838 |
| 04:00 PM | 0 | 189 | 22 | 8 | 219 | 0 | 129 | 0 | 8 | 137 | 0 | 0 | 0 | 6 | 6 | 20 | 41 | 0 | 10 | 71 | 433 |
| 04:15 PM | 1 | 207 | 17 | 8 | 233 | 0 | 135 | 7 | 16 | 158 | 1 | 0 | 0 | 12 | 13 | 18 | 34 | 0 | 13 | 65 | 469 |
| 04:30 PM | 3 | 192 | 20 | 12 | 227 | 0 | 151 | 1 | 15 | 167 | 0 | 0 | 0 | 8 | 8 | 28 | 41 | 0 | 10 | 79 | 481 |
| 04:45 PM | 1 | 204 | 23 | 11 | 239 | 0 | 116 | 2 | 19 | 137 | 0 | 0 | 0 | 8 | 8 | 22 | 26 | 0 | 10 | 58 | 442 |
| Total | 5 | 792 | 82 | 39 | 918 | 0 | 531 | 10 | 58 | 599 | 1 | 0 | 0 | 34 | 35 | 88 | 142 | 0 | 43 | 273 | 1825 |
| 05:00 PM | 0 | 191 | 26 | 12 | 229 | 0 | 174 | 1 | 22 | 197 | 0 | 0 | 0 | 13 | 13 | 20 | 45 | 0 | 6 | 71 | 510 |
| 05:15 PM | 2 | 241 | 18 | 14 | 275 | 0 | 148 | 1 | 18 | 167 | 0 | 0 | 0 | 14 | 14 | 32 | 38 | 0 | 6 | 76 | 532 |
| 05:30 PM | 3 | 210 | 23 | 6 | 242 | 0 | 174 | 4 | 20 | 198 | 0 | 0 | 0 | 17 | 17 | 31 | 41 | 0 | 5 | 77 | 534 |
| 05:45 PM | 0 | 196 | 27 | 11 | 234 | 0 | 112 | 1 | 11 | 124 | 0 | 0 | 0 | 14 | 14 | 32 | 29 | 0 | 7 | 68 | 440 |
| Total | 5 | 838 | 94 | 43 | 980 | 0 | 608 | 7 | 71 | 686 | 0 | 0 | 0 | 58 | 58 | 115 | 153 | 0 | 24 | 292 | 2016 |
| 06:00 PM | 1 | 204 | 23 | 25 | 253 | 0 | 103 | 3 | 32 | 138 | 0 | 0 | 0 | 14 | 14 | 28 | 28 | 0 | 10 | 66 | 471 |
| 06:15 PM | 1 | 199 | 20 | 10 | 230 | 0 | 108 | 5 | 19 | 132 | 0 | 0 | 0 | 12 | 12 | 30 | 35 | 0 | 7 | 72 | 446 |
| Grand Total | 16 | 2414 | 254 | 124 | 2808 | 0 | 1606 | 28 | 199 | 1833 | 1 | 0 | 0 | 131 | 132 | 288 | 440 | 0 | 95 | 823 | 5596 |
| Apprch % | 0.6 | 86 | 9 | 4.4 | | 0 | 87.6 | 1.5 | 10.9 | | 0.8 | 0 | 0 | 99.2 | | 35 | 53.5 | 0 | 11.5 | | |
| Total % | 0.3 | 43.1 | 4.5 | 2.2 | 50.2 | 0 | 28.7 | 0.5 | 3.6 | 32.8 | 0 | 0 | 0 | 2.3 | 2.4 | 5.1 | 7.9 | 0 | 1.7 | 14.7 | |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_PM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 2

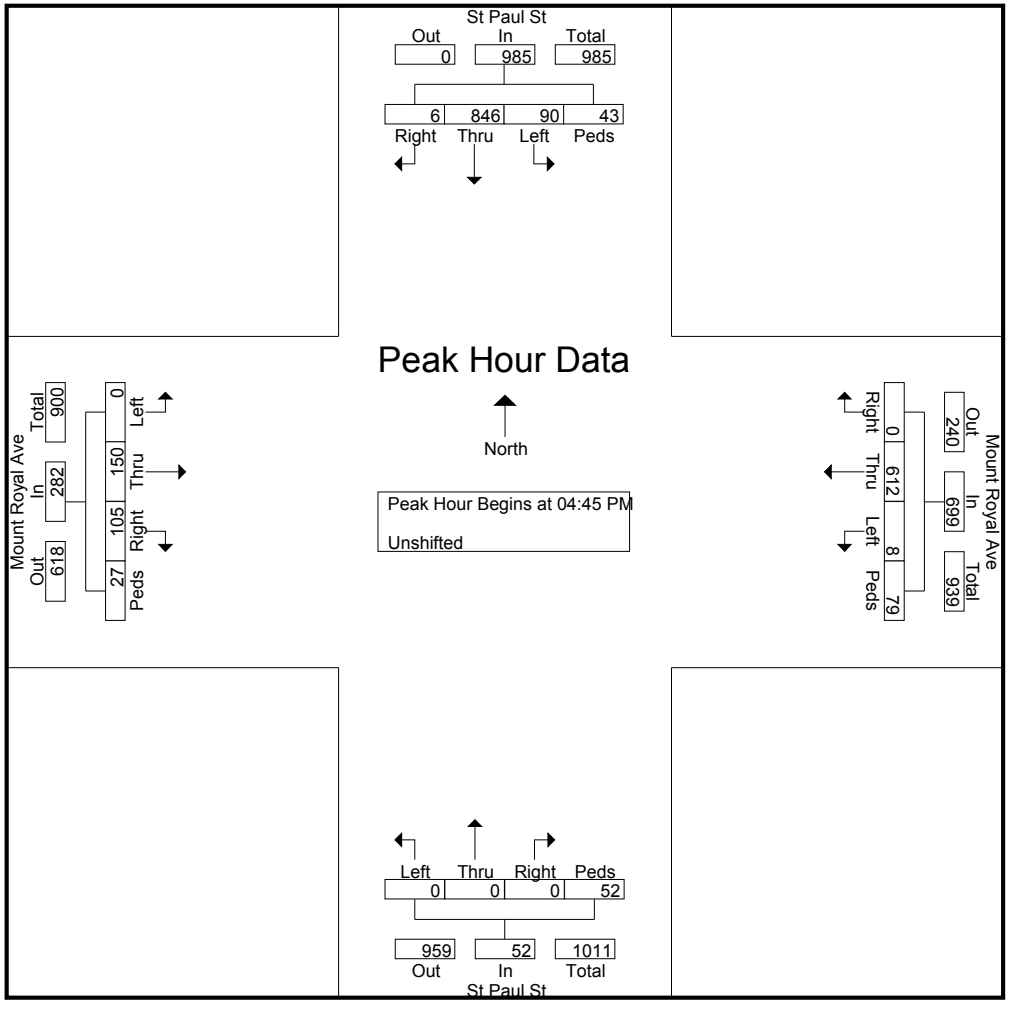
| | St Paul St From North | | | | | Mount Royal Ave From East | | | | | St Paul St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:30 PM to 06:00 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| **04:45 PM** | **1** | **204** | **23** | **11** | **239** | **0** | **116** | **2** | **19** | **137** | **0** | **0** | **0** | **8** | **8** | **22** | **26** | **0** | 10 | 58 | 442 |
| 05:00 PM | 0 | 191 | 26 | 12 | 229 | 0 | 174 | 1 | 22 | 197 | 0 | 0 | 0 | 13 | 13 | 20 | **45** | 0 | 6 | 71 | 510 |
| 05:15 PM | 2 | **241** | 18 | **14** | **275** | 0 | 148 | 1 | 18 | 167 | 0 | 0 | 0 | 14 | 14 | **32** | 38 | 0 | 6 | 76 | 532 |
| 05:30 PM | **3** | 210 | 23 | 6 | 242 | 0 | 174 | **4** | 20 | **198** | 0 | 0 | 0 | **17** | **17** | 31 | 41 | 0 | 5 | **77** | **534** |
| Total Volume | 6 | 846 | 90 | 43 | 985 | 0 | 612 | 8 | 79 | 699 | 0 | 0 | 0 | 52 | 52 | 105 | 150 | 0 | 27 | 282 | 2018 |
| % App. Total | 0.6 | 85.9 | 9.1 | 4.4 | | 0 | 87.6 | 1.1 | 11.3 | | 0 | 0 | 0 | 100 | | 37.2 | 53.2 | 0 | 9.6 | | |
| PHF | .500 | .878 | .865 | .768 | .895 | .000 | .879 | .500 | .898 | .883 | .000 | .000 | .000 | .765 | .765 | .820 | .833 | .000 | .675 | .916 | .945 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_PM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 3



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_PM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 4

| | St Paul St From North | | | | | Mount Royal Ave From East | | | | | St Paul St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

Peak Hour Analysis From 03:30 PM to 06:00 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

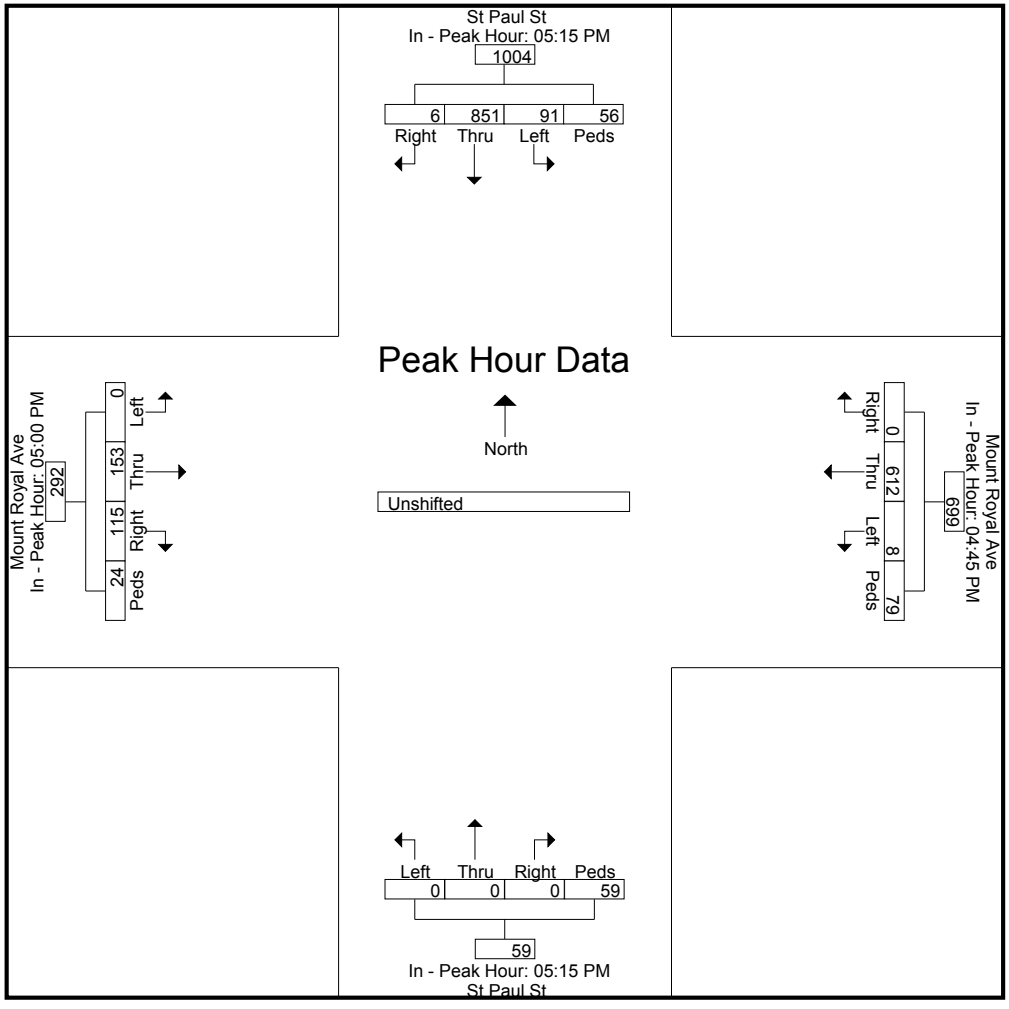
| | 05:15 PM | | | | | 04:45 PM | | | | | 05:15 PM | | | | | 05:00 PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **2** | 241 | 18 | 14 | 275 | 0 | 116 | 2 | 19 | 137 | 0 | 0 | 0 | 14 | 14 | 20 | 45 | 0 | 6 | 71 |
| +15 mins. | 3 | 210 | 23 | 6 | 242 | 0 | **174** | 1 | **22** | 197 | 0 | 0 | 0 | **17** | **17** | **32** | 38 | 0 | 6 | 76 |
| +30 mins. | 0 | 196 | **27** | 11 | 234 | 0 | 148 | 1 | 18 | 167 | 0 | 0 | 0 | 14 | 14 | 31 | 41 | 0 | 5 | **77** |
| +45 mins. | 1 | 204 | 23 | **25** | 253 | 0 | 174 | **4** | 20 | **198** | 0 | 0 | 0 | 14 | 14 | 32 | 29 | 0 | **7** | 68 |
| Total Volume | 6 | 851 | 91 | 56 | 1004 | 0 | 612 | 8 | 79 | 699 | 0 | 0 | 0 | 59 | 59 | 115 | 153 | 0 | 24 | 292 |
| % App. Total | 0.6 | 84.8 | 9.1 | 5.6 | | 0 | 87.6 | 1.1 | 11.3 | | 0 | 0 | 0 | 100 | | 39.4 | 52.4 | 0 | 8.2 | |
| PHF | .500 | .883 | .843 | .560 | .913 | .000 | .879 | .500 | .898 | .883 | .000 | .000 | .000 | .868 | .868 | .898 | .850 | .000 | .857 | .948 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_PM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 5



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_PM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 1

**Groups Printed- 83 Off Ramp**

| | St Paul St From North | | | | | Mount Royal Ave From East | | | | | St Paul St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 03:30 PM | 0 | 68 | 0 | 0 | 68 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 |
| 03:45 PM | 0 | 73 | 0 | 0 | 73 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 |
| Total | 0 | 141 | 0 | 0 | 141 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 141 |
| 04:00 PM | 0 | 70 | 0 | 0 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 |
| 04:15 PM | 0 | 76 | 0 | 0 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 |
| 04:30 PM | 0 | 71 | 0 | 0 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 |
| 04:45 PM | 0 | 76 | 0 | 0 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 |
| Total | 0 | 293 | 0 | 0 | 293 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 293 |
| 05:00 PM | 0 | 71 | 0 | 0 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 |
| 05:15 PM | 0 | 89 | 0 | 0 | 89 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89 |
| 05:30 PM | 0 | 77 | 0 | 0 | 77 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 |
| 05:45 PM | 0 | 72 | 0 | 0 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 72 |
| Total | 0 | 309 | 0 | 0 | 309 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 309 |
| 06:00 PM | 0 | 75 | 0 | 0 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75 |
| 06:15 PM | 0 | 74 | 0 | 0 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74 |
| Grand Total | 0 | 892 | 0 | 0 | 892 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 892 |
| Apprch % | 0 | 100 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | |
| Total % | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_PM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 2

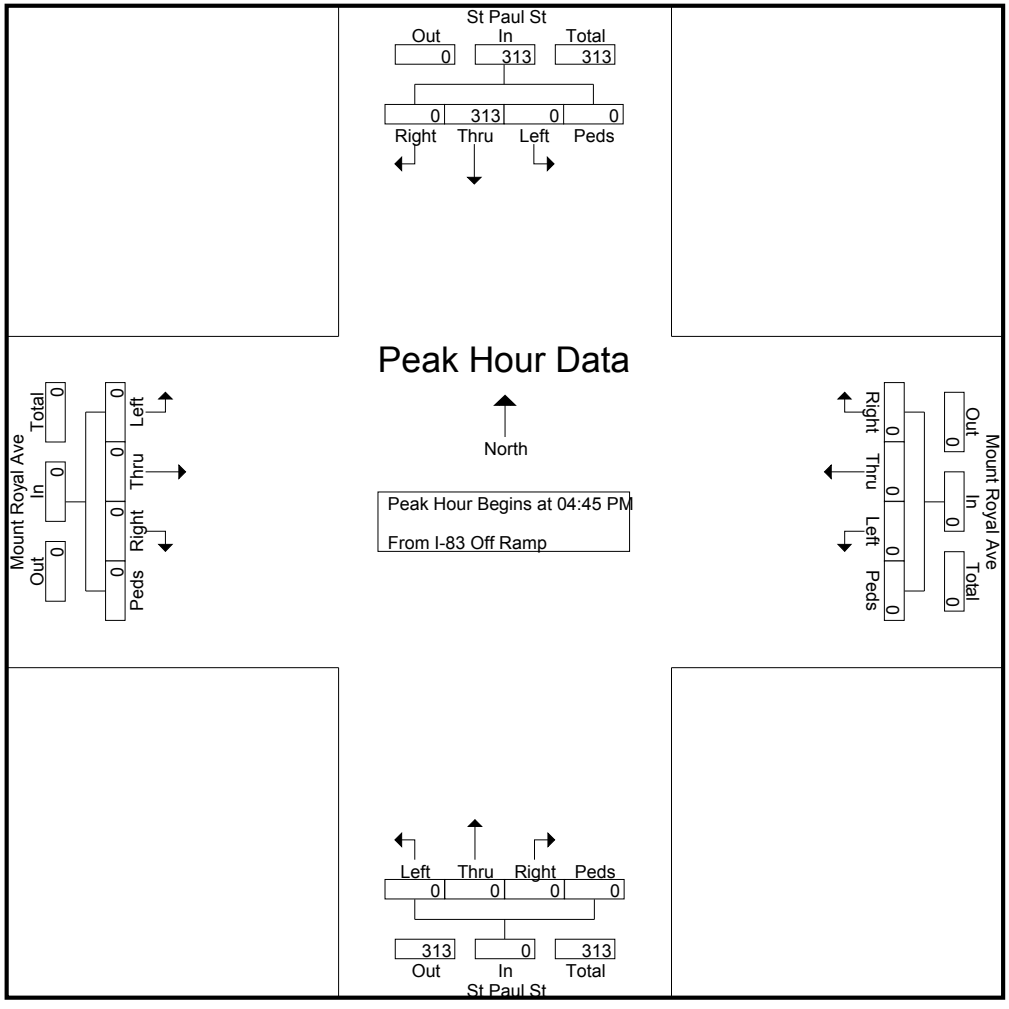
| | St Paul St From North | | | | | Mount Royal Ave From East | | | | | St Paul St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:30 PM to 06:00 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:45 PM | 0 | 76 | 0 | 0 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 |
| 05:00 PM | 0 | 71 | 0 | 0 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 |
| 05:15 PM | 0 | 89 | | | 89 | | | | | | | | | | | | | | | | 89 |
| 05:30 PM | 0 | 77 | 0 | 0 | 77 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 |
| Total Volume | 0 | 313 | 0 | 0 | 313 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 313 |
| % App. Total | 0 | 100 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | |
| PHF | .000 | .879 | .000 | .000 | .879 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .879 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_PM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 3



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_PM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 4

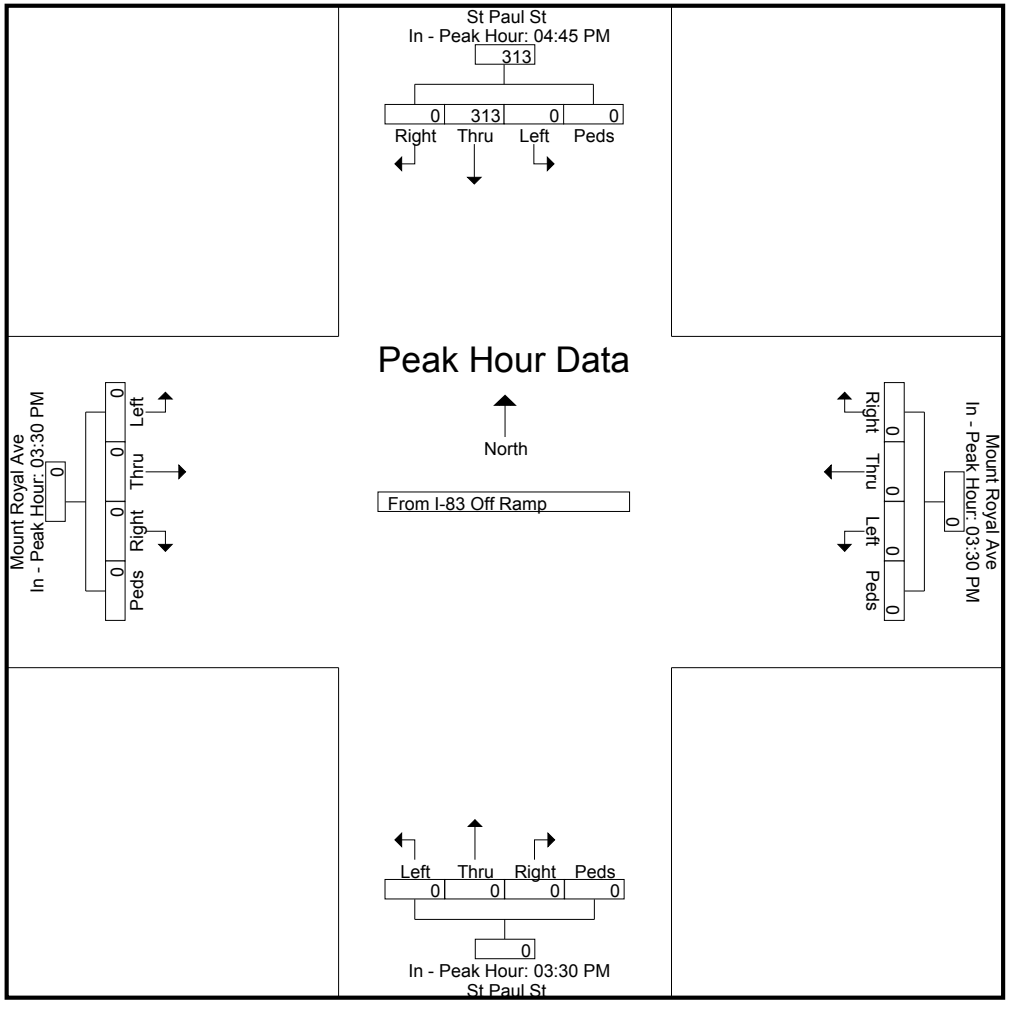
| | St Paul St From North | | | | | Mount Royal Ave From East | | | | | St Paul St From South | | | | | Mount Royal Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:30 PM to 06:00 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| **Peak Hour for Each Approach Begins at:** | | | | | | | | | | | | | | | | | | | | | |
| | 04:45 PM | | | | | 03:30 PM | | | | | 03:30 PM | | | | | 03:30 PM | | | | | |
| +0 mins. | 0 | 76 | 0 | 0 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| +15 mins. | 0 | 71 | 0 | 0 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| +30 mins. | 0 | 89 | | | 89 | | | | | | | | | | | | | | | | |
| +45 mins. | 0 | 77 | 0 | 0 | 77 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total Volume | 0 | 313 | 0 | 0 | 313 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| % App. Total | 0 | 100 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | |
| PHF | .000 | .879 | .000 | .000 | .879 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046

*443-741-3500*


File Name : MountRoyal_StPaul_PM
Site Code : 00000000
Start Date : 9/3/2015
Page No : 5



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_StPaul_AM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 1

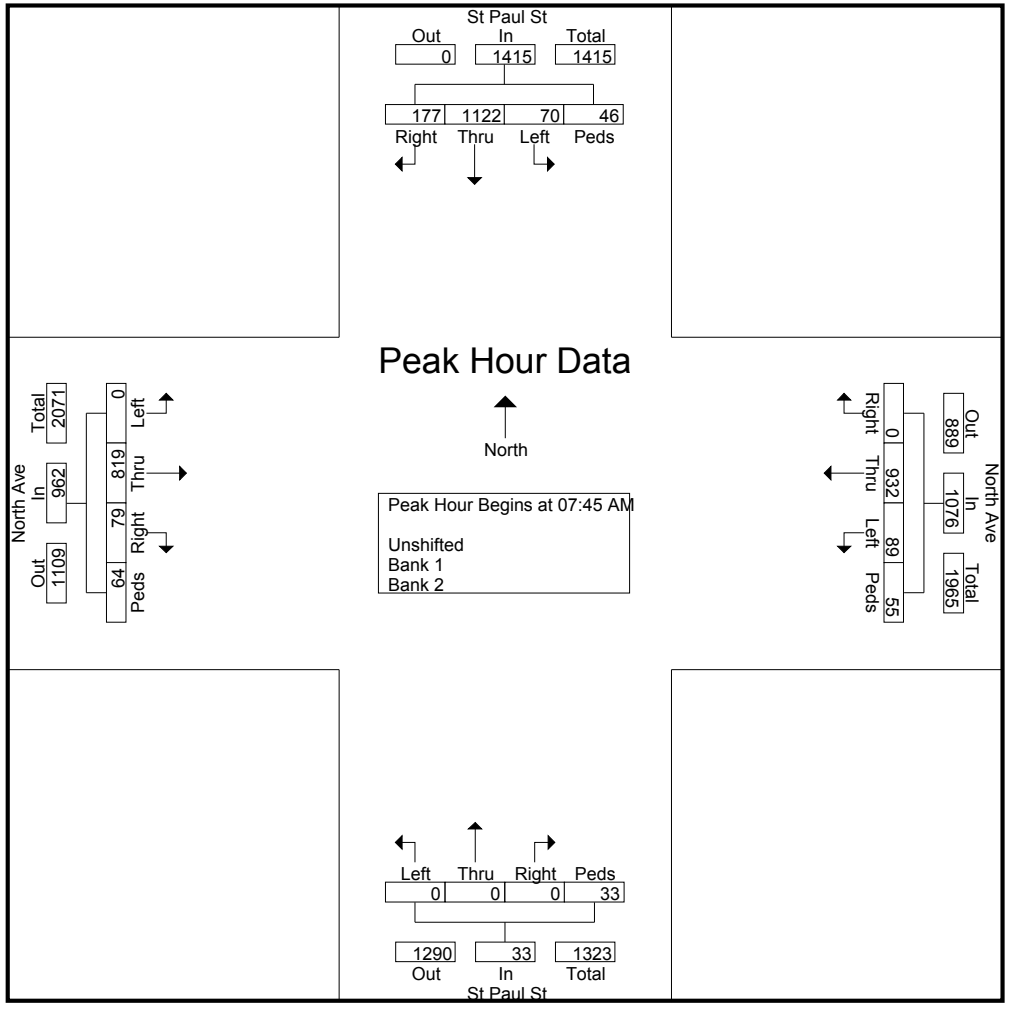
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | North Ave From East | | | | | St Paul St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 21 | 212 | 7 | 7 | 247 | 0 | 157 | 14 | 6 | 177 | 0 | 0 | 0 | 10 | 10 | 11 | 142 | 0 | 14 | 167 | 601 |
| 07:15 AM | 39 | 260 | 16 | 14 | 329 | 0 | 197 | 22 | 16 | 235 | 0 | 0 | 0 | 2 | 2 | 10 | 147 | 0 | 10 | 167 | 733 |
| 07:30 AM | 28 | 244 | 23 | 17 | 312 | 0 | 224 | 25 | 15 | 264 | 0 | 0 | 0 | 10 | 10 | 16 | 184 | 0 | 16 | 216 | 802 |
| 07:45 AM | 38 | 298 | 15 | 13 | 364 | 0 | 259 | 29 | 23 | 311 | 0 | 0 | 0 | 4 | 4 | 26 | 207 | 0 | 18 | 251 | 930 |
| Total | 126 | 1014 | 61 | 51 | 1252 | 0 | 837 | 90 | 60 | 987 | 0 | 0 | 0 | 26 | 26 | 63 | 680 | 0 | 58 | 801 | 3066 |
| 08:00 AM | 40 | 281 | 17 | 9 | 347 | 0 | 261 | 24 | 9 | 294 | 0 | 0 | 0 | 9 | 9 | 21 | 221 | 0 | 13 | 255 | 905 |
| 08:15 AM | 36 | 261 | 17 | 9 | 323 | 0 | 233 | 16 | 15 | 264 | 0 | 0 | 0 | 10 | 10 | 18 | 197 | 0 | 11 | 226 | 823 |
| 08:30 AM | 63 | 282 | 21 | 15 | 381 | 0 | 179 | 20 | 8 | 207 | 0 | 0 | 0 | 10 | 10 | 14 | 194 | 0 | 22 | 230 | 828 |
| 08:45 AM | 27 | 202 | 17 | 11 | 257 | 0 | 208 | 38 | 20 | 266 | 0 | 0 | 0 | 17 | 17 | 25 | 169 | 0 | 12 | 206 | 746 |
| Total | 166 | 1026 | 72 | 44 | 1308 | 0 | 881 | 98 | 52 | 1031 | 0 | 0 | 0 | 46 | 46 | 78 | 781 | 0 | 58 | 917 | 3302 |
| Grand Total | 292 | 2040 | 133 | 95 | 2560 | 0 | 1718 | 188 | 112 | 2018 | 0 | 0 | 0 | 72 | 72 | 141 | 1461 | 0 | 116 | 1718 | 6368 |
| Apprch % | 11.4 | 79.7 | 5.2 | 3.7 | | 0 | 85.1 | 9.3 | 5.6 | | 0 | 0 | 0 | 100 | | 8.2 | 85 | 0 | 6.8 | | |
| Total % | 4.6 | 32 | 2.1 | 1.5 | 40.2 | 0 | 27 | 3 | 1.8 | 31.7 | 0 | 0 | 0 | 1.1 | 1.1 | 2.2 | 22.9 | 0 | 1.8 | 27 | |
| Unshifted | 292 | 2040 | 133 | 95 | 2560 | 0 | 1718 | 188 | 112 | 2018 | 0 | 0 | 0 | 72 | 72 | 141 | 1461 | 0 | 116 | 1718 | 6368 |
| % Unshifted | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | St Paul St From North | | | | | North Ave From East | | | | | St Paul St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:45 AM | | | | | | | | | | | | | | | | | | | | | |
| **07:45 AM** | **38** | 298 | 15 | 13 | 364 | 0 | 259 | 29 | 23 | 311 | 0 | 0 | 0 | 4 | 4 | **26** | 207 | 0 | 18 | 251 | **930** |
| 08:00 AM | 40 | 281 | 17 | 9 | 347 | 0 | **261** | 24 | 9 | 294 | 0 | 0 | 0 | 9 | 9 | 21 | **221** | 0 | 13 | **255** | 905 |
| 08:15 AM | 36 | 261 | 17 | 9 | 323 | 0 | 233 | 16 | 15 | 264 | 0 | 0 | 0 | **10** | **10** | 18 | 197 | 0 | 11 | 226 | 823 |
| 08:30 AM | **63** | 282 | **21** | **15** | **381** | 0 | 179 | 20 | 8 | 207 | 0 | 0 | 0 | 10 | 10 | 14 | 194 | 0 | **22** | 230 | 828 |
| Total Volume | 177 | 1122 | 70 | 46 | 1415 | 0 | 932 | 89 | 55 | 1076 | 0 | 0 | 0 | 33 | 33 | 79 | 819 | 0 | 64 | 962 | 3486 |
| % App. Total | 12.5 | 79.3 | 4.9 | 3.3 | | 0 | 86.6 | 8.3 | 5.1 | | 0 | 0 | 0 | 100 | | 8.2 | 85.1 | 0 | 6.7 | | |
| PHF | .702 | .941 | .833 | .767 | .928 | .000 | .893 | .767 | .598 | .865 | .000 | .000 | .000 | .825 | .825 | .760 | .926 | .000 | .727 | .943 | .937 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_StPaul_AM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_StPaul_AM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 3

| | St Paul St From North | | | | | North Ave From East | | | | | St Paul St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

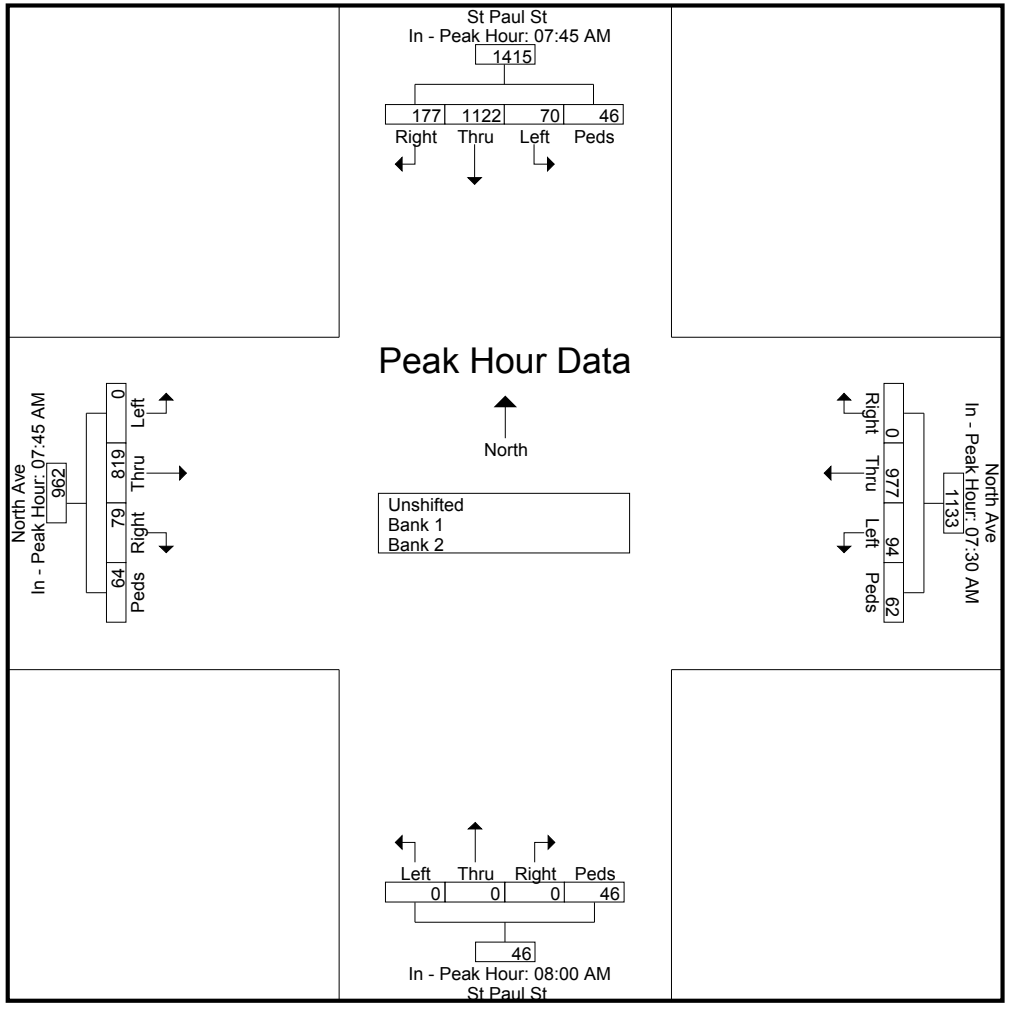
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 07:45 AM | | | | | 07:30 AM | | | | | 08:00 AM | | | | | 07:45 AM | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **38** | 298 | 15 | 13 | 364 | 0 | 224 | 25 | 15 | 264 | 0 | 0 | 0 | 9 | 9 | 26 | 207 | 0 | 18 | 251 | |
| +15 mins. | 40 | 281 | 17 | 9 | 347 | 0 | 259 | 29 | 23 | **311** | 0 | 0 | 0 | 10 | 10 | 21 | **221** | 0 | 13 | **255** | |
| +30 mins. | 36 | 261 | 17 | 9 | 323 | 0 | **261** | 24 | 9 | 294 | 0 | 0 | 0 | 10 | 10 | 18 | 197 | 0 | 11 | 226 | |
| +45 mins. | **63** | 282 | **21** | **15** | **381** | 0 | 233 | 16 | 15 | 264 | 0 | 0 | 0 | **17** | **17** | 14 | 194 | 0 | **22** | 230 | |
| Total Volume | 177 | 1122 | 70 | 46 | 1415 | 0 | 977 | 94 | 62 | 1133 | 0 | 0 | 0 | 46 | 46 | 79 | 819 | 0 | 64 | 962 | |
| % App. Total | 12.5 | 79.3 | 4.9 | 3.3 | | 0 | 86.2 | 8.3 | 5.5 | | 0 | 0 | 0 | 100 | | 8.2 | 85.1 | 0 | 6.7 | | |
| PHF | .702 | .941 | .833 | .767 | .928 | .000 | .936 | .810 | .674 | .911 | .000 | .000 | .000 | .676 | .676 | .760 | .926 | .000 | .727 | .943 | |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_StPaul_AM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_StPaul_MD
Site Code : 00000000
Start Date : 9/9/2015
Page No : 1

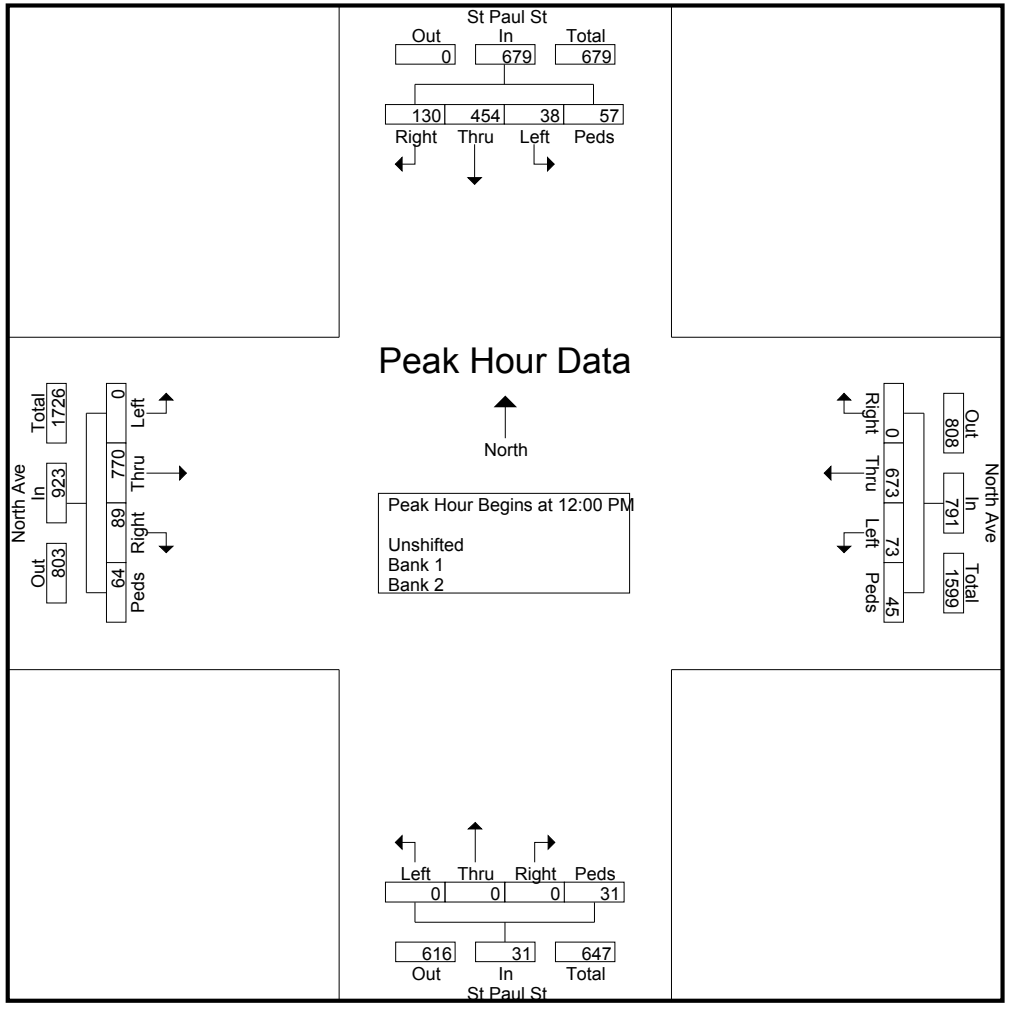
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | North Ave From East | | | | | St Paul St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 11:00 AM | 29 | 116 | 14 | 5 | 164 | 0 | 147 | 14 | 7 | 168 | 0 | 0 | 0 | 18 | 18 | 13 | 187 | 0 | 20 | 220 | 570 |
| 11:15 AM | 16 | 118 | 9 | 10 | 153 | 0 | 142 | 7 | 10 | 159 | 0 | 0 | 0 | 9 | 9 | 22 | 146 | 0 | 16 | 184 | 505 |
| 11:30 AM | 25 | 117 | 16 | 8 | 166 | 0 | 159 | 10 | 10 | 179 | 0 | 0 | 0 | 4 | 4 | 10 | 175 | 0 | 27 | 212 | 561 |
| 11:45 AM | 30 | 106 | 14 | 13 | 163 | 0 | 142 | 16 | 9 | 167 | 0 | 0 | 0 | 21 | 21 | 15 | 182 | 0 | 13 | 210 | 561 |
| Total | 100 | 457 | 53 | 36 | 646 | 0 | 590 | 47 | 36 | 673 | 0 | 0 | 0 | 52 | 52 | 60 | 690 | 0 | 76 | 826 | 2197 |
| 12:00 PM | 29 | 100 | 6 | 19 | 154 | 0 | 154 | 15 | 10 | 179 | 0 | 0 | 0 | 3 | 3 | 20 | 192 | 0 | 15 | 227 | 563 |
| 12:15 PM | 22 | 125 | 9 | 10 | 166 | 0 | 186 | 19 | 9 | 214 | 0 | 0 | 0 | 12 | 12 | 24 | 185 | 0 | 11 | 220 | 612 |
| 12:30 PM | 40 | 120 | 13 | 18 | 191 | 0 | 159 | 22 | 18 | 199 | 0 | 0 | 0 | 11 | 11 | 17 | 182 | 0 | 18 | 217 | 618 |
| 12:45 PM | 39 | 109 | 10 | 10 | 168 | 0 | 174 | 17 | 8 | 199 | 0 | 0 | 0 | 5 | 5 | 28 | 211 | 0 | 20 | 259 | 631 |
| Total | 130 | 454 | 38 | 57 | 679 | 0 | 673 | 73 | 45 | 791 | 0 | 0 | 0 | 31 | 31 | 89 | 770 | 0 | 64 | 923 | 2424 |
| Grand Total | 230 | 911 | 91 | 93 | 1325 | 0 | 1263 | 120 | 81 | 1464 | 0 | 0 | 0 | 83 | 83 | 149 | 1460 | 0 | 140 | 1749 | 4621 |
| Apprch % | 17.4 | 68.8 | 6.9 | 7 | | 0 | 86.3 | 8.2 | 5.5 | | 0 | 0 | 0 | 100 | | 8.5 | 83.5 | 0 | 8 | | |
| Total % | 5 | 19.7 | 2 | 2 | 28.7 | 0 | 27.3 | 2.6 | 1.8 | 31.7 | 0 | 0 | 0 | 1.8 | 1.8 | 3.2 | 31.6 | 0 | 3 | 37.8 | |
| Unshifted | 230 | 911 | 91 | 93 | 1325 | 0 | 1263 | 120 | 81 | 1464 | 0 | 0 | 0 | 83 | 83 | 149 | 1460 | 0 | 140 | 1749 | 4621 |
| % Unshifted | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | St Paul St From North | | | | | North Ave From East | | | | | St Paul St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| **12:00 PM** | **29** | **100** | **6** | 19 | 154 | 0 | 154 | 15 | 10 | 179 | 0 | 0 | 0 | 3 | 3 | 20 | 192 | 0 | 15 | 227 | 563 |
| 12:15 PM | 22 | 125 | 9 | 10 | 166 | 0 | 186 | 19 | 9 | 214 | 0 | 0 | 0 | **12** | **12** | 24 | 185 | 0 | 11 | 220 | 612 |
| 12:30 PM | **40** | 120 | **13** | 18 | **191** | 0 | 159 | **22** | **18** | 199 | 0 | 0 | 0 | 11 | 11 | 17 | 182 | 0 | 18 | 217 | 618 |
| 12:45 PM | 39 | 109 | 10 | 10 | 168 | 0 | 174 | 17 | 8 | 199 | 0 | 0 | 0 | 5 | 5 | **28** | **211** | 0 | **20** | **259** | **631** |
| Total Volume | 130 | 454 | 38 | 57 | 679 | 0 | 673 | 73 | 45 | 791 | 0 | 0 | 0 | 31 | 31 | 89 | 770 | 0 | 64 | 923 | 2424 |
| % App. Total | 19.1 | 66.9 | 5.6 | 8.4 | | 0 | 85.1 | 9.2 | 5.7 | | 0 | 0 | 0 | 100 | | 9.6 | 83.4 | 0 | 6.9 | | |
| PHF | .813 | .908 | .731 | .750 | .889 | .000 | .905 | .830 | .625 | .924 | .000 | .000 | .000 | .646 | .646 | .795 | .912 | .000 | .800 | .891 | .960 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_StPaul_MD
Site Code : 00000000
Start Date : 9/9/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_StPaul_MD
Site Code : 00000000
Start Date : 9/9/2015
Page No : 3

| | St Paul St From North | | | | | North Ave From East | | | | | St Paul St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

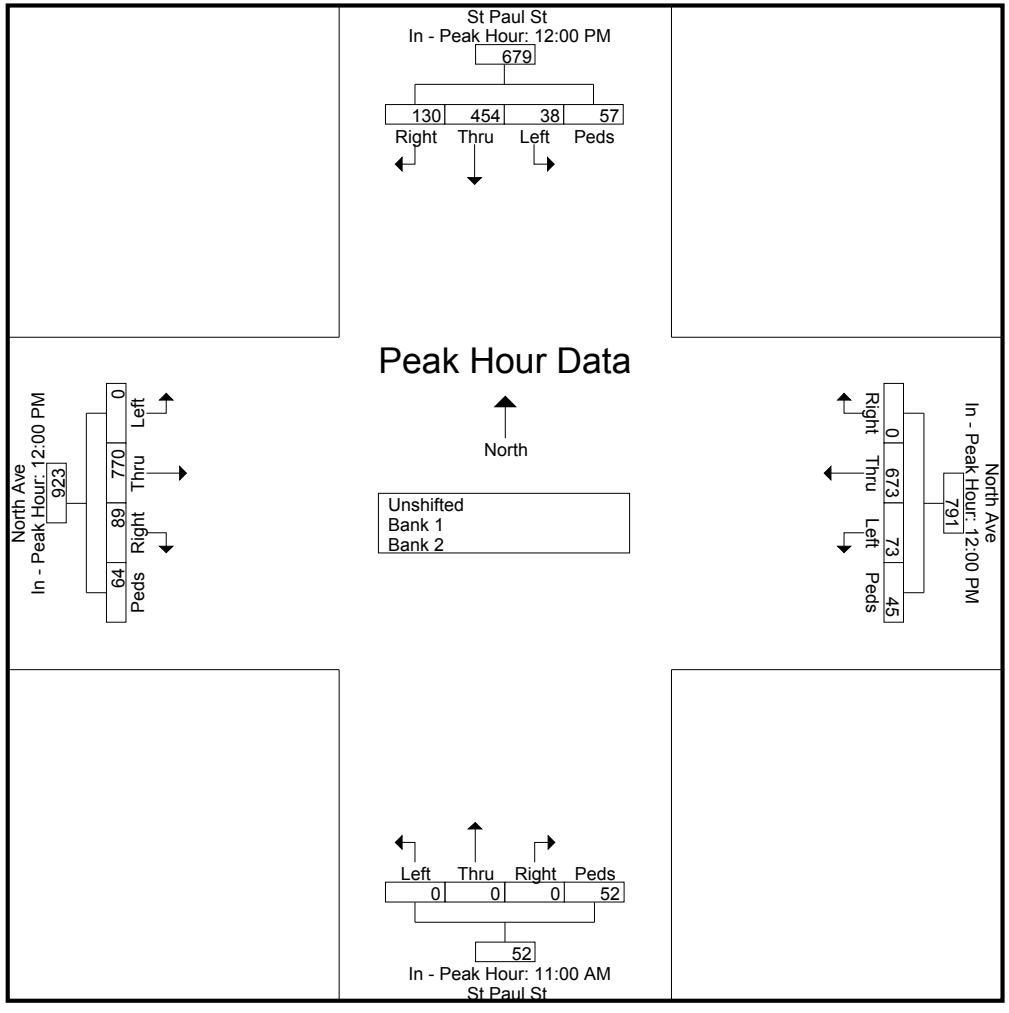
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 12:00 PM | | | | | 12:00 PM | | | | | 11:00 AM | | | | | 12:00 PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **29** | **100** | **6** | 19 | 154 | 0 | 154 | 15 | 10 | 179 | 0 | 0 | 0 | 18 | 18 | 20 | 192 | 0 | 15 | 227 |
| +15 mins. | 22 | 125 | 9 | 10 | 166 | 0 | 186 | 19 | 9 | 214 | 0 | 0 | 0 | 9 | 9 | 24 | 185 | 0 | 11 | 220 |
| +30 mins. | **40** | 120 | **13** | 18 | **191** | 0 | 159 | **22** | **18** | 199 | 0 | 0 | 0 | 4 | 4 | 17 | 182 | 0 | 18 | 217 |
| +45 mins. | 39 | 109 | 10 | 10 | 168 | 0 | 174 | 17 | 8 | 199 | 0 | 0 | 0 | **21** | **21** | **28** | **211** | 0 | **20** | **259** |
| Total Volume | 130 | 454 | 38 | 57 | 679 | 0 | 673 | 73 | 45 | 791 | 0 | 0 | 0 | 52 | 52 | 89 | 770 | 0 | 64 | 923 |
| % App. Total | 19.1 | 66.9 | 5.6 | 8.4 | | 0 | 85.1 | 9.2 | 5.7 | | 0 | 0 | 0 | 100 | | 9.6 | 83.4 | 0 | 6.9 | |
| PHF | .813 | .908 | .731 | .750 | .889 | .000 | .905 | .830 | .625 | .924 | .000 | .000 | .000 | .619 | .619 | .795 | .912 | .000 | .800 | .891 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_StPaul_MD
Site Code : 00000000
Start Date : 9/9/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_StPaul_PM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 1

**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | North Ave From East | | | | | St Paul St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 03:30 PM | 16 | 115 | 13 | 15 | 159 | 0 | 204 | 18 | 5 | 227 | 0 | 0 | 0 | 5 | 5 | 5 | 185 | 0 | 6 | 196 | 587 |
| 03:45 PM | 18 | 108 | 18 | 11 | 155 | 0 | 216 | 16 | 13 | 245 | 0 | 0 | 0 | 4 | 4 | 11 | 193 | 0 | 2 | 206 | 610 |
| Total | 34 | 223 | 31 | 26 | 314 | 0 | 420 | 34 | 18 | 472 | 0 | 0 | 0 | 9 | 9 | 16 | 378 | 0 | 8 | 402 | 1197 |
| 04:00 PM | 19 | 144 | 10 | 20 | 193 | 0 | 224 | 22 | 16 | 262 | 0 | 0 | 0 | 12 | 12 | 9 | 186 | 0 | 9 | 204 | 671 |
| 04:15 PM | 18 | 170 | 20 | 11 | 219 | 0 | 225 | 17 | 11 | 253 | 0 | 0 | 0 | 5 | 5 | 8 | 199 | 0 | 8 | 215 | 692 |
| 04:30 PM | 17 | 156 | 17 | 7 | 197 | 0 | 254 | 13 | 9 | 276 | 0 | 0 | 0 | 3 | 3 | 7 | 222 | 0 | 1 | 230 | 706 |
| 04:45 PM | 17 | 185 | 13 | 9 | 224 | 0 | 273 | 19 | 7 | 299 | 0 | 0 | 0 | 9 | 9 | 7 | 214 | 0 | 8 | 229 | 761 |
| Total | 71 | 655 | 60 | 47 | 833 | 0 | 976 | 71 | 43 | 1090 | 0 | 0 | 0 | 29 | 29 | 31 | 821 | 0 | 26 | 878 | 2830 |
| 05:00 PM | 18 | 183 | 16 | 17 | 234 | 0 | 226 | 15 | 19 | 260 | 0 | 0 | 0 | 13 | 13 | 8 | 243 | 0 | 6 | 257 | 764 |
| 05:15 PM | 17 | 223 | 21 | 9 | 270 | 0 | 257 | 20 | 11 | 288 | 0 | 0 | 0 | 2 | 2 | 10 | 192 | 0 | 11 | 213 | 773 |
| 05:30 PM | 23 | 228 | 20 | 16 | 287 | 0 | 241 | 16 | 7 | 264 | 0 | 0 | 0 | 0 | 0 | 10 | 244 | 0 | 6 | 260 | 811 |
| 05:45 PM | 20 | 184 | 16 | 8 | 228 | 0 | 227 | 14 | 6 | 247 | 0 | 0 | 0 | 1 | 1 | 7 | 200 | 0 | 5 | 212 | 688 |
| Total | 78 | 818 | 73 | 50 | 1019 | 0 | 951 | 65 | 43 | 1059 | 0 | 0 | 0 | 16 | 16 | 35 | 879 | 0 | 28 | 942 | 3036 |
| 06:00 PM | 20 | 161 | 12 | 5 | 198 | 0 | 245 | 17 | 9 | 271 | 0 | 0 | 0 | 6 | 6 | 6 | 198 | 0 | 8 | 212 | 687 |
| 06:15 PM | 15 | 149 | 9 | 9 | 182 | 0 | 199 | 33 | 11 | 243 | 0 | 0 | 0 | 11 | 11 | 8 | 185 | 0 | 0 | 193 | 629 |
| Grand Total | 218 | 2006 | 185 | 137 | 2546 | 0 | 2791 | 220 | 124 | 3135 | 0 | 0 | 0 | 71 | 71 | 96 | 2461 | 0 | 70 | 2627 | 8379 |
| Apprch % | 8.6 | 78.8 | 7.3 | 5.4 | | 0 | 89 | 7 | 4 | | 0 | 0 | 0 | 100 | | 3.7 | 93.7 | 0 | 2.7 | | |
| Total % | 2.6 | 23.9 | 2.2 | 1.6 | 30.4 | 0 | 33.3 | 2.6 | 1.5 | 37.4 | 0 | 0 | 0 | 0.8 | 0.8 | 1.1 | 29.4 | 0 | 0.8 | 31.4 | |
| Unshifted | 218 | 2006 | 185 | 137 | 2546 | 0 | 2791 | 220 | 124 | 3135 | 0 | 0 | 0 | 71 | 71 | 96 | 2461 | 0 | 70 | 2627 | 8379 |
| % Unshifted | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

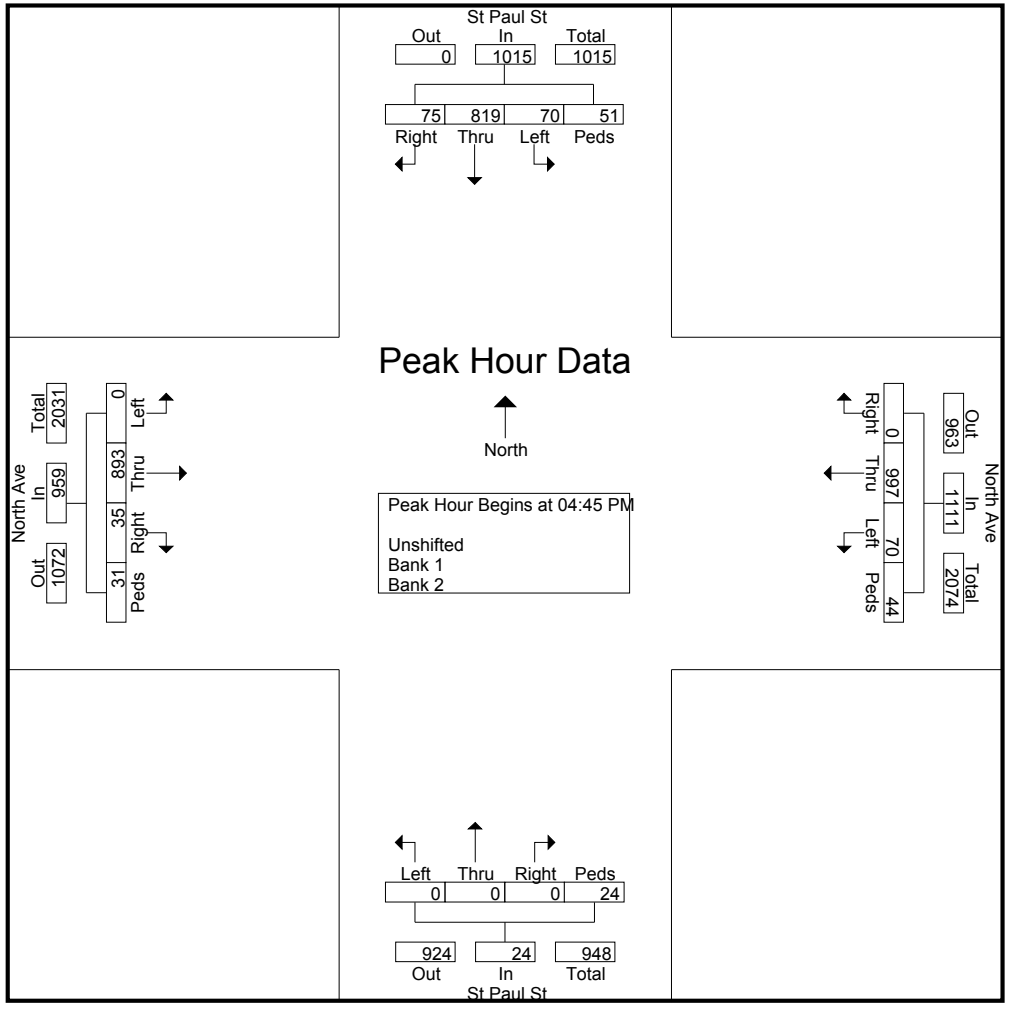
Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_StPaul_PM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 2

| | St Paul St From North | | | | | North Ave From East | | | | | St Paul St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| **04:45 PM** | **17** | **185** | **13** | **9** | **224** | **0** | 273 | 19 | 7 | 299 | 0 | 0 | 0 | 9 | 9 | 7 | 214 | 0 | 8 | 229 | 761 |
| 05:00 PM | 18 | 183 | 16 | 17 | 234 | 0 | 226 | 15 | 19 | 260 | 0 | 0 | 0 | **13** | **13** | 8 | 243 | 0 | 6 | 257 | 764 |
| 05:15 PM | 17 | 223 | **21** | 9 | 270 | 0 | 257 | **20** | 11 | 288 | 0 | 0 | 0 | 2 | 2 | **10** | 192 | 0 | **11** | 213 | 773 |
| 05:30 PM | **23** | **228** | 20 | 16 | **287** | 0 | 241 | 16 | 7 | 264 | 0 | 0 | 0 | 0 | 0 | 10 | **244** | 0 | 6 | **260** | **811** |
| Total Volume | 75 | 819 | 70 | 51 | 1015 | 0 | 997 | 70 | 44 | 1111 | 0 | 0 | 0 | 24 | 24 | 35 | 893 | 0 | 31 | 959 | 3109 |
| % App. Total | 7.4 | 80.7 | 6.9 | 5 | | 0 | 89.7 | 6.3 | 4 | | 0 | 0 | 0 | 100 | | 3.6 | 93.1 | 0 | 3.2 | | |
| PHF | .815 | .898 | .833 | .750 | .884 | .000 | .913 | .875 | .579 | .929 | .000 | .000 | .000 | .462 | .462 | .875 | .915 | .000 | .705 | .922 | .958 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_StPaul_PM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 3



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_StPaul_PM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 4

| | St Paul St From North | | | | | North Ave From East | | | | | St Paul St From South | | | | | North Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

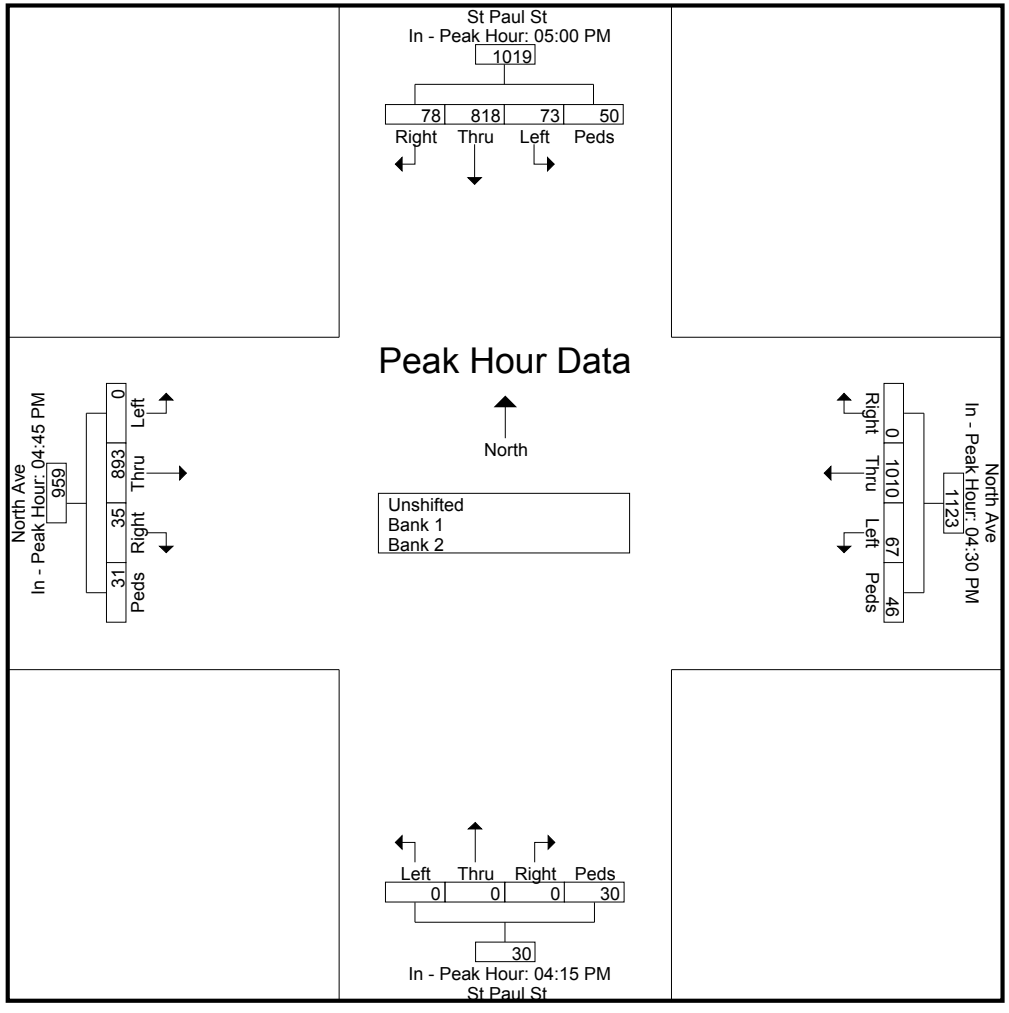
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 05:00 PM | | | | | 04:30 PM | | | | | 04:15 PM | | | | | 04:45 PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **18** | **183** | **16** | 17 | 234 | 0 | 254 | 13 | 9 | 276 | 0 | 0 | 0 | 5 | 5 | 7 | 214 | 0 | 8 | 229 |
| +15 mins. | 17 | 223 | 21 | 9 | 270 | 0 | 273 | 19 | 7 | 299 | 0 | 0 | 0 | 3 | 3 | 8 | 243 | 0 | 6 | 257 |
| +30 mins. | **23** | **228** | 20 | 16 | **287** | 0 | 226 | 15 | **19** | 260 | 0 | 0 | 0 | 9 | 9 | **10** | 192 | 0 | **11** | 213 |
| +45 mins. | 20 | 184 | 16 | 8 | 228 | 0 | 257 | **20** | 11 | 288 | 0 | 0 | 0 | **13** | **13** | 10 | **244** | 0 | 6 | **260** |
| Total Volume | 78 | 818 | 73 | 50 | 1019 | 0 | 1010 | 67 | 46 | 1123 | 0 | 0 | 0 | 30 | 30 | 35 | 893 | 0 | 31 | 959 |
| % App. Total | 7.7 | 80.3 | 7.2 | 4.9 | | 0 | 89.9 | 6 | 4.1 | | 0 | 0 | 0 | 100 | | 3.6 | 93.1 | 0 | 3.2 | |
| PHF | .848 | .897 | .869 | .735 | .888 | .000 | .925 | .838 | .605 | .939 | .000 | .000 | .000 | .577 | .577 | .875 | .915 | .000 | .705 | .922 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : North_StPaul_PM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 5



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_StPaul_AM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 1

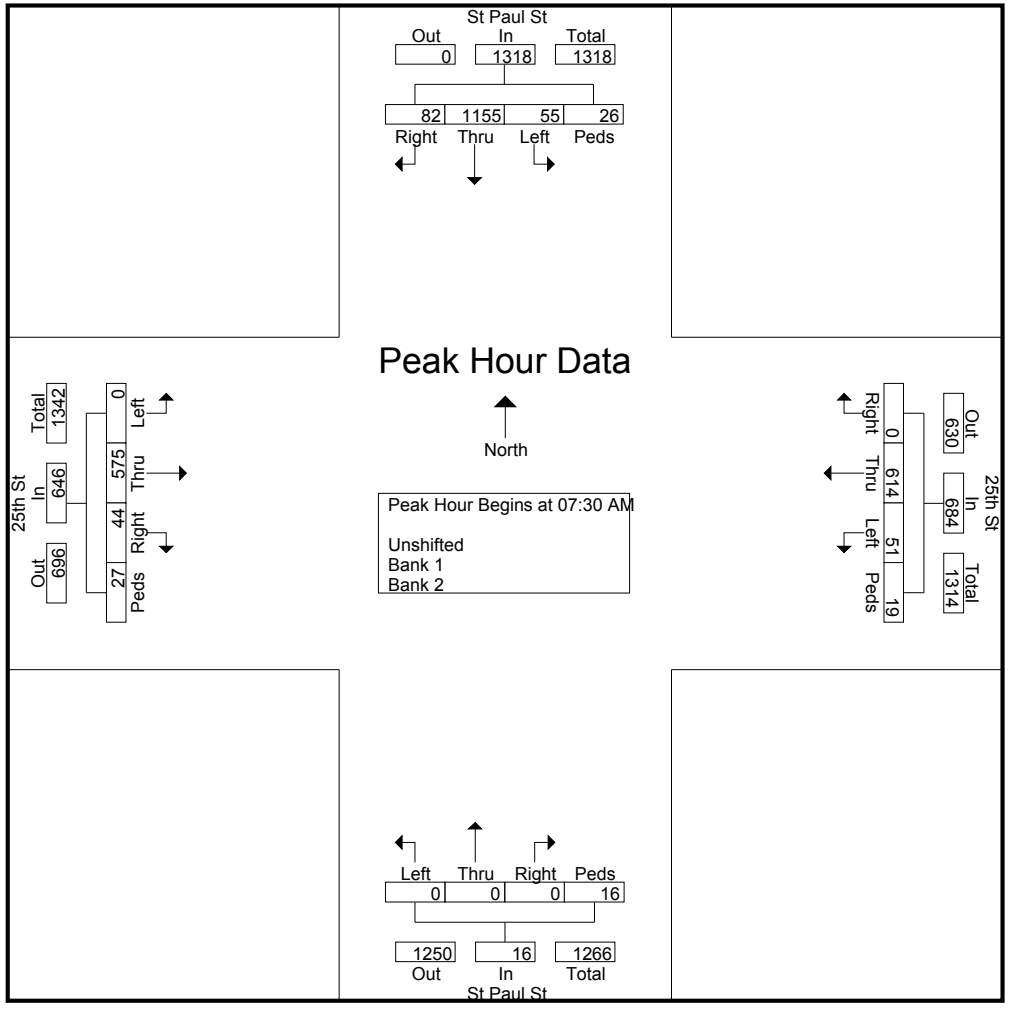
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | 25th St From East | | | | | St Paul St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 8 | 226 | 14 | 2 | 250 | 0 | 113 | 18 | 10 | 141 | 0 | 0 | 0 | 1 | 1 | 10 | 90 | 0 | 4 | 104 | 496 |
| 07:15 AM | 18 | 263 | 12 | 10 | 303 | 0 | 133 | 11 | 14 | 158 | 0 | 0 | 0 | 4 | 4 | 8 | 114 | 0 | 1 | 123 | 588 |
| 07:30 AM | 21 | 296 | 16 | 9 | 342 | 0 | 125 | 10 | 2 | 137 | 0 | 0 | 0 | 4 | 4 | 12 | 157 | 0 | 3 | 172 | 655 |
| 07:45 AM | 21 | 288 | 13 | 10 | 332 | 0 | 166 | 11 | 12 | 189 | 0 | 0 | 0 | 3 | 3 | 16 | 162 | 0 | 16 | 194 | 718 |
| Total | 68 | 1073 | 55 | 31 | 1227 | 0 | 537 | 50 | 38 | 625 | 0 | 0 | 0 | 12 | 12 | 46 | 523 | 0 | 24 | 593 | 2457 |
| 08:00 AM | 14 | 287 | 16 | 4 | 321 | 0 | 158 | 15 | 4 | 177 | 0 | 0 | 0 | 4 | 4 | 10 | 131 | 0 | 5 | 146 | 648 |
| 08:15 AM | 26 | 284 | 10 | 3 | 323 | 0 | 165 | 15 | 1 | 181 | 0 | 0 | 0 | 5 | 5 | 6 | 125 | 0 | 3 | 134 | 643 |
| 08:30 AM | 16 | 281 | 12 | 7 | 316 | 0 | 164 | 21 | 4 | 189 | 0 | 0 | 0 | 4 | 4 | 6 | 123 | 0 | 4 | 133 | 642 |
| 08:45 AM | 13 | 208 | 12 | 2 | 235 | 0 | 119 | 21 | 9 | 149 | 0 | 0 | 0 | 3 | 3 | 12 | 118 | 0 | 4 | 134 | 521 |
| Total | 69 | 1060 | 50 | 16 | 1195 | 0 | 606 | 72 | 18 | 696 | 0 | 0 | 0 | 16 | 16 | 34 | 497 | 0 | 16 | 547 | 2454 |
| Grand Total | 137 | 2133 | 105 | 47 | 2422 | 0 | 1143 | 122 | 56 | 1321 | 0 | 0 | 0 | 28 | 28 | 80 | 1020 | 0 | 40 | 1140 | 4911 |
| Apprch % | 5.7 | 88.1 | 4.3 | 1.9 | | 0 | 86.5 | 9.2 | 4.2 | | 0 | 0 | 0 | 100 | | 7 | 89.5 | 0 | 3.5 | | |
| Total % | 2.8 | 43.4 | 2.1 | 1 | 49.3 | 0 | 23.3 | 2.5 | 1.1 | 26.9 | 0 | 0 | 0 | 0.6 | 0.6 | 1.6 | 20.8 | 0 | 0.8 | 23.2 | |
| Unshifted | 137 | 2133 | 105 | 47 | 2422 | 0 | 1143 | 122 | 56 | 1321 | 0 | 0 | 0 | 28 | 28 | 80 | 1020 | 0 | 40 | 1140 | 4911 |
| % Unshifted | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | St Paul St From North | | | | | 25th St From East | | | | | St Paul St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| **07:30 AM** | **21** | 296 | 16 | 9 | 342 | 0 | 125 | 10 | 2 | 137 | 0 | 0 | 0 | 4 | 4 | 12 | 157 | 0 | 3 | 172 | 655 |
| 07:45 AM | 21 | 288 | 13 | 10 | 332 | 0 | **166** | 11 | **12** | **189** | 0 | 0 | 0 | 3 | 3 | **16** | **162** | 0 | **16** | **194** | **718** |
| 08:00 AM | 14 | 287 | 16 | 4 | 321 | 0 | 158 | **15** | 4 | 177 | 0 | 0 | 0 | 4 | 4 | 10 | 131 | 0 | 5 | 146 | 648 |
| 08:15 AM | **26** | 284 | 10 | 3 | 323 | 0 | 165 | 15 | 1 | 181 | 0 | 0 | 0 | **5** | **5** | 6 | 125 | 0 | 3 | 134 | 643 |
| Total Volume | 82 | 1155 | 55 | 26 | 1318 | 0 | 614 | 51 | 19 | 684 | 0 | 0 | 0 | 16 | 16 | 44 | 575 | 0 | 27 | 646 | 2664 |
| % App. Total | 6.2 | 87.6 | 4.2 | 2 | | 0 | 89.8 | 7.5 | 2.8 | | 0 | 0 | 0 | 100 | | 6.8 | 89 | 0 | 4.2 | | |
| PHF | .788 | .976 | .859 | .650 | .963 | .000 | .925 | .850 | .396 | .905 | .000 | .000 | .000 | .800 | .800 | .688 | .887 | .000 | .422 | .832 | .928 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_StPaul_AM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_StPaul_AM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 3

| | St Paul St From North | | | | | 25th St From East | | | | | St Paul St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

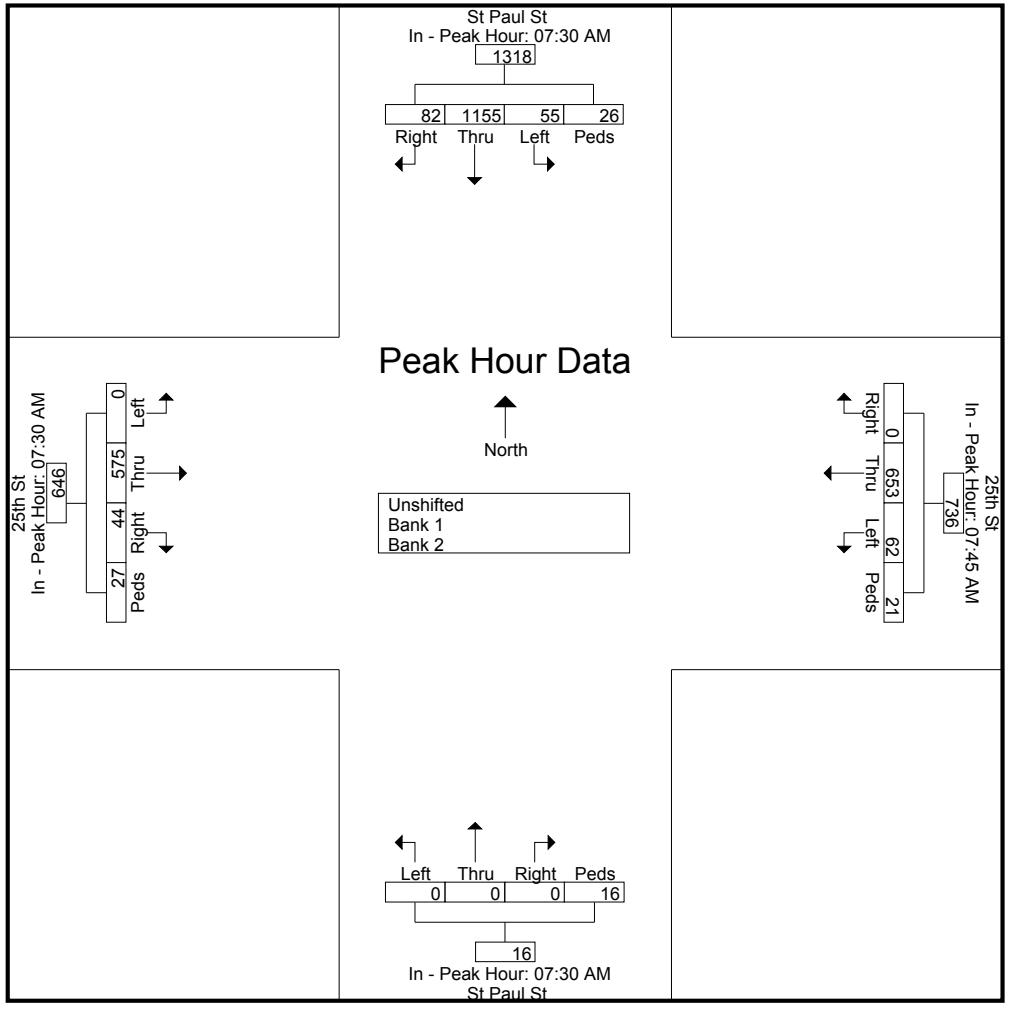
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 07:30 AM | | | | | 07:45 AM | | | | | 07:30 AM | | | | | 07:30 AM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **21** | 296 | 16 | 9 | 342 | 0 | 166 | 11 | **12** | **189** | 0 | 0 | 0 | 4 | 4 | 12 | 157 | 0 | 3 | 172 |
| +15 mins. | 21 | 288 | 13 | **10** | 332 | 0 | 158 | 15 | 4 | 177 | 0 | 0 | 0 | 3 | 3 | **16** | **162** | 0 | **16** | **194** |
| +30 mins. | 14 | 287 | 16 | 4 | 321 | 0 | 165 | 15 | 1 | 181 | 0 | 0 | 0 | 4 | 4 | 10 | 131 | 0 | 5 | 146 |
| +45 mins. | **26** | 284 | 10 | 3 | 323 | 0 | 164 | **21** | 4 | 189 | 0 | 0 | 0 | **5** | **5** | 6 | 125 | 0 | 3 | 134 |
| Total Volume | 82 | 1155 | 55 | 26 | 1318 | 0 | 653 | 62 | 21 | 736 | 0 | 0 | 0 | 16 | 16 | 44 | 575 | 0 | 27 | 646 |
| % App. Total | 6.2 | 87.6 | 4.2 | 2 | | 0 | 88.7 | 8.4 | 2.9 | | 0 | 0 | 0 | 100 | | 6.8 | 89 | 0 | 4.2 | |
| PHF | .788 | .976 | .859 | .650 | .963 | .000 | .983 | .738 | .438 | .974 | .000 | .000 | .000 | .800 | .800 | .688 | .887 | .000 | .422 | .832 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_StPaul_AM
Site Code : 00000000
Start Date : 9/9/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_StPaul_MD
Site Code : 00000000
Start Date : 9/10/2015
Page No : 1

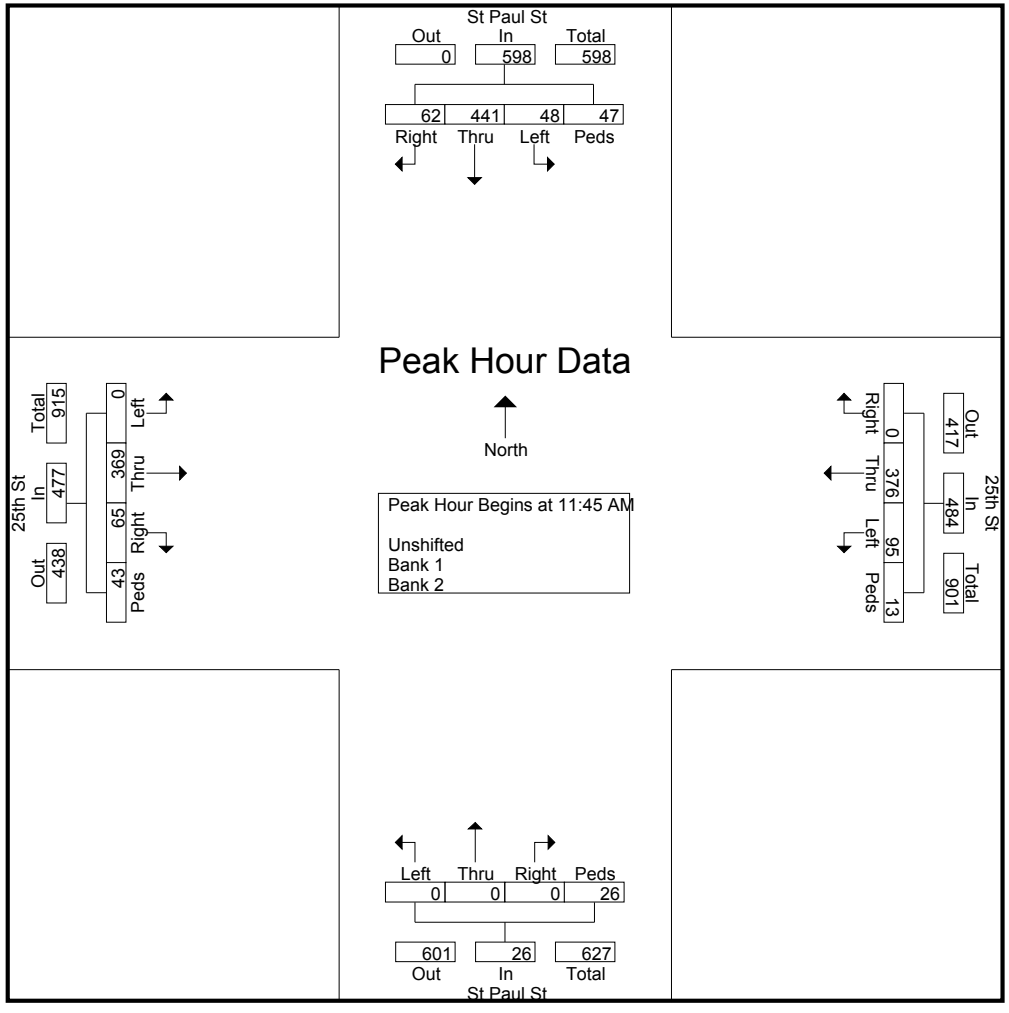
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | 25th St From East | | | | | St Paul St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 11:00 AM | 12 | 94 | 13 | 11 | 130 | 0 | 86 | 13 | 12 | 111 | 0 | 0 | 0 | 7 | 7 | 9 | 83 | 0 | 8 | 100 | 348 |
| 11:15 AM | 13 | 95 | 15 | 11 | 134 | 0 | 91 | 27 | 13 | 131 | 0 | 0 | 0 | 6 | 6 | 15 | 83 | 0 | 14 | 112 | 383 |
| 11:30 AM | 8 | 83 | 15 | 1 | 107 | 0 | 82 | 13 | 8 | 103 | 0 | 0 | 0 | 6 | 6 | 15 | 89 | 0 | 8 | 112 | 328 |
| 11:45 AM | 15 | 129 | 14 | 10 | 168 | 0 | 94 | 17 | 5 | 116 | 0 | 0 | 0 | 3 | 3 | 16 | 73 | 0 | 14 | 103 | 390 |
| Total | 48 | 401 | 57 | 33 | 539 | 0 | 353 | 70 | 38 | 461 | 0 | 0 | 0 | 22 | 22 | 55 | 328 | 0 | 44 | 427 | 1449 |
| 12:00 PM | 13 | 99 | 7 | 14 | 133 | 0 | 100 | 25 | 4 | 129 | 0 | 0 | 0 | 8 | 8 | 20 | 84 | 0 | 14 | 118 | 388 |
| 12:15 PM | 12 | 103 | 15 | 12 | 142 | 0 | 98 | 25 | 2 | 125 | 0 | 0 | 0 | 4 | 4 | 15 | 107 | 0 | 7 | 129 | 400 |
| 12:30 PM | 22 | 110 | 12 | 11 | 155 | 0 | 84 | 28 | 2 | 114 | 0 | 0 | 0 | 11 | 11 | 14 | 105 | 0 | 8 | 127 | 407 |
| 12:45 PM | 11 | 106 | 7 | 5 | 129 | 0 | 85 | 19 | 4 | 108 | 0 | 0 | 0 | 8 | 8 | 17 | 88 | 0 | 15 | 120 | 365 |
| Total | 58 | 418 | 41 | 42 | 559 | 0 | 367 | 97 | 12 | 476 | 0 | 0 | 0 | 31 | 31 | 66 | 384 | 0 | 44 | 494 | 1560 |
| Grand Total | 106 | 819 | 98 | 75 | 1098 | 0 | 720 | 167 | 50 | 937 | 0 | 0 | 0 | 53 | 53 | 121 | 712 | 0 | 88 | 921 | 3009 |
| Apprch % | 9.7 | 74.6 | 8.9 | 6.8 | | 0 | 76.8 | 17.8 | 5.3 | | 0 | 0 | 0 | 100 | | 13.1 | 77.3 | 0 | 9.6 | | |
| Total % | 3.5 | 27.2 | 3.3 | 2.5 | 36.5 | 0 | 23.9 | 5.6 | 1.7 | 31.1 | 0 | 0 | 0 | 1.8 | 1.8 | 4 | 23.7 | 0 | 2.9 | 30.6 | |
| Unshifted | 106 | 819 | 98 | 75 | 1098 | 0 | 720 | 167 | 50 | 937 | 0 | 0 | 0 | 53 | 53 | 121 | 712 | 0 | 88 | 921 | 3009 |
| % Unshifted | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | St Paul St From North | | | | | 25th St From East | | | | | St Paul St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 11:45 AM | | | | | | | | | | | | | | | | | | | | | |
| **11:45 AM** | **15** | 129 | 14 | 10 | 168 | 0 | 94 | 17 | 5 | 116 | 0 | 0 | 0 | 3 | 3 | 16 | 73 | 0 | 14 | 103 | 390 |
| 12:00 PM | 13 | 99 | 7 | **14** | 133 | 0 | **100** | 25 | 4 | **129** | 0 | 0 | 0 | 8 | 8 | **20** | 84 | 0 | 14 | 118 | 388 |
| 12:15 PM | 12 | 103 | **15** | 12 | 142 | 0 | 98 | 25 | 2 | 125 | 0 | 0 | 0 | 4 | 4 | 15 | **107** | 0 | 7 | **129** | 400 |
| 12:30 PM | **22** | 110 | 12 | 11 | 155 | 0 | 84 | **28** | 2 | 114 | 0 | 0 | 0 | **11** | **11** | 14 | 105 | 0 | 8 | 127 | **407** |
| Total Volume | 62 | 441 | 48 | 47 | 598 | 0 | 376 | 95 | 13 | 484 | 0 | 0 | 0 | 26 | 26 | 65 | 369 | 0 | 43 | 477 | 1585 |
| % App. Total | 10.4 | 73.7 | 8 | 7.9 | | 0 | 77.7 | 19.6 | 2.7 | | 0 | 0 | 0 | 100 | | 13.6 | 77.4 | 0 | 9 | | |
| PHF | .705 | .855 | .800 | .839 | .890 | .000 | .940 | .848 | .650 | .938 | .000 | .000 | .000 | .591 | .591 | .813 | .862 | .000 | .768 | .924 | .974 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_StPaul_MD
Site Code : 00000000
Start Date : 9/10/2015
Page No : 2



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_StPaul_MD
Site Code : 00000000
Start Date : 9/10/2015
Page No : 3

| | St Paul St From North | | | | | 25th St From East | | | | | St Paul St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

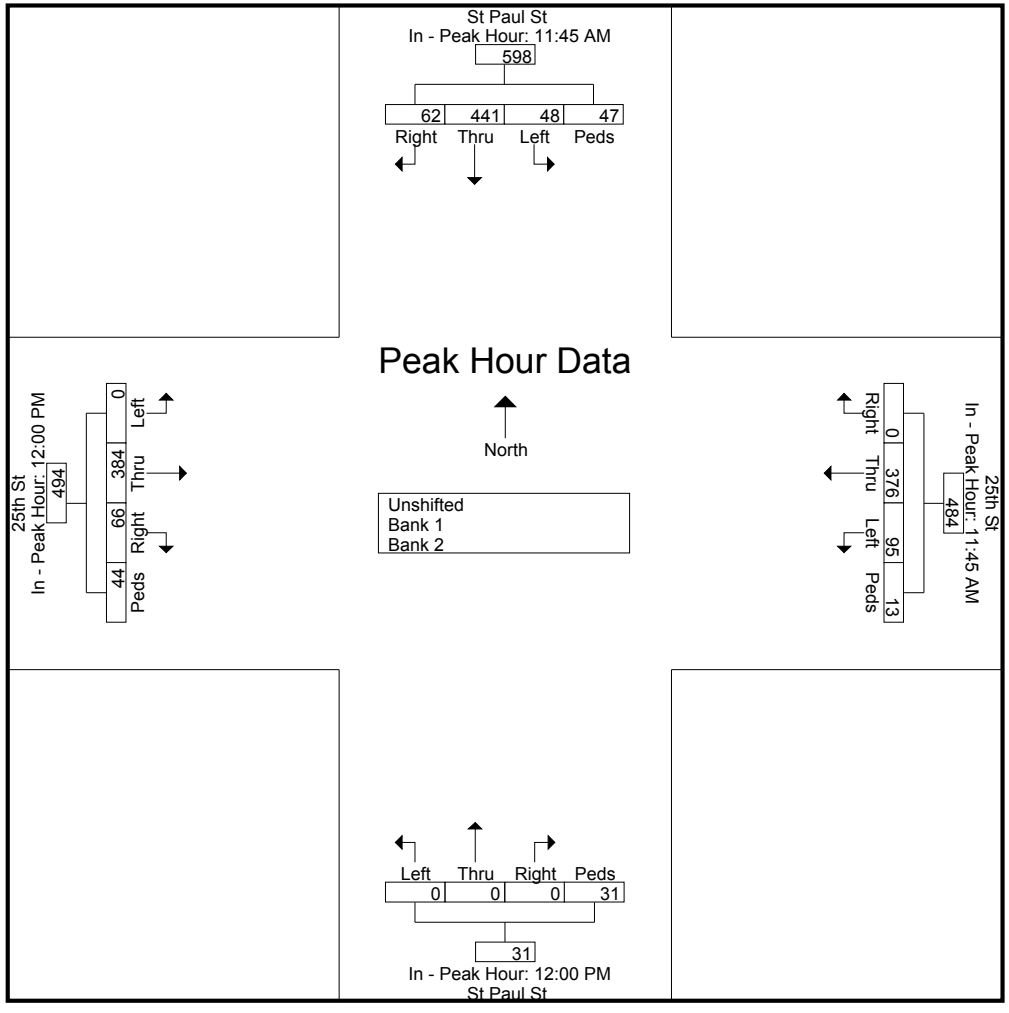
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | **11:45 AM** | | | | | **11:45 AM** | | | | | **12:00 PM** | | | | | **12:00 PM** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **15** | 129 | 14 | 10 | 168 | 0 | 94 | 17 | 5 | 116 | 0 | 0 | 0 | 8 | 8 | 20 | 84 | 0 | 14 | 118 |
| +15 mins. | 13 | 99 | 7 | **14** | 133 | 0 | **100** | 25 | 4 | **129** | 0 | 0 | 0 | 4 | 4 | 15 | **107** | 0 | 7 | **129** |
| +30 mins. | 12 | 103 | **15** | 12 | 142 | 0 | 98 | 25 | 2 | 125 | 0 | 0 | 0 | **11** | **11** | 14 | 105 | 0 | 8 | 127 |
| +45 mins. | **22** | 110 | 12 | 11 | 155 | 0 | 84 | **28** | 2 | 114 | 0 | 0 | 0 | 8 | 8 | 17 | 88 | 0 | **15** | 120 |
| Total Volume | 62 | 441 | 48 | 47 | 598 | 0 | 376 | 95 | 13 | 484 | 0 | 0 | 0 | 31 | 31 | 66 | 384 | 0 | 44 | 494 |
| % App. Total | 10.4 | 73.7 | 8 | 7.9 | | 0 | 77.7 | 19.6 | 2.7 | | 0 | 0 | 0 | 100 | | 13.4 | 77.7 | 0 | 8.9 | |
| PHF | .705 | .855 | .800 | .839 | .890 | .000 | .940 | .848 | .650 | .938 | .000 | .000 | .000 | .705 | .705 | .825 | .897 | .000 | .733 | .957 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_StPaul_MD
Site Code : 00000000
Start Date : 9/10/2015
Page No : 4



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_StPaul_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 1

**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | St Paul St From North | | | | | 25th St From East | | | | | St Paul St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 03:30 PM | 14 | 120 | 13 | 12 | 159 | 0 | 108 | 25 | 5 | 138 | 0 | 0 | 0 | 1 | 1 | 5 | 111 | 0 | 9 | 125 | 423 |
| 03:45 PM | 18 | 118 | 6 | 5 | 147 | 0 | 101 | 26 | 4 | 131 | 0 | 0 | 0 | 9 | 9 | 13 | 134 | 0 | 7 | 154 | 441 |
| Total | 32 | 238 | 19 | 17 | 306 | 0 | 209 | 51 | 9 | 269 | 0 | 0 | 0 | 10 | 10 | 18 | 245 | 0 | 16 | 279 | 864 |
| 04:00 PM | 13 | 154 | 11 | 6 | 184 | 0 | 121 | 19 | 4 | 144 | 0 | 0 | 0 | 12 | 12 | 8 | 158 | 0 | 3 | 169 | 509 |
| 04:15 PM | 10 | 158 | 10 | 8 | 186 | 0 | 116 | 16 | 4 | 136 | 0 | 0 | 0 | 6 | 6 | 11 | 160 | 0 | 8 | 179 | 507 |
| 04:30 PM | 12 | 121 | 21 | 8 | 162 | 0 | 130 | 17 | 9 | 156 | 0 | 0 | 0 | 9 | 9 | 13 | 139 | 0 | 8 | 160 | 487 |
| 04:45 PM | 14 | 127 | 9 | 8 | 158 | 0 | 116 | 24 | 2 | 142 | 0 | 0 | 0 | 7 | 7 | 14 | 171 | 0 | 19 | 204 | 511 |
| Total | 49 | 560 | 51 | 30 | 690 | 0 | 483 | 76 | 19 | 578 | 0 | 0 | 0 | 34 | 34 | 46 | 628 | 0 | 38 | 712 | 2014 |
| 05:00 PM | 19 | 126 | 9 | 5 | 159 | 0 | 118 | 23 | 3 | 144 | 0 | 0 | 0 | 4 | 4 | 20 | 182 | 0 | 9 | 211 | 518 |
| 05:15 PM | 11 | 116 | 5 | 8 | 140 | 0 | 123 | 16 | 3 | 142 | 0 | 0 | 0 | 8 | 8 | 16 | 195 | 0 | 13 | 224 | 514 |
| 05:30 PM | 17 | 122 | 14 | 10 | 163 | 0 | 101 | 28 | 3 | 132 | 0 | 0 | 0 | 6 | 6 | 12 | 164 | 0 | 14 | 190 | 491 |
| 05:45 PM | 7 | 115 | 8 | 7 | 137 | 0 | 92 | 19 | 6 | 117 | 0 | 0 | 0 | 6 | 6 | 14 | 139 | 0 | 5 | 158 | 418 |
| Total | 54 | 479 | 36 | 30 | 599 | 0 | 434 | 86 | 15 | 535 | 0 | 0 | 0 | 24 | 24 | 62 | 680 | 0 | 41 | 783 | 1941 |
| 06:00 PM | 11 | 124 | 7 | 5 | 147 | 0 | 95 | 21 | 4 | 120 | 0 | 0 | 0 | 3 | 3 | 13 | 150 | 0 | 13 | 176 | 446 |
| 06:15 PM | 10 | 126 | 9 | 10 | 155 | 0 | 98 | 19 | 5 | 122 | 0 | 0 | 0 | 7 | 7 | 15 | 169 | 0 | 14 | 198 | 482 |
| Grand Total | 156 | 1527 | 122 | 92 | 1897 | 0 | 1319 | 253 | 52 | 1624 | 0 | 0 | 0 | 78 | 78 | 154 | 1872 | 0 | 122 | 2148 | 5747 |
| Apprch % | 8.2 | 80.5 | 6.4 | 4.8 | | 0 | 81.2 | 15.6 | 3.2 | | 0 | 0 | 0 | 100 | | 7.2 | 87.2 | 0 | 5.7 | | |
| Total % | 2.7 | 26.6 | 2.1 | 1.6 | 33 | 0 | 23 | 4.4 | 0.9 | 28.3 | 0 | 0 | 0 | 1.4 | 1.4 | 2.7 | 32.6 | 0 | 2.1 | 37.4 | |
| Unshifted | 156 | 1527 | 122 | 92 | 1897 | 0 | 1319 | 253 | 52 | 1624 | 0 | 0 | 0 | 78 | 78 | 154 | 1872 | 0 | 122 | 2148 | 5747 |
| % Unshifted | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

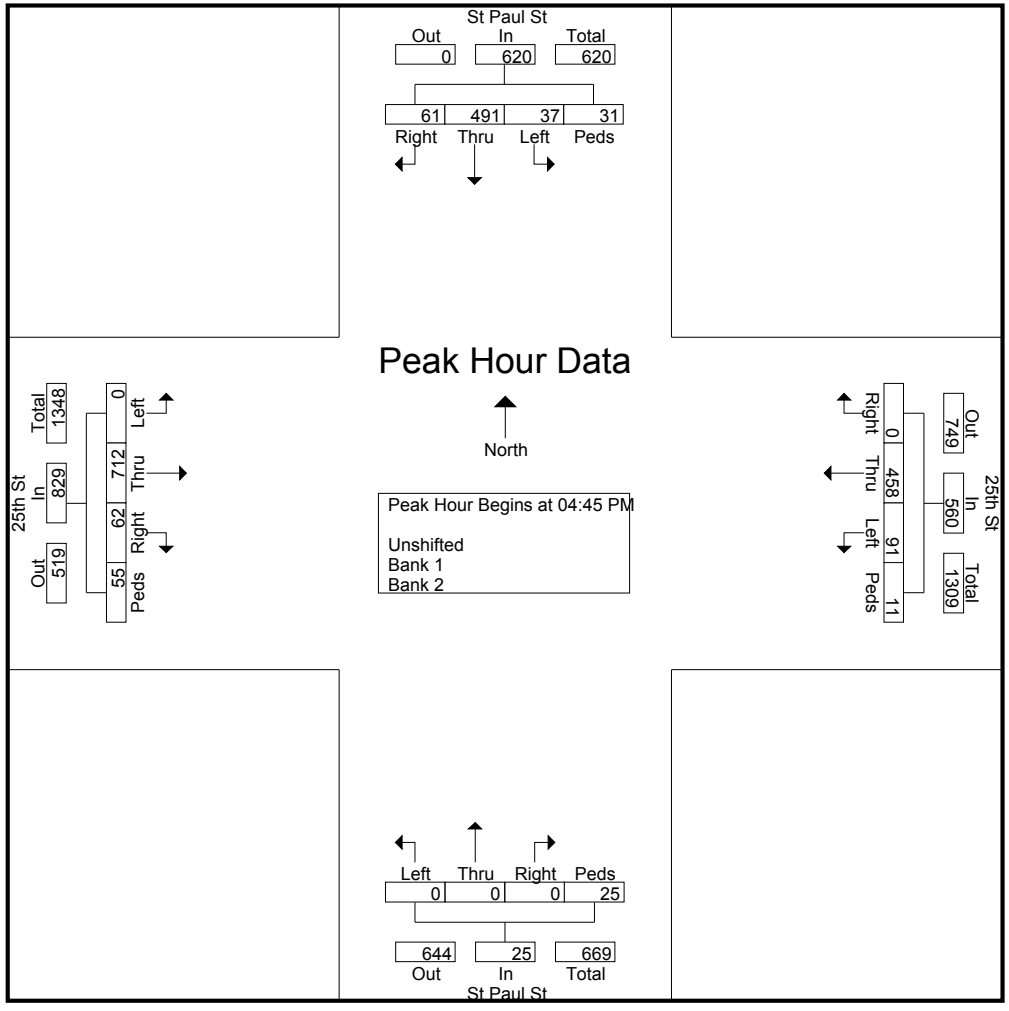
Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_StPaul_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 2

| | St Paul St From North | | | | | 25th St From East | | | | | St Paul St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| **04:45 PM** | **14** | 127 | 9 | 8 | 158 | 0 | 116 | 24 | 2 | 142 | 0 | 0 | 0 | 7 | 7 | 14 | 171 | 0 | 19 | 204 | 511 |
| 05:00 PM | 19 | 126 | 9 | 5 | 159 | 0 | 118 | 23 | 3 | **144** | 0 | 0 | 0 | 4 | 4 | **20** | 182 | 0 | 9 | 211 | **518** |
| 05:15 PM | 11 | 116 | 5 | 8 | 140 | 0 | **123** | 16 | 3 | 142 | 0 | 0 | 0 | **8** | **8** | 16 | **195** | 0 | 13 | **224** | 514 |
| 05:30 PM | 17 | 122 | **14** | **10** | **163** | 0 | 101 | **28** | 3 | 132 | 0 | 0 | 0 | 6 | 6 | 12 | 164 | 0 | 14 | 190 | 491 |
| Total Volume | 61 | 491 | 37 | 31 | 620 | 0 | 458 | 91 | 11 | 560 | 0 | 0 | 0 | 25 | 25 | 62 | 712 | 0 | 55 | 829 | 2034 |
| % App. Total | 9.8 | 79.2 | 6 | 5 | | 0 | 81.8 | 16.2 | 2 | | 0 | 0 | 0 | 100 | | 7.5 | 85.9 | 0 | 6.6 | | |
| PHF | .803 | .967 | .661 | .775 | .951 | .000 | .931 | .813 | .917 | .972 | .000 | .000 | .000 | .781 | .781 | .775 | .913 | .000 | .724 | .925 | .982 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_StPaul_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 3



Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_StPaul_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 4

| | St Paul St From North | | | | | 25th St From East | | | | | St Paul St From South | | | | | 25th St From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

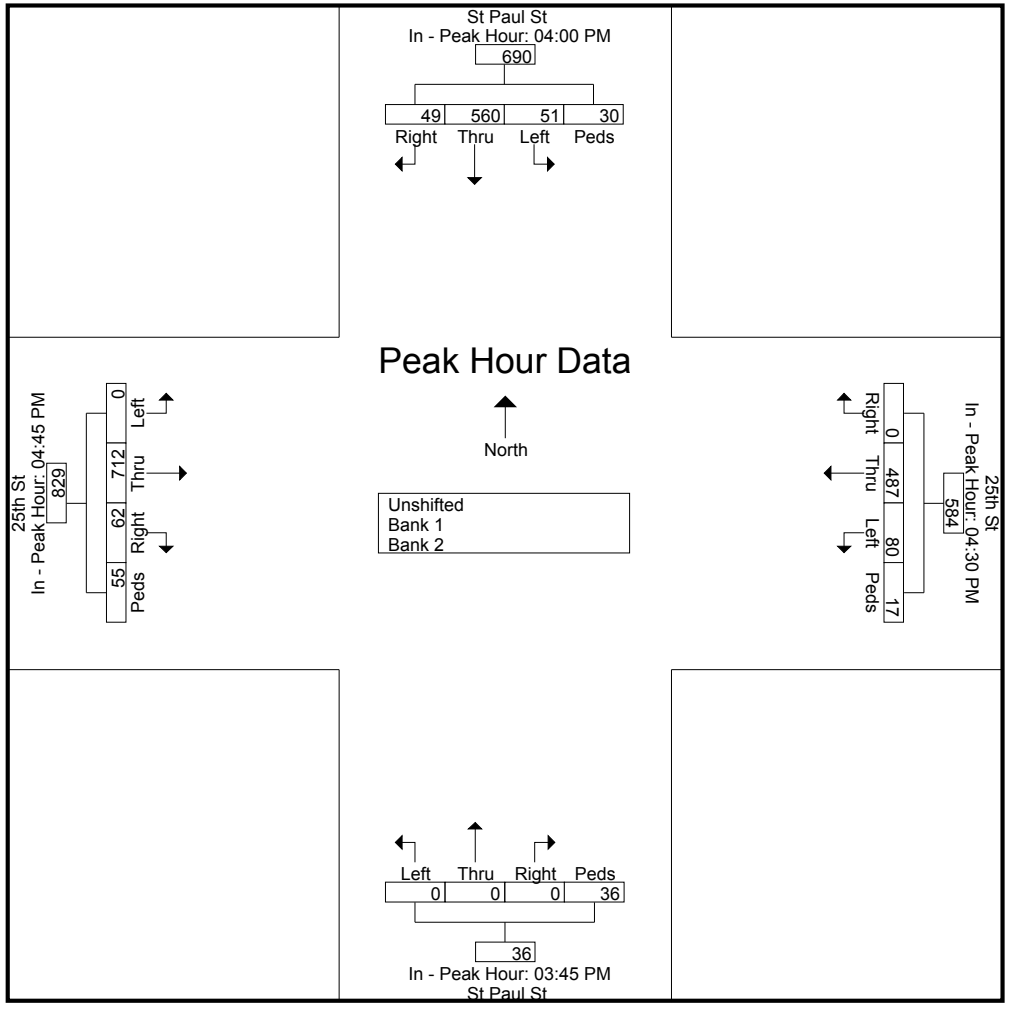
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1

**Peak Hour for Each Approach Begins at:**

| | 04:00 PM | | | | | 04:30 PM | | | | | 03:45 PM | | | | | 04:45 PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **+0 mins.** | **13** | **154** | **11** | **6** | **184** | **0** | 130 | 17 | 9 | 156 | 0 | 0 | 0 | 9 | 9 | 14 | 171 | 0 | 19 | 204 |
| +15 mins. | 10 | **158** | 10 | **8** | **186** | 0 | 116 | **24** | 2 | 142 | 0 | 0 | 0 | **12** | **12** | **20** | 182 | 0 | 9 | 211 |
| +30 mins. | 12 | 121 | **21** | 8 | 162 | 0 | 118 | 23 | 3 | 144 | 0 | 0 | 0 | 6 | 6 | 16 | **195** | 0 | 13 | **224** |
| +45 mins. | **14** | 127 | 9 | 8 | 158 | 0 | 123 | 16 | 3 | 142 | 0 | 0 | 0 | 9 | 9 | 12 | 164 | 0 | 14 | 190 |
| Total Volume | 49 | 560 | 51 | 30 | 690 | 0 | 487 | 80 | 17 | 584 | 0 | 0 | 0 | 36 | 36 | 62 | 712 | 0 | 55 | 829 |
| % App. Total | 7.1 | 81.2 | 7.4 | 4.3 | | 0 | 83.4 | 13.7 | 2.9 | | 0 | 0 | 0 | 100 | | 7.5 | 85.9 | 0 | 6.6 | |
| PHF | .875 | .886 | .607 | .938 | .927 | .000 | .937 | .833 | .472 | .936 | .000 | .000 | .000 | .750 | .750 | .775 | .913 | .000 | .724 | .925 |

Vision Engineering and Planning, LLC
516 North Charles St, Suite 301
Baltimore, MD 21201

File Name : 25th_StPaul_PM
Site Code : 00000000
Start Date : 9/10/2015
Page No : 5



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

Weather: SUNNY
Counted By: ALDON & VINNIE
Town: BALTIMORE CITY
County: BALTIMORE CITY

File Name : St Paul at 29th St
Site Code : 00000000
Start Date : 9/23/2015
Page No : 1

Groups Printed- VEHS&PEDS

| | ST PAUL ST From North | | | | | 29TH ST From East | | | | | ST PAUL ST From South | | | | | 29TH ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 33 | 144 | 0 | 8 | 185 | 0 | 156 | 25 | 10 | 191 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 4 | 4 | 385 |
| 07:15 AM | 59 | 178 | 0 | 7 | 244 | 0 | 198 | 35 | 8 | 241 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 5 | 5 | 496 |
| 07:30 AM | 79 | 231 | 0 | 10 | 320 | 0 | 227 | 38 | 9 | 274 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 13 | 13 | 616 |
| 07:45 AM | 74 | 208 | 0 | 12 | 294 | 0 | 256 | 32 | 4 | 292 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 14 | 14 | 609 |
| Total | 245 | 761 | 0 | 37 | 1043 | 0 | 837 | 130 | 31 | 998 | 0 | 0 | 0 | 29 | 29 | 0 | 0 | 0 | 36 | 36 | 2106 |
| 08:00 AM | 69 | 252 | 0 | 15 | 336 | 0 | 228 | 33 | 15 | 276 | 0 | 0 | 0 | 16 | 16 | 0 | 0 | 0 | 14 | 14 | 642 |
| 08:15 AM | 68 | 200 | 0 | 19 | 287 | 0 | 240 | 40 | 14 | 294 | 0 | 0 | 0 | 19 | 19 | 0 | 0 | 0 | 20 | 20 | 620 |
| 08:30 AM | 72 | 206 | 0 | 8 | 286 | 0 | 223 | 30 | 5 | 258 | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 14 | 14 | 569 |
| 08:45 AM | 57 | 193 | 0 | 9 | 259 | 0 | 206 | 24 | 9 | 239 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 10 | 10 | 520 |
| Total | 266 | 851 | 0 | 51 | 1168 | 0 | 897 | 127 | 43 | 1067 | 0 | 0 | 0 | 58 | 58 | 0 | 0 | 0 | 58 | 58 | 2351 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 10:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 10:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 10:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 10:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 11:00 AM | 27 | 88 | 0 | 7 | 122 | 0 | 88 | 7 | 4 | 99 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 2 | 2 | 233 |
| 11:15 AM | 34 | 113 | 0 | 5 | 152 | 0 | 83 | 17 | 5 | 105 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 3 | 3 | 268 |
| 11:30 AM | 30 | 102 | 0 | 3 | 135 | 0 | 90 | 10 | 2 | 102 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 243 |
| 11:45 AM | 51 | 113 | 0 | 4 | 168 | 0 | 99 | 16 | 1 | 116 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 1 | 1 | 295 |
| Total | 142 | 416 | 0 | 19 | 577 | 0 | 360 | 50 | 12 | 422 | 0 | 0 | 0 | 34 | 34 | 0 | 0 | 0 | 6 | 6 | 1039 |
| 12:00 PM | 39 | 122 | 0 | 8 | 169 | 0 | 99 | 8 | 0 | 107 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 3 | 3 | 287 |
| 12:15 PM | 50 | 108 | 0 | 6 | 164 | 0 | 106 | 10 | 0 | 116 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 1 | 1 | 287 |
| 12:30 PM | 39 | 105 | 0 | 3 | 147 | 0 | 111 | 12 | 0 | 123 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 6 | 6 | 282 |
| 12:45 PM | 39 | 115 | 0 | 5 | 159 | 0 | 96 | 13 | 0 | 109 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 7 | 7 | 278 |
| Total | 167 | 450 | 0 | 22 | 639 | 0 | 412 | 43 | 0 | 455 | 0 | 0 | 0 | 23 | 23 | 0 | 0 | 0 | 17 | 17 | 1134 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 02:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 02:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul at 29th St
Site Code : 00000000
Start Date : 9/23/2015
Page No : 2

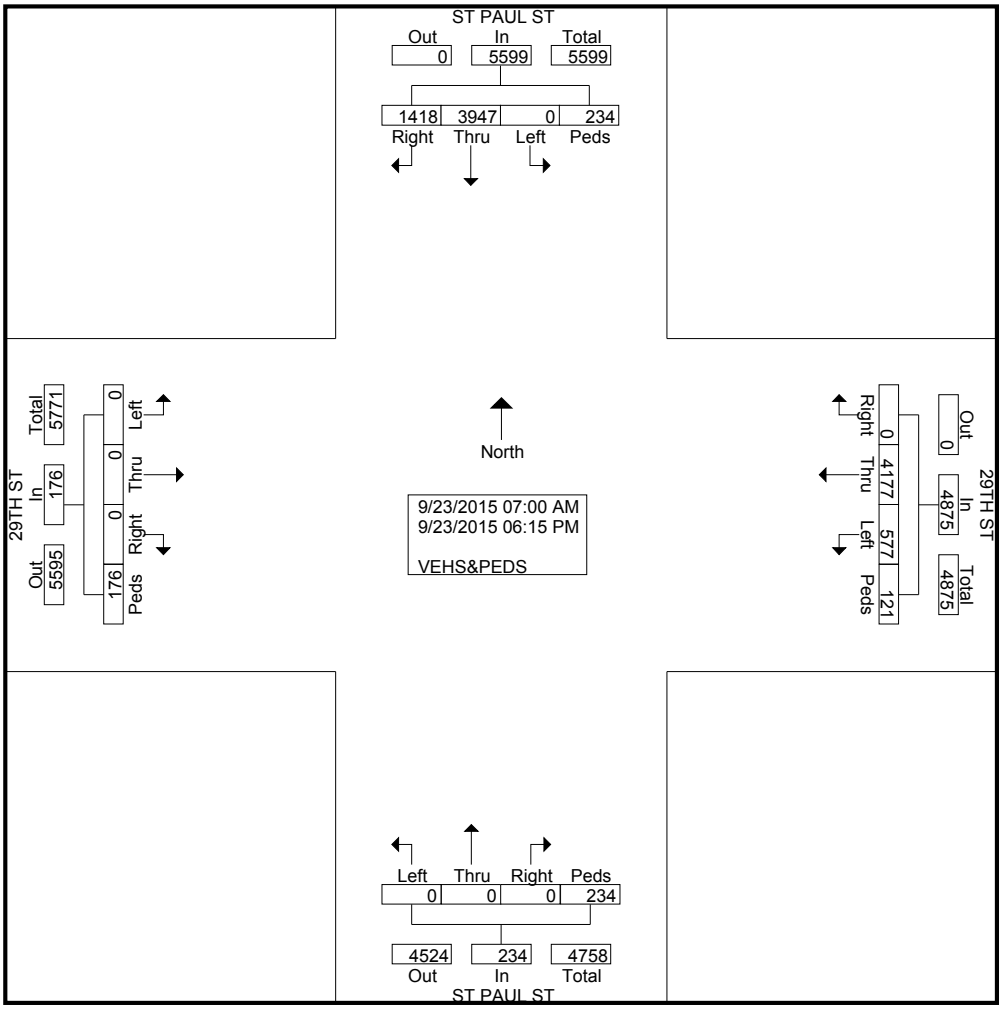
Groups Printed- VEHS&PEDS

| | ST PAUL ST From North | | | | | 29TH ST From East | | | | | ST PAUL ST From South | | | | | 29TH ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 03:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 03:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:30 PM | 53 | 136 | 0 | 4 | 193 | 0 | 150 | 18 | 3 | 171 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 369 |
| 03:45 PM | 53 | 138 | 0 | 7 | 198 | 0 | 134 | 17 | 4 | 155 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 356 |
| Total | 106 | 274 | 0 | 11 | 391 | 0 | 284 | 35 | 11 | 330 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 2 | 2 | 729 |
| 04:00 PM | 59 | 134 | 0 | 10 | 203 | 0 | 113 | 19 | 1 | 133 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 338 |
| 04:15 PM | 44 | 121 | 0 | 5 | 170 | 0 | 153 | 15 | 0 | 168 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 6 | 6 | 349 |
| 04:30 PM | 49 | 129 | 0 | 8 | 186 | 0 | 146 | 34 | 1 | 181 | 0 | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 3 | 3 | 377 |
| 04:45 PM | 43 | 113 | 0 | 4 | 160 | 0 | 152 | 19 | 1 | 172 | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 7 | 7 | 350 |
| Total | 195 | 497 | 0 | 27 | 719 | 0 | 564 | 87 | 3 | 654 | 0 | 0 | 0 | 25 | 25 | 0 | 0 | 0 | 16 | 16 | 1414 |
| 05:00 PM | 37 | 111 | 0 | 12 | 160 | 0 | 145 | 21 | 3 | 169 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 2 | 2 | 341 |
| 05:15 PM | 50 | 122 | 0 | 9 | 181 | 0 | 117 | 18 | 0 | 135 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 1 | 1 | 323 |
| 05:30 PM | 56 | 131 | 0 | 19 | 206 | 0 | 132 | 16 | 0 | 148 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 14 | 14 | 378 |
| 05:45 PM | 56 | 125 | 0 | 14 | 195 | 0 | 167 | 17 | 0 | 184 | 0 | 0 | 0 | 15 | 15 | 0 | 0 | 0 | 11 | 11 | 405 |
| Total | 199 | 489 | 0 | 54 | 742 | 0 | 561 | 72 | 3 | 636 | 0 | 0 | 0 | 41 | 41 | 0 | 0 | 0 | 28 | 28 | 1447 |
| 06:00 PM | 56 | 103 | 0 | 6 | 165 | 0 | 129 | 18 | 0 | 147 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 5 | 5 | 327 |
| 06:15 PM | 42 | 106 | 0 | 7 | 155 | 0 | 133 | 15 | 0 | 148 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 8 | 8 | 319 |
| Grand Total | 1418 | 3947 | 0 | 234 | 5599 | 0 | 4177 | 577 | 121 | 4875 | 0 | 0 | 0 | 234 | 234 | 0 | 0 | 0 | 176 | 176 | 10884 |
| Apprch % | 25.3 | 70.5 | 0 | 4.2 | | 0 | 85.7 | 11.8 | 2.5 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| Total % | 13 | 36.3 | 0 | 2.1 | 51.4 | 0 | 38.4 | 5.3 | 1.1 | 44.8 | 0 | 0 | 0 | 2.1 | 2.1 | 0 | 0 | 0 | 1.6 | 1.6 | |

# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*


File Name : St Paul at 29th St
Site Code : 00000000
Start Date : 9/23/2015
Page No : 3

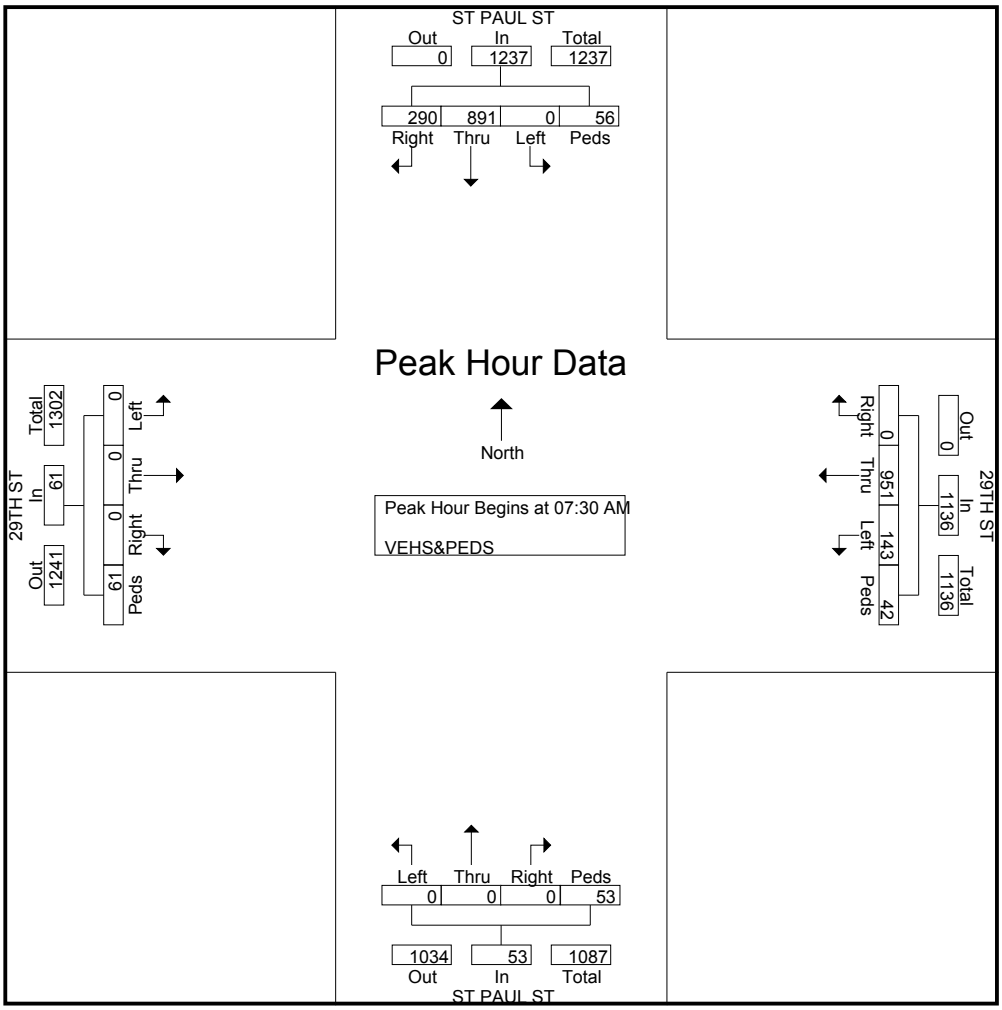


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul at 29th St
Site Code : 00000000
Start Date : 9/23/2015
Page No : 4

| | ST PAUL ST From North | | | | | 29TH ST From East | | | | | ST PAUL ST From South | | | | | 29TH ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:30 AM | **79** | 231 | 0 | 10 | 320 | 0 | 227 | 38 | 9 | 274 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 13 | 13 | 616 |
| 07:45 AM | 74 | 208 | 0 | 12 | 294 | 0 | **256** | 32 | 4 | 292 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 14 | 14 | 609 |
| 08:00 AM | 69 | **252** | 0 | 15 | **336** | 0 | 228 | 33 | **15** | 276 | 0 | 0 | 0 | 16 | 16 | 0 | 0 | 0 | 14 | 14 | **642** |
| 08:15 AM | 68 | 200 | 0 | **19** | 287 | 0 | 240 | **40** | 14 | **294** | 0 | 0 | 0 | **19** | **19** | 0 | 0 | 0 | **20** | **20** | 620 |
| Total Volume | 290 | 891 | 0 | 56 | 1237 | 0 | 951 | 143 | 42 | 1136 | 0 | 0 | 0 | 53 | 53 | 0 | 0 | 0 | 61 | 61 | 2487 |
| % App. Total | 23.4 | 72 | 0 | 4.5 | | 0 | 83.7 | 12.6 | 3.7 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| PHF | .918 | .884 | .000 | .737 | .920 | .000 | .929 | .894 | .700 | .966 | .000 | .000 | .000 | .697 | .697 | .000 | .000 | .000 | .763 | .763 | .968 |

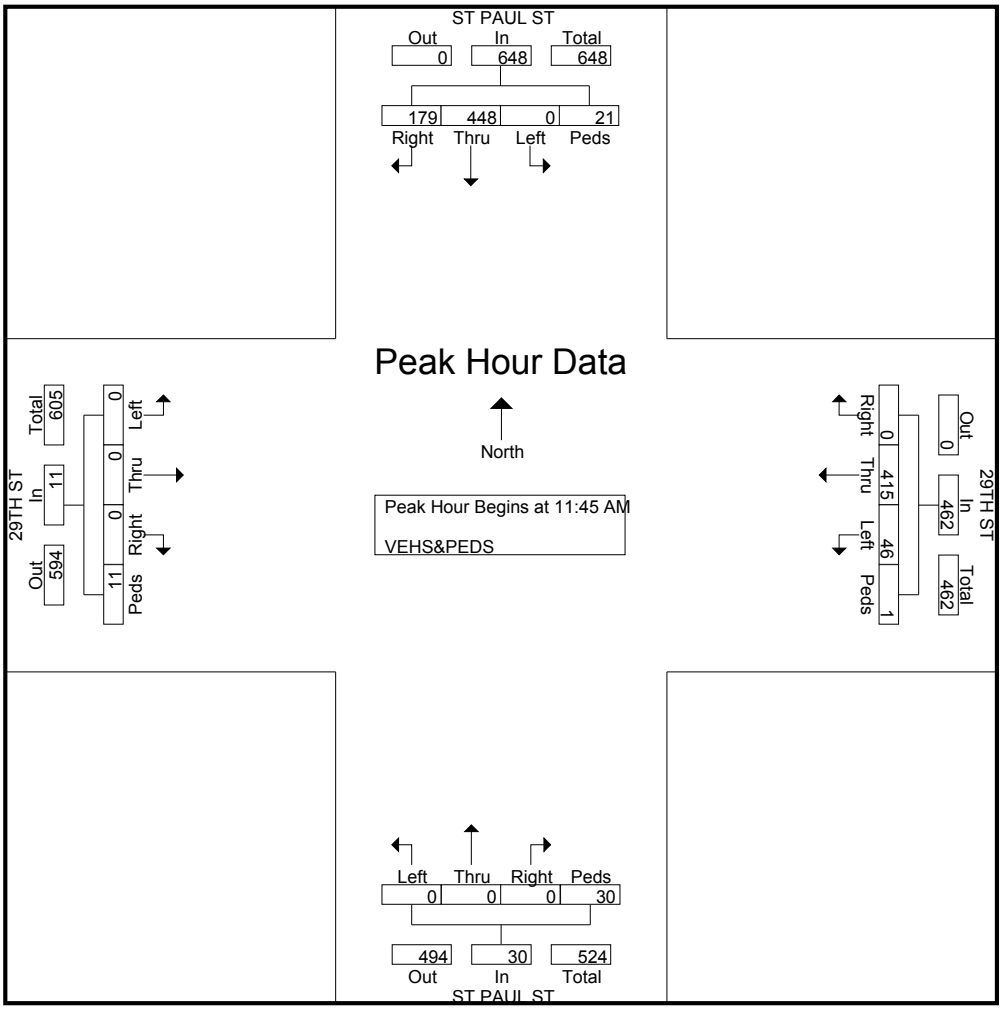


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul at 29th St
Site Code : 00000000
Start Date : 9/23/2015
Page No : 5

| | ST PAUL ST From North | | | | | 29TH ST From East | | | | | ST PAUL ST From South | | | | | 29TH ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 11:45 AM | | | | | | | | | | | | | | | | | | | | | |
| 11:45 AM | **51** | 113 | 0 | 4 | 168 | 0 | 99 | **16** | **1** | 116 | 0 | 0 | 0 | **10** | **10** | 0 | 0 | 0 | 1 | 1 | **295** |
| 12:00 PM | 39 | **122** | 0 | **8** | **169** | 0 | 99 | 8 | 0 | 107 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 3 | 3 | 287 |
| 12:15 PM | 50 | 108 | 0 | 6 | 164 | 0 | 106 | 10 | 0 | 116 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 1 | 1 | 287 |
| 12:30 PM | 39 | 105 | 0 | 3 | 147 | 0 | **111** | 12 | 0 | **123** | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | **6** | **6** | 282 |
| Total Volume | 179 | 448 | 0 | 21 | 648 | 0 | 415 | 46 | 1 | 462 | 0 | 0 | 0 | 30 | 30 | 0 | 0 | 0 | 11 | 11 | 1151 |
| % App. Total | 27.6 | 69.1 | 0 | 3.2 | | 0 | 89.8 | 10 | 0.2 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| PHF | .877 | .918 | .000 | .656 | .959 | .000 | .935 | .719 | .250 | .939 | .000 | .000 | .000 | .750 | .750 | .000 | .000 | .000 | .458 | .458 | .975 |

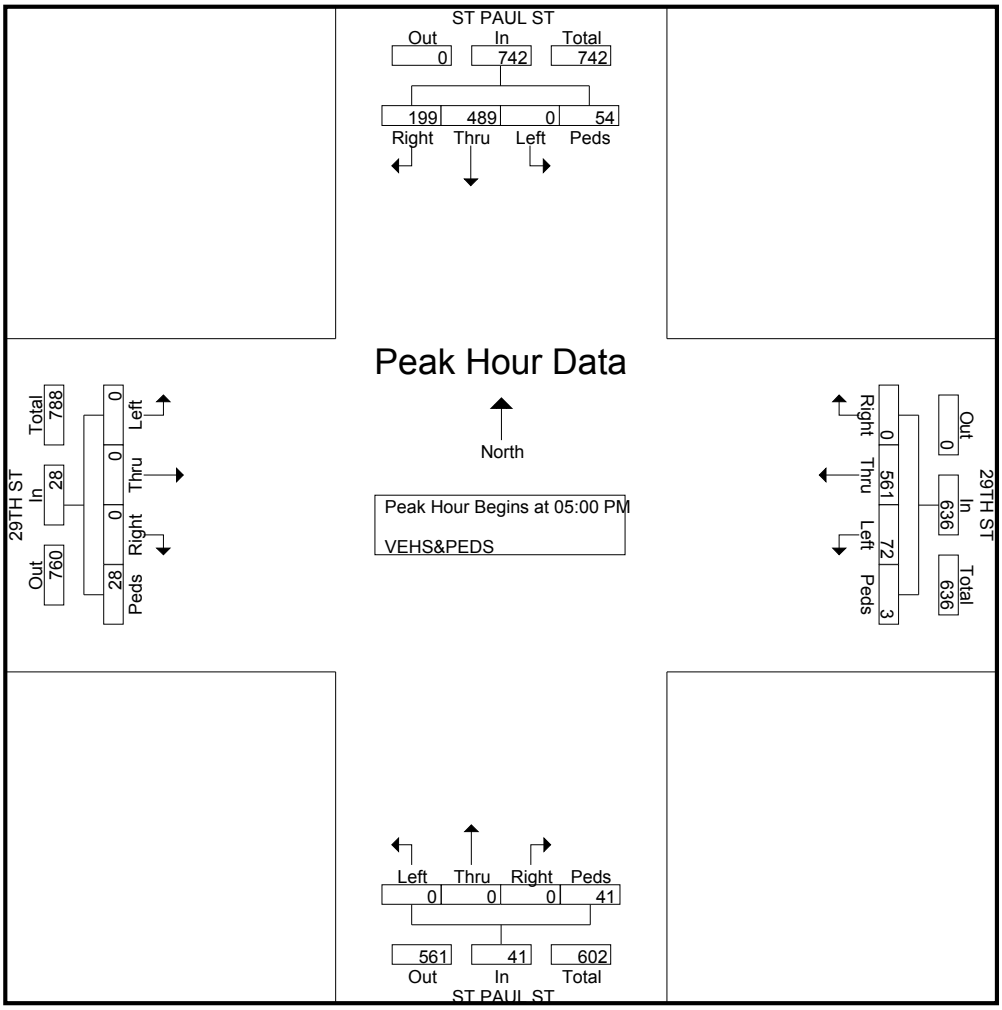


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul at 29th St
Site Code : 00000000
Start Date : 9/23/2015
Page No : 6

| | ST PAUL ST From North | | | | | 29TH ST From East | | | | | ST PAUL ST From South | | | | | 29TH ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 05:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 05:00 PM | 37 | 111 | 0 | 12 | 160 | 0 | 145 | **21** | **3** | 169 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 2 | 2 | 341 |
| 05:15 PM | 50 | 122 | 0 | 9 | 181 | 0 | 117 | 18 | 0 | 135 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 1 | 1 | 323 |
| 05:30 PM | **56** | **131** | 0 | **19** | **206** | 0 | 132 | 16 | 0 | 148 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | **14** | **14** | 378 |
| 05:45 PM | 56 | 125 | 0 | 14 | 195 | 0 | **167** | 17 | 0 | **184** | 0 | 0 | 0 | **15** | **15** | 0 | 0 | 0 | 11 | 11 | **405** |
| Total Volume | 199 | 489 | 0 | 54 | 742 | 0 | 561 | 72 | 3 | 636 | 0 | 0 | 0 | 41 | 41 | 0 | 0 | 0 | 28 | 28 | 1447 |
| % App. Total | 26.8 | 65.9 | 0 | 7.3 | | 0 | 88.2 | 11.3 | 0.5 | | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 100 | | |
| PHF | .888 | .933 | .000 | .711 | .900 | .000 | .840 | .857 | .250 | .864 | .000 | .000 | .000 | .683 | .683 | .000 | .000 | .000 | .500 | .500 | .893 |



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

Weather: SUNNY
Counted By: MIKE & ALDON
Town: BALTIMORE CITY
County: BALTIMORE CITY

File Name : St Paul St at 33rd St
Site Code : 00000000
Start Date : 9/22/2015
Page No : 1

Groups Printed- VEHS&PEDS

| | ST PAUL ST From North | | | | | 33RD ST From East | | | | | ST PAUL ST From South | | | | | 33RD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 26 | 130 | 4 | 0 | 160 | 0 | 77 | 64 | 18 | 159 | 4 | 0 | 0 | 21 | 25 | 5 | 25 | 1 | 0 | 31 | 375 |
| 07:15 AM | 28 | 215 | 6 | 1 | 250 | 0 | 97 | 63 | 15 | 175 | 2 | 2 | 0 | 10 | 14 | 0 | 41 | 4 | 1 | 46 | 485 |
| 07:30 AM | 32 | 230 | 4 | 4 | 270 | 2 | 115 | 72 | 27 | 216 | 2 | 2 | 0 | 34 | 38 | 5 | 49 | 1 | 3 | 58 | 582 |
| 07:45 AM | 35 | 244 | 9 | 2 | 290 | 2 | 96 | 66 | 28 | 192 | 5 | 3 | 0 | 24 | 32 | 4 | 36 | 2 | 2 | 44 | 558 |
| Total | 121 | 819 | 23 | 7 | 970 | 4 | 385 | 265 | 88 | 742 | 13 | 7 | 0 | 89 | 109 | 14 | 151 | 8 | 6 | 179 | 2000 |
| 08:00 AM | 26 | 239 | 3 | 6 | 274 | 0 | 90 | 65 | 24 | 179 | 0 | 0 | 0 | 25 | 25 | 1 | 41 | 1 | 8 | 51 | 529 |
| 08:15 AM | 31 | 272 | 4 | 7 | 314 | 2 | 102 | 60 | 33 | 197 | 7 | 0 | 0 | 28 | 35 | 7 | 47 | 1 | 7 | 62 | 608 |
| 08:30 AM | 14 | 207 | 8 | 2 | 231 | 2 | 90 | 63 | 33 | 188 | 4 | 4 | 0 | 62 | 70 | 7 | 43 | 1 | 2 | 53 | 542 |
| 08:45 AM | 17 | 168 | 12 | 8 | 205 | 2 | 75 | 58 | 44 | 179 | 6 | 0 | 0 | 76 | 82 | 10 | 43 | 0 | 8 | 61 | 527 |
| Total | 88 | 886 | 27 | 23 | 1024 | 6 | 357 | 246 | 134 | 743 | 17 | 4 | 0 | 191 | 212 | 25 | 174 | 3 | 25 | 227 | 2206 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 11:00 AM | 12 | 90 | 9 | 2 | 113 | 3 | 59 | 33 | 26 | 121 | 1 | 2 | 0 | 26 | 29 | 11 | 33 | 0 | 2 | 46 | 309 |
| 11:15 AM | 15 | 85 | 7 | 6 | 113 | 1 | 53 | 38 | 54 | 146 | 1 | 2 | 0 | 53 | 56 | 11 | 38 | 3 | 8 | 60 | 375 |
| 11:30 AM | 8 | 83 | 19 | 15 | 125 | 0 | 37 | 36 | 57 | 130 | 5 | 1 | 0 | 55 | 61 | 9 | 40 | 3 | 20 | 72 | 388 |
| 11:45 AM | 17 | 119 | 7 | 19 | 162 | 2 | 57 | 36 | 97 | 192 | 1 | 0 | 0 | 114 | 115 | 8 | 45 | 4 | 22 | 79 | 548 |
| Total | 52 | 377 | 42 | 42 | 513 | 6 | 206 | 143 | 234 | 589 | 8 | 5 | 0 | 248 | 261 | 39 | 156 | 10 | 52 | 257 | 1620 |
| 12:00 PM | 14 | 83 | 11 | 2 | 110 | 1 | 47 | 62 | 130 | 240 | 5 | 3 | 0 | 104 | 112 | 8 | 48 | 3 | 6 | 65 | 527 |
| 12:15 PM | 14 | 107 | 7 | 14 | 142 | 0 | 59 | 41 | 91 | 191 | 5 | 6 | 0 | 85 | 96 | 9 | 38 | 6 | 18 | 71 | 500 |
| 12:30 PM | 14 | 76 | 6 | 13 | 109 | 0 | 48 | 50 | 84 | 182 | 7 | 0 | 0 | 83 | 90 | 10 | 48 | 3 | 8 | 69 | 450 |
| 12:45 PM | 16 | 78 | 13 | 13 | 120 | 2 | 46 | 34 | 89 | 171 | 6 | 4 | 0 | 81 | 91 | 6 | 45 | 2 | 14 | 67 | 449 |
| Total | 58 | 344 | 37 | 42 | 481 | 3 | 200 | 187 | 394 | 784 | 23 | 13 | 0 | 353 | 389 | 33 | 179 | 14 | 46 | 272 | 1926 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 03:30 PM | 20 | 121 | 17 | 7 | 165 | 3 | 58 | 50 | 47 | 158 | 9 | 1 | 0 | 50 | 60 | 11 | 58 | 6 | 11 | 86 | 469 |
| 03:45 PM | 21 | 119 | 9 | 10 | 159 | 3 | 83 | 54 | 56 | 196 | 5 | 1 | 0 | 64 | 70 | 13 | 59 | 2 | 11 | 85 | 510 |
| Total | 41 | 240 | 26 | 17 | 324 | 6 | 141 | 104 | 103 | 354 | 14 | 2 | 0 | 114 | 130 | 24 | 117 | 8 | 22 | 171 | 979 |
| 04:00 PM | 19 | 119 | 14 | 16 | 168 | 0 | 66 | 53 | 70 | 189 | 7 | 0 | 0 | 76 | 83 | 4 | 66 | 0 | 19 | 89 | 529 |
| 04:15 PM | 19 | 115 | 17 | 15 | 166 | 3 | 59 | 51 | 70 | 183 | 4 | 4 | 0 | 99 | 107 | 7 | 69 | 4 | 15 | 95 | 551 |
| 04:30 PM | 22 | 139 | 19 | 7 | 187 | 1 | 72 | 46 | 69 | 188 | 9 | 4 | 0 | 62 | 75 | 11 | 82 | 5 | 10 | 108 | 558 |
| 04:45 PM | 18 | 135 | 15 | 6 | 174 | 2 | 78 | 62 | 71 | 213 | 6 | 2 | 0 | 82 | 90 | 4 | 92 | 5 | 4 | 105 | 582 |
| Total | 78 | 508 | 65 | 44 | 695 | 6 | 275 | 212 | 280 | 773 | 26 | 10 | 0 | 319 | 355 | 26 | 309 | 14 | 48 | 397 | 2220 |

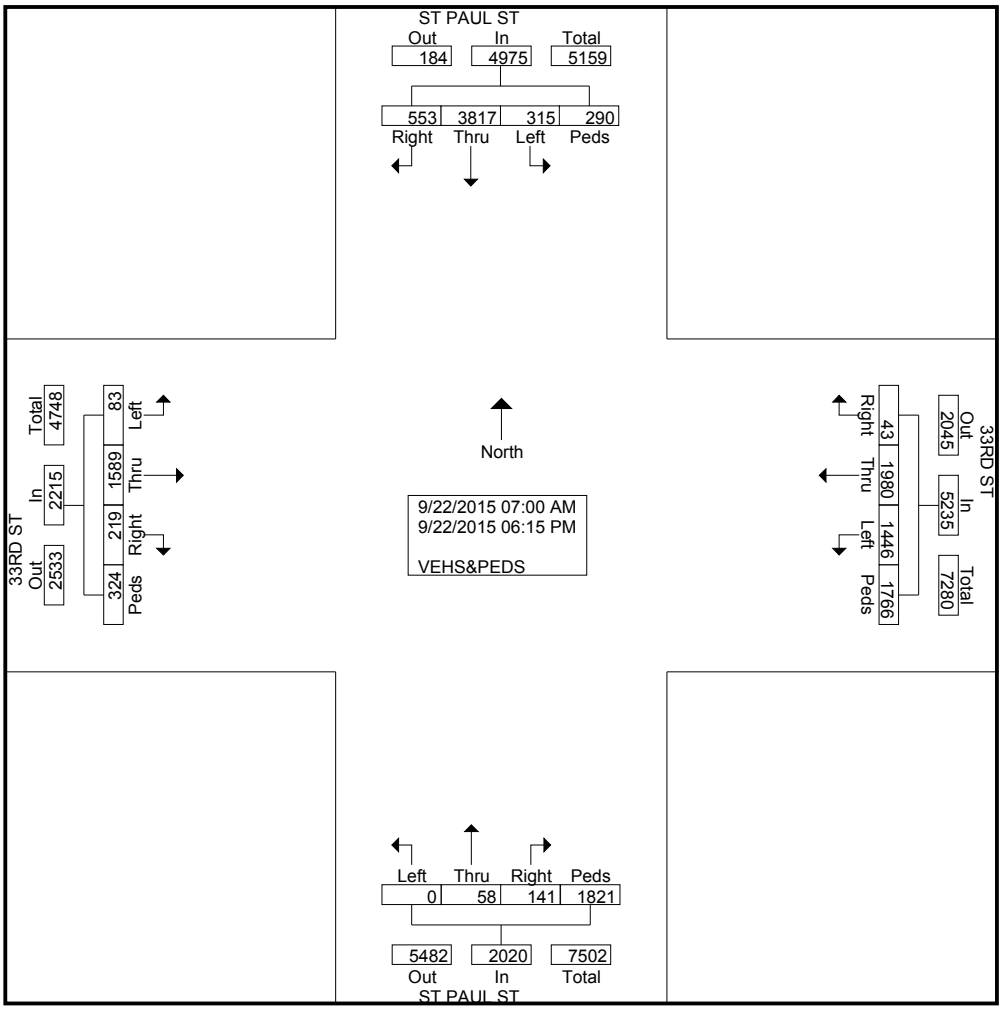
# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at 33rd St
Site Code : 00000000
Start Date : 9/22/2015
Page No : 2

Groups Printed- VEHS&PEDS

| | ST PAUL ST From North | | | | | 33RD ST From East | | | | | ST PAUL ST From South | | | | | 33RD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 05:00 PM | 20 | 112 | 21 | 18 | 171 | 2 | 75 | 46 | 59 | 182 | 5 | 4 | 0 | 70 | 79 | 7 | 85 | 5 | 17 | 114 | 546 |
| 05:15 PM | 13 | 117 | 16 | 26 | 172 | 2 | 71 | 47 | 71 | 191 | 5 | 2 | 0 | 65 | 72 | 12 | 95 | 2 | 21 | 130 | 565 |
| 05:30 PM | 12 | 109 | 16 | 20 | 157 | 4 | 67 | 52 | 87 | 210 | 5 | 2 | 0 | 92 | 99 | 5 | 88 | 4 | 24 | 121 | 587 |
| 05:45 PM | 19 | 111 | 9 | 9 | 148 | 2 | 71 | 37 | 104 | 214 | 11 | 4 | 0 | 102 | 117 | 12 | 78 | 5 | 14 | 109 | 588 |
| Total | 64 | 449 | 62 | 73 | 648 | 10 | 284 | 182 | 321 | 797 | 26 | 12 | 0 | 329 | 367 | 36 | 346 | 16 | 76 | 474 | 2286 |
| 06:00 PM | 20 | 108 | 19 | 22 | 169 | 1 | 71 | 49 | 100 | 221 | 8 | 4 | 0 | 97 | 109 | 12 | 86 | 5 | 26 | 129 | 628 |
| 06:15 PM | 31 | 86 | 14 | 20 | 151 | 1 | 61 | 58 | 112 | 232 | 6 | 1 | 0 | 81 | 88 | 10 | 71 | 5 | 23 | 109 | 580 |
| Grand Total | 553 | 3817 | 315 | 290 | 4975 | 43 | 1980 | 1446 | 1766 | 5235 | 141 | 58 | 0 | 1821 | 2020 | 219 | 1589 | 83 | 324 | 2215 | 14445 |
| Apprch % | 11.1 | 76.7 | 6.3 | 5.8 | | 0.8 | 37.8 | 27.6 | 33.7 | | 7 | 2.9 | 0 | 90.1 | | 9.9 | 71.7 | 3.7 | 14.6 | | |
| Total % | 3.8 | 26.4 | 2.2 | 2 | 34.4 | 0.3 | 13.7 | 10 | 12.2 | 36.2 | 1 | 0.4 | 0 | 12.6 | 14 | 1.5 | 11 | 0.6 | 2.2 | 15.3 | |

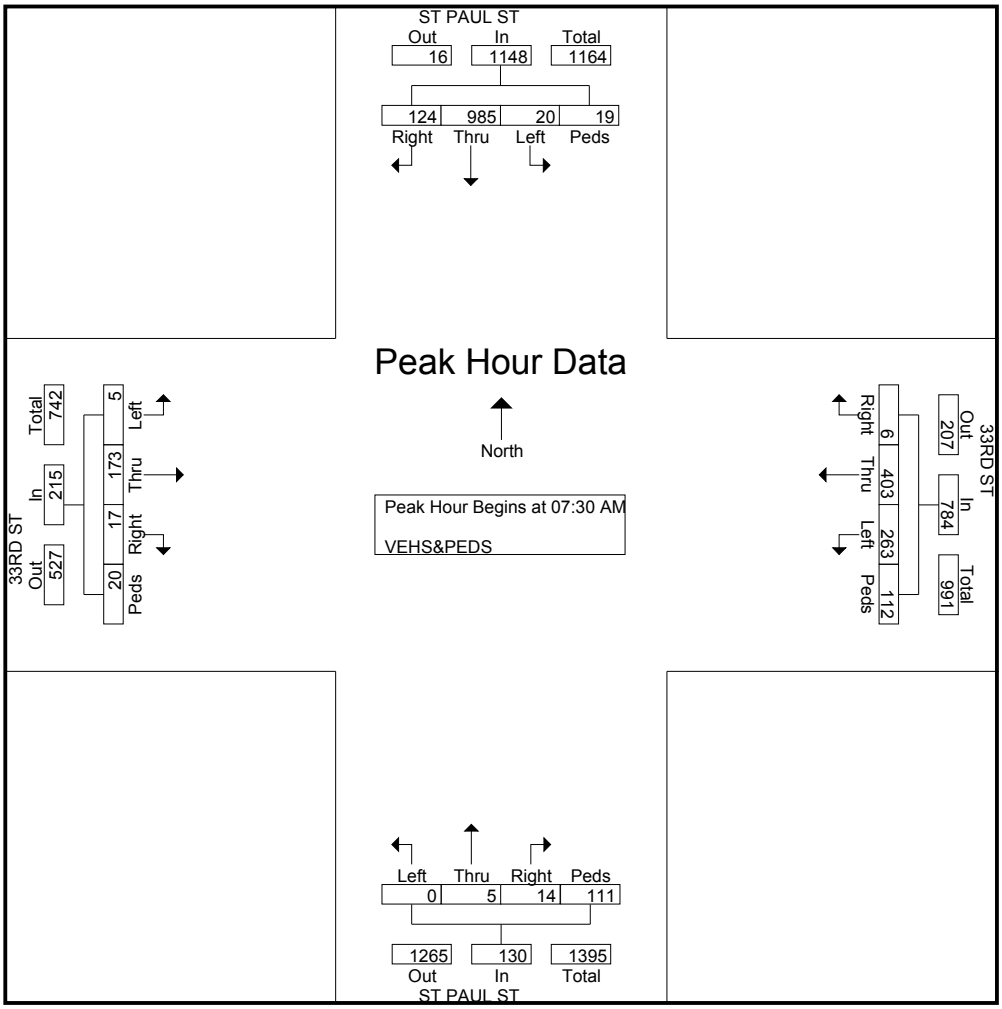


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at 33rd St
Site Code : 00000000
Start Date : 9/22/2015
Page No : 3

| | ST PAUL ST From North | | | | | 33RD ST From East | | | | | ST PAUL ST From South | | | | | 33RD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:30 AM | 32 | 230 | 4 | 4 | 270 | **2** | **115** | **72** | 27 | **216** | 2 | 2 | 0 | **34** | **38** | 5 | **49** | 1 | 3 | 58 | 582 |
| 07:45 AM | **35** | 244 | **9** | 2 | 290 | 2 | 96 | 66 | 28 | 192 | 5 | **3** | 0 | 24 | 32 | 4 | 36 | **2** | 2 | 44 | 558 |
| 08:00 AM | 26 | 239 | 3 | 6 | 274 | 0 | 90 | 65 | 24 | 179 | 0 | 0 | 0 | 25 | 25 | 1 | 41 | 1 | **8** | 51 | 529 |
| 08:15 AM | 31 | **272** | 4 | **7** | **314** | 2 | 102 | 60 | **33** | 197 | **7** | 0 | 0 | 28 | 35 | **7** | 47 | 1 | 7 | **62** | **608** |
| Total Volume | 124 | 985 | 20 | 19 | 1148 | 6 | 403 | 263 | 112 | 784 | 14 | 5 | 0 | 111 | 130 | 17 | 173 | 5 | 20 | 215 | 2277 |
| % App. Total | 10.8 | 85.8 | 1.7 | 1.7 | | 0.8 | 51.4 | 33.5 | 14.3 | | 10.8 | 3.8 | 0 | 85.4 | | 7.9 | 80.5 | 2.3 | 9.3 | | |
| PHF | .886 | .905 | .556 | .679 | .914 | .750 | .876 | .913 | .848 | .907 | .500 | .417 | .000 | .816 | .855 | .607 | .883 | .625 | .625 | .867 | .936 |

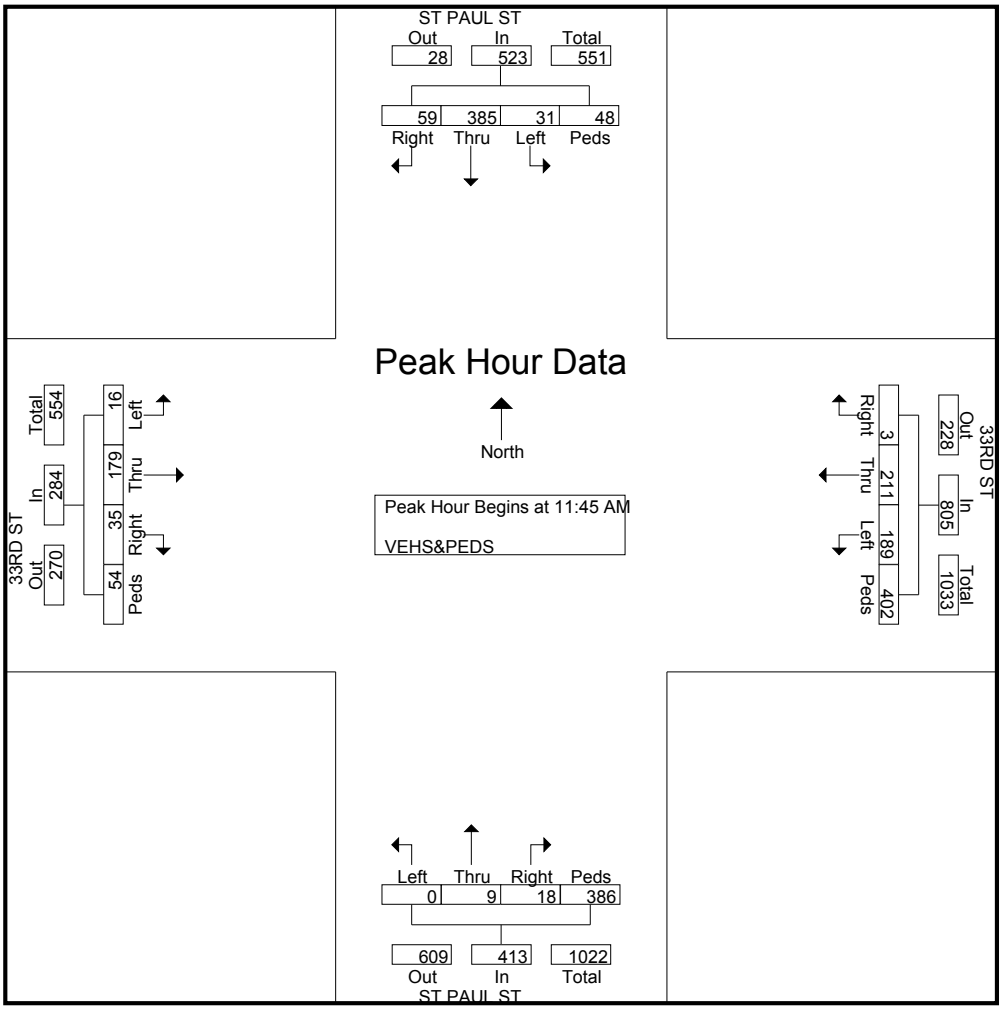


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at 33rd St
Site Code : 00000000
Start Date : 9/22/2015
Page No : 4

| | ST PAUL ST From North | | | | | 33RD ST From East | | | | | ST PAUL ST From South | | | | | 33RD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 11:45 AM | | | | | | | | | | | | | | | | | | | | | |
| 11:45 AM | **17** | **119** | 7 | **19** | **162** | **2** | 57 | 36 | 97 | 192 | 1 | 0 | 0 | **114** | **115** | 8 | 45 | 4 | **22** | **79** | **548** |
| 12:00 PM | 14 | 83 | **11** | 2 | 110 | 1 | 47 | **62** | **130** | **240** | 5 | 3 | 0 | 104 | 112 | 8 | **48** | 3 | 6 | 65 | 527 |
| 12:15 PM | 14 | 107 | 7 | 14 | 142 | 0 | **59** | 41 | 91 | 191 | 5 | **6** | 0 | 85 | 96 | 9 | 38 | **6** | 18 | 71 | 500 |
| 12:30 PM | 14 | 76 | 6 | 13 | 109 | 0 | 48 | 50 | 84 | 182 | **7** | 0 | 0 | 83 | 90 | **10** | 48 | 3 | 8 | 69 | 450 |
| Total Volume | 59 | 385 | 31 | 48 | 523 | 3 | 211 | 189 | 402 | 805 | 18 | 9 | 0 | 386 | 413 | 35 | 179 | 16 | 54 | 284 | 2025 |
| % App. Total | 11.3 | 73.6 | 5.9 | 9.2 | | 0.4 | 26.2 | 23.5 | 49.9 | | 4.4 | 2.2 | 0 | 93.5 | | 12.3 | 63 | 5.6 | 19 | | |
| PHF | .868 | .809 | .705 | .632 | .807 | .375 | .894 | .762 | .773 | .839 | .643 | .375 | .000 | .846 | .898 | .875 | .932 | .667 | .614 | .899 | .924 |

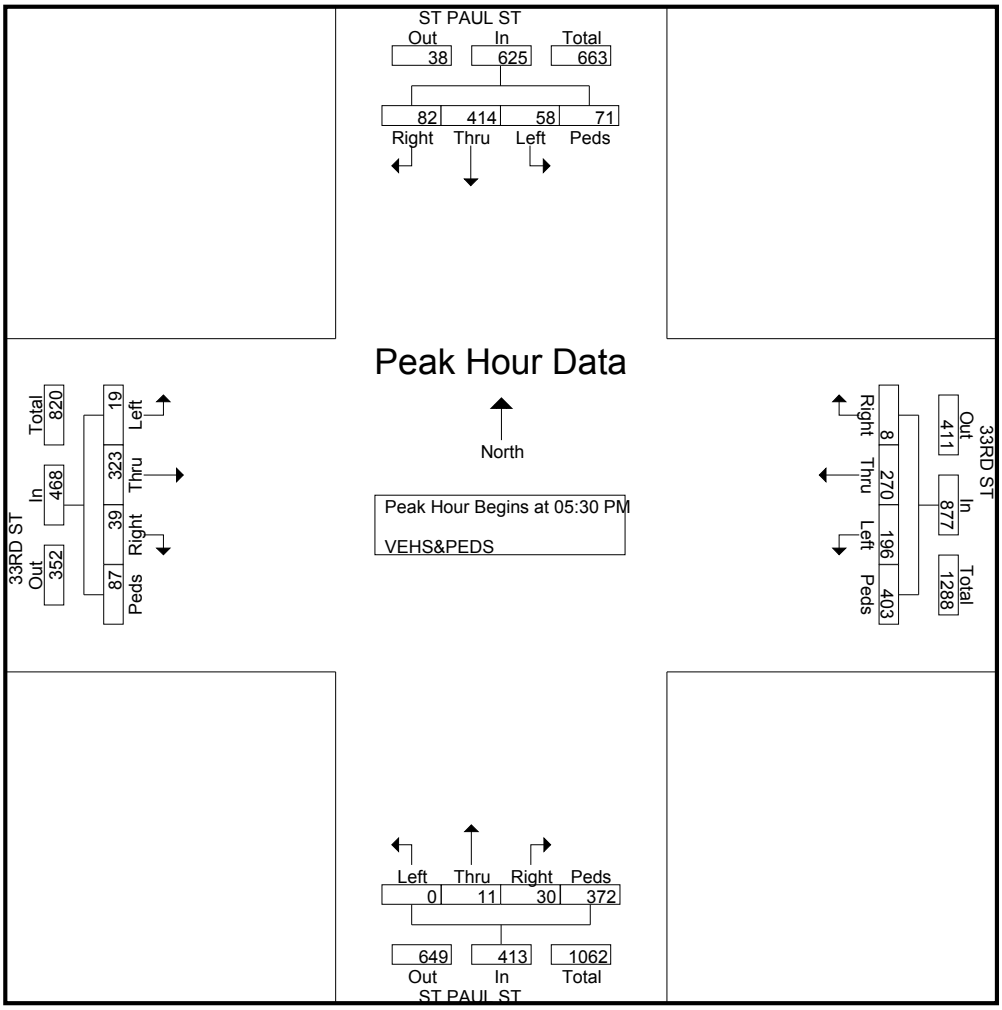


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : St Paul St at 33rd St
Site Code : 00000000
Start Date : 9/22/2015
Page No : 5

| | ST PAUL ST From North | | | | | 33RD ST From East | | | | | ST PAUL ST From South | | | | | 33RD ST From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 05:30 PM | | | | | | | | | | | | | | | | | | | | | |
| 05:30 PM | 12 | 109 | 16 | 20 | 157 | **4** | 67 | 52 | 87 | 210 | 5 | 2 | 0 | 92 | 99 | 5 | **88** | 4 | 24 | 121 | 587 |
| 05:45 PM | 19 | **111** | 9 | 9 | 148 | 2 | **71** | 37 | 104 | 214 | **11** | **4** | 0 | **102** | **117** | **12** | 78 | **5** | 14 | 109 | 588 |
| 06:00 PM | 20 | 108 | **19** | **22** | **169** | 1 | 71 | 49 | 100 | 221 | 8 | 4 | 0 | 97 | 109 | 12 | 86 | 5 | **26** | **129** | **628** |
| 06:15 PM | **31** | 86 | 14 | 20 | 151 | 1 | 61 | **58** | **112** | **232** | 6 | 1 | 0 | 81 | 88 | 10 | 71 | 5 | 23 | 109 | 580 |
| Total Volume | 82 | 414 | 58 | 71 | 625 | 8 | 270 | 196 | 403 | 877 | 30 | 11 | 0 | 372 | 413 | 39 | 323 | 19 | 87 | 468 | 2383 |
| % App. Total | 13.1 | 66.2 | 9.3 | 11.4 | | 0.9 | 30.8 | 22.3 | 46 | | 7.3 | 2.7 | 0 | 90.1 | | 8.3 | 69 | 4.1 | 18.6 | | |
| PHF | .661 | .932 | .763 | .807 | .925 | .500 | .951 | .845 | .900 | .945 | .682 | .688 | .000 | .912 | .882 | .813 | .918 | .950 | .837 | .907 | .949 |



# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

Weather: SUNNY
Counted By: DEB & MARCIE
Town: BALTIMORE CITY
County: BALTIMORE CITY

File Name : Calvert St at University Pkwy
Site Code : 00000000
Start Date : 9/23/2015
Page No : 1

Groups Printed- VEHS&PEDS

| | CALVERT ST From North | | | | | UNIVERSITY PKWY From East | | | | | CALVERT ST From South | | | | | UNIVERSITY PKWY From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 0 | 0 | 5 | 5 | 1 | 51 | 0 | 3 | 55 | 13 | 1 | 21 | 4 | 39 | 0 | 47 | 2 | 2 | 51 | 150 |
| 07:15 AM | 0 | 0 | 0 | 2 | 2 | 0 | 68 | 0 | 5 | 73 | 8 | 1 | 30 | 9 | 48 | 0 | 44 | 1 | 2 | 47 | 170 |
| 07:30 AM | 0 | 0 | 0 | 5 | 5 | 0 | 108 | 0 | 4 | 112 | 24 | 2 | 45 | 3 | 74 | 0 | 56 | 2 | 2 | 60 | 251 |
| 07:45 AM | 0 | 0 | 0 | 2 | 2 | 2 | 118 | 0 | 3 | 123 | 14 | 1 | 48 | 2 | 65 | 0 | 64 | 4 | 0 | 68 | 258 |
| Total | 0 | 0 | 0 | 14 | 14 | 3 | 345 | 0 | 15 | 363 | 59 | 5 | 144 | 18 | 226 | 0 | 211 | 9 | 6 | 226 | 829 |
| 08:00 AM | 0 | 0 | 0 | 7 | 7 | 1 | 67 | 0 | 4 | 72 | 15 | 4 | 40 | 13 | 72 | 0 | 57 | 2 | 0 | 59 | 210 |
| 08:15 AM | 0 | 0 | 0 | 3 | 3 | 0 | 81 | 0 | 2 | 83 | 18 | 2 | 48 | 3 | 71 | 0 | 57 | 0 | 1 | 58 | 215 |
| 08:30 AM | 0 | 0 | 0 | 10 | 10 | 2 | 89 | 0 | 8 | 99 | 13 | 3 | 76 | 8 | 100 | 0 | 54 | 6 | 2 | 62 | 271 |
| 08:45 AM | 0 | 0 | 0 | 9 | 9 | 1 | 77 | 0 | 5 | 83 | 19 | 2 | 80 | 6 | 107 | 0 | 51 | 6 | 6 | 63 | 262 |
| Total | 0 | 0 | 0 | 29 | 29 | 4 | 314 | 0 | 19 | 337 | 65 | 11 | 244 | 30 | 350 | 0 | 219 | 14 | 9 | 242 | 958 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 11:00 AM | 0 | 0 | 0 | 2 | 2 | 2 | 39 | 0 | 6 | 47 | 30 | 6 | 42 | 4 | 82 | 0 | 46 | 7 | 2 | 55 | 186 |
| 11:15 AM | 0 | 0 | 0 | 0 | 0 | 7 | 36 | 0 | 1 | 44 | 29 | 7 | 47 | 2 | 85 | 0 | 35 | 9 | 2 | 46 | 175 |
| 11:30 AM | 0 | 0 | 0 | 2 | 2 | 0 | 54 | 0 | 3 | 57 | 27 | 2 | 50 | 6 | 85 | 0 | 40 | 4 | 0 | 44 | 188 |
| 11:45 AM | 0 | 0 | 0 | 3 | 3 | 2 | 41 | 0 | 5 | 48 | 24 | 4 | 40 | 3 | 71 | 0 | 37 | 10 | 4 | 51 | 173 |
| Total | 0 | 0 | 0 | 7 | 7 | 11 | 170 | 0 | 15 | 196 | 110 | 19 | 179 | 15 | 323 | 0 | 158 | 30 | 8 | 196 | 722 |
| 12:00 PM | 0 | 0 | 0 | 3 | 3 | 0 | 33 | 0 | 6 | 39 | 33 | 6 | 45 | 9 | 93 | 0 | 58 | 8 | 0 | 66 | 201 |
| 12:15 PM | 0 | 0 | 0 | 4 | 4 | 5 | 46 | 0 | 4 | 55 | 19 | 4 | 47 | 3 | 73 | 0 | 42 | 8 | 1 | 51 | 183 |
| 12:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 45 | 0 | 7 | 54 | 22 | 0 | 41 | 2 | 65 | 0 | 39 | 8 | 0 | 47 | 166 |
| 12:45 PM | 0 | 0 | 0 | 3 | 3 | 2 | 40 | 0 | 5 | 47 | 22 | 5 | 44 | 10 | 81 | 0 | 51 | 8 | 0 | 59 | 190 |
| Total | 0 | 0 | 0 | 10 | 10 | 9 | 164 | 0 | 22 | 195 | 96 | 15 | 177 | 24 | 312 | 0 | 190 | 32 | 1 | 223 | 740 |
| **BREAK** | | | | | | | | | | | | | | | | | | | | | |
| 03:30 PM | 0 | 0 | 0 | 4 | 4 | 2 | 68 | 0 | 5 | 75 | 28 | 7 | 92 | 5 | 132 | 0 | 85 | 8 | 1 | 94 | 305 |
| 03:45 PM | 0 | 0 | 0 | 7 | 7 | 1 | 52 | 0 | 8 | 61 | 46 | 7 | 89 | 9 | 151 | 0 | 54 | 8 | 1 | 63 | 282 |
| Total | 0 | 0 | 0 | 11 | 11 | 3 | 120 | 0 | 13 | 136 | 74 | 14 | 181 | 14 | 283 | 0 | 139 | 16 | 2 | 157 | 587 |
| 04:00 PM | 0 | 0 | 0 | 5 | 5 | 4 | 75 | 0 | 8 | 87 | 23 | 4 | 92 | 6 | 125 | 0 | 83 | 7 | 1 | 91 | 308 |
| 04:15 PM | 0 | 0 | 0 | 8 | 8 | 2 | 59 | 0 | 2 | 63 | 27 | 9 | 111 | 7 | 154 | 0 | 57 | 6 | 0 | 63 | 288 |
| 04:30 PM | 0 | 0 | 0 | 10 | 10 | 1 | 67 | 0 | 9 | 77 | 40 | 7 | 137 | 8 | 192 | 0 | 92 | 8 | 0 | 100 | 379 |
| 04:45 PM | 0 | 0 | 0 | 8 | 8 | 5 | 48 | 0 | 2 | 55 | 24 | 7 | 158 | 6 | 195 | 0 | 63 | 4 | 0 | 67 | 325 |
| Total | 0 | 0 | 0 | 31 | 31 | 12 | 249 | 0 | 21 | 282 | 114 | 27 | 498 | 27 | 666 | 0 | 295 | 25 | 1 | 321 | 1300 |

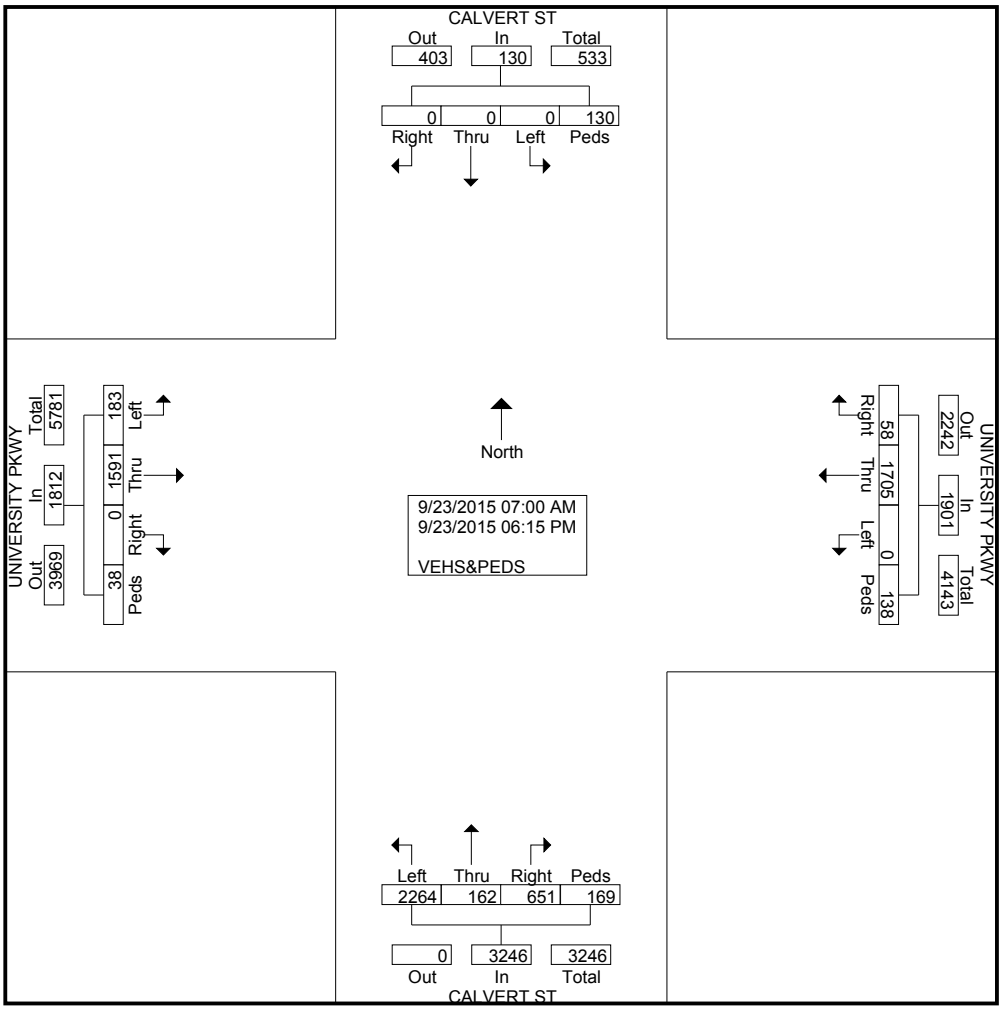
# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at University Pkwy
Site Code : 00000000
Start Date : 9/23/2015
Page No : 2

Groups Printed- VEHS&PEDS

| | CALVERT ST From North | | | | | UNIVERSITY PKWY From East | | | | | CALVERT ST From South | | | | | UNIVERSITY PKWY From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 05:00 PM | 0 | 0 | 0 | 5 | 5 | 10 | 58 | 0 | 5 | 73 | 33 | 8 | 139 | 5 | 185 | 0 | 86 | 9 | 3 | 98 | 361 |
| 05:15 PM | 0 | 0 | 0 | 5 | 5 | 1 | 50 | 0 | 7 | 58 | 26 | 17 | 164 | 3 | 210 | 0 | 68 | 8 | 1 | 77 | 350 |
| 05:30 PM | 0 | 0 | 0 | 5 | 5 | 0 | 77 | 0 | 3 | 80 | 19 | 5 | 161 | 7 | 192 | 0 | 68 | 11 | 2 | 81 | 358 |
| 05:45 PM | 0 | 0 | 0 | 1 | 1 | 3 | 45 | 0 | 7 | 55 | 24 | 23 | 151 | 8 | 206 | 0 | 63 | 8 | 0 | 71 | 333 |
| Total | 0 | 0 | 0 | 16 | 16 | 14 | 230 | 0 | 22 | 266 | 102 | 53 | 615 | 23 | 793 | 0 | 285 | 36 | 6 | 327 | 1402 |
| 06:00 PM | 0 | 0 | 0 | 5 | 5 | 1 | 49 | 0 | 4 | 54 | 16 | 12 | 109 | 8 | 145 | 0 | 46 | 9 | 5 | 60 | 264 |
| 06:15 PM | 0 | 0 | 0 | 7 | 7 | 1 | 64 | 0 | 7 | 72 | 15 | 6 | 117 | 10 | 148 | 0 | 48 | 12 | 0 | 60 | 287 |
| Grand Total | 0 | 0 | 0 | 130 | 130 | 58 | 1705 | 0 | 138 | 1901 | 651 | 162 | 2264 | 169 | 3246 | 0 | 1591 | 183 | 38 | 1812 | 7089 |
| Apprch % | 0 | 0 | 0 | 100 | | 3.1 | 89.7 | 0 | 7.3 | | 20.1 | 5 | 69.7 | 5.2 | | 0 | 87.8 | 10.1 | 2.1 | | |
| Total % | 0 | 0 | 0 | 1.8 | 1.8 | 0.8 | 24.1 | 0 | 1.9 | 26.8 | 9.2 | 2.3 | 31.9 | 2.4 | 45.8 | 0 | 22.4 | 2.6 | 0.5 | 25.6 | |

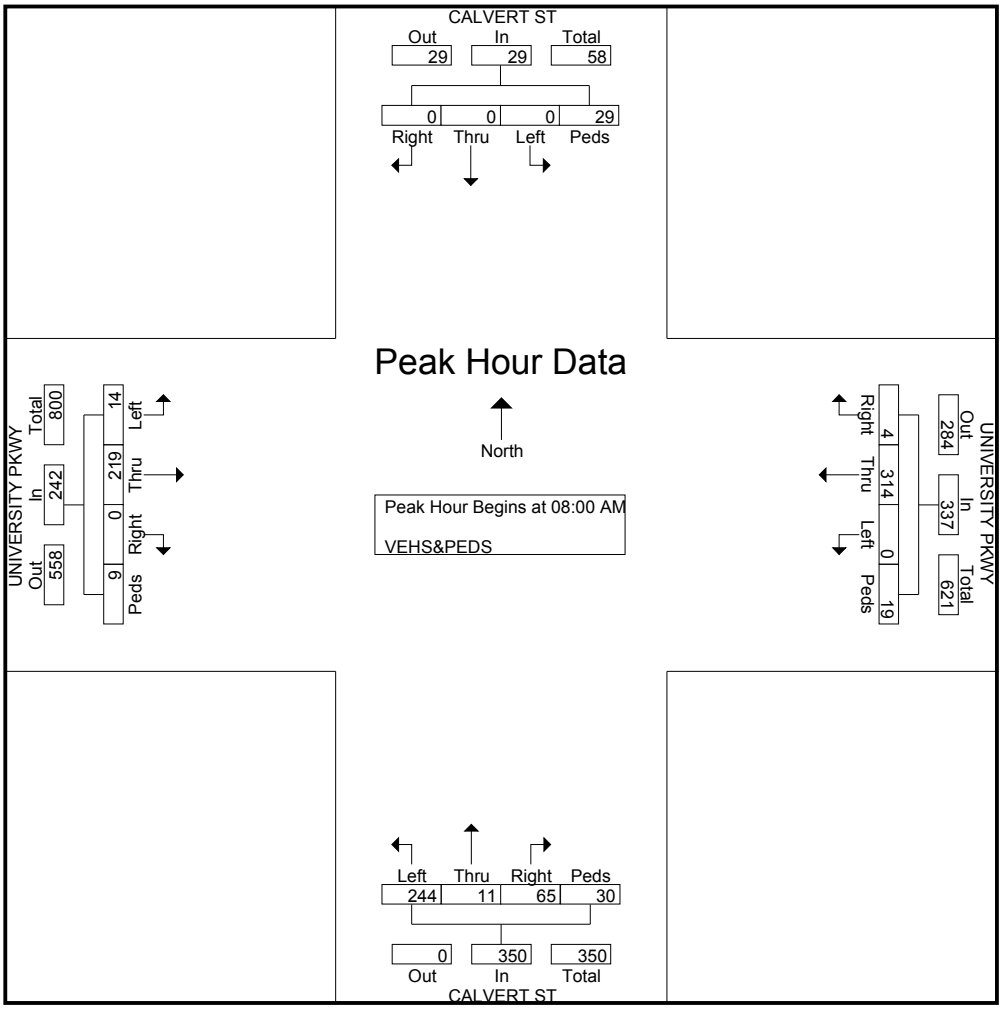


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
*443-741-3500*

File Name : Calvert St at University Pkwy
Site Code : 00000000
Start Date : 9/23/2015
Page No : 3

| | CALVERT ST From North | | | | | UNIVERSITY PKWY From East | | | | | CALVERT ST From South | | | | | UNIVERSITY PKWY From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 08:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 08:00 AM | 0 | 0 | 0 | 7 | 7 | 1 | 67 | 0 | 4 | 72 | 15 | **4** | 40 | **13** | 72 | 0 | **57** | 2 | 0 | 59 | 210 |
| 08:15 AM | 0 | 0 | 0 | 3 | 3 | 0 | 81 | 0 | 2 | 83 | 18 | 2 | 48 | 3 | 71 | 0 | 57 | 0 | 1 | 58 | 215 |
| 08:30 AM | 0 | 0 | 0 | **10** | **10** | **2** | **89** | 0 | **8** | **99** | 13 | 3 | 76 | 8 | 100 | 0 | 54 | **6** | 2 | 62 | **271** |
| 08:45 AM | 0 | 0 | 0 | 9 | 9 | 1 | 77 | 0 | 5 | 83 | **19** | 2 | **80** | 6 | **107** | 0 | 51 | 6 | **6** | **63** | 262 |
| Total Volume | 0 | 0 | 0 | 29 | 29 | 4 | 314 | 0 | 19 | 337 | 65 | 11 | 244 | 30 | 350 | 0 | 219 | 14 | 9 | 242 | 958 |
| % App. Total | 0 | 0 | 0 | 100 | | 1.2 | 93.2 | 0 | 5.6 | | 18.6 | 3.1 | 69.7 | 8.6 | | 0 | 90.5 | 5.8 | 3.7 | | |
| PHF | .000 | .000 | .000 | .725 | .725 | .500 | .882 | .000 | .594 | .851 | .855 | .688 | .763 | .577 | .818 | .000 | .961 | .583 | .375 | .960 | .884 |

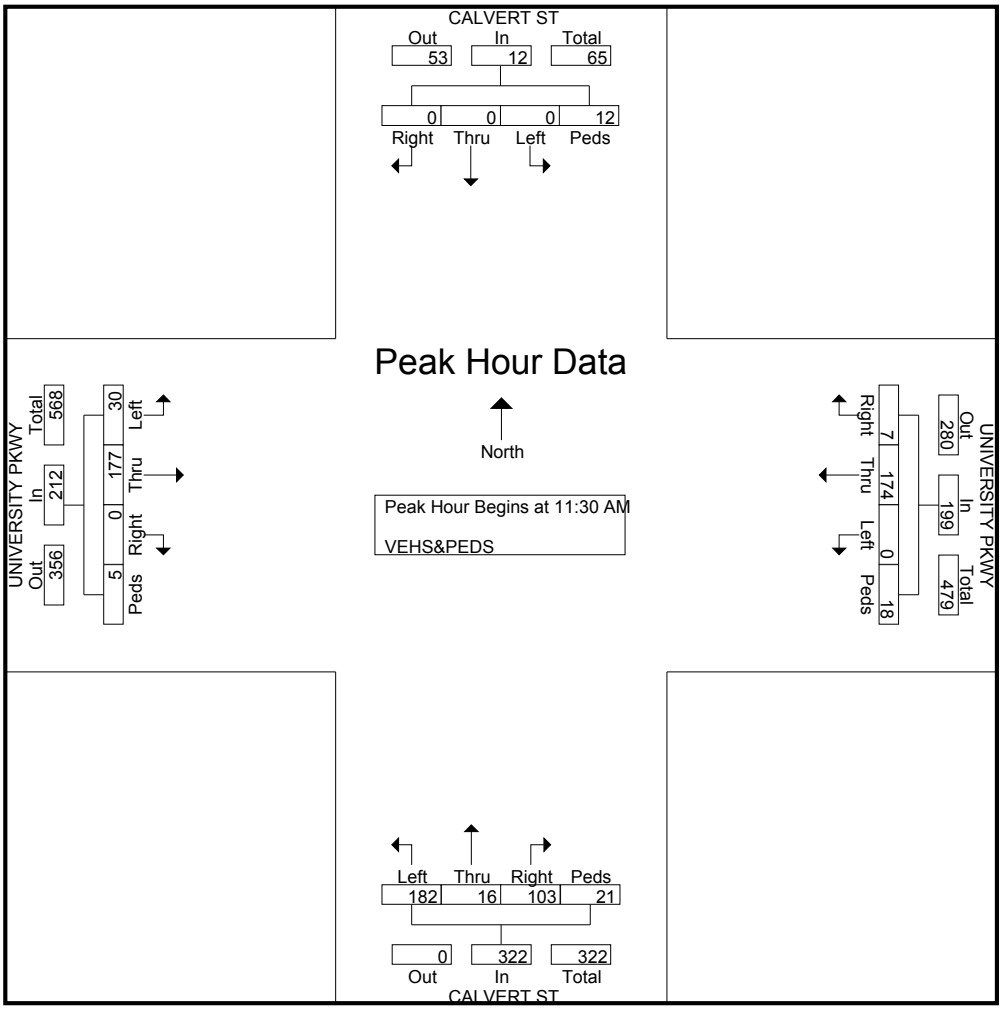


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
443-741-3500

File Name : Calvert St at University Pkwy
Site Code : 00000000
Start Date : 9/23/2015
Page No : 4

| | CALVERT ST From North | | | | | UNIVERSITY PKWY From East | | | | | CALVERT ST From South | | | | | UNIVERSITY PKWY From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 11:30 AM | | | | | | | | | | | | | | | | | | | | | |
| 11:30 AM | 0 | 0 | 0 | 2 | 2 | 0 | **54** | 0 | 3 | **57** | 27 | 2 | **50** | 6 | 85 | 0 | 40 | 4 | 0 | 44 | 188 |
| 11:45 AM | 0 | 0 | 0 | 3 | 3 | 2 | 41 | 0 | 5 | 48 | 24 | 4 | 40 | 3 | 71 | 0 | 37 | **10** | **4** | 51 | 173 |
| 12:00 PM | 0 | 0 | 0 | 3 | 3 | 0 | 33 | 0 | **6** | 39 | **33** | **6** | 45 | **9** | **93** | 0 | **58** | 8 | 0 | **66** | **201** |
| 12:15 PM | 0 | 0 | 0 | **4** | **4** | **5** | 46 | 0 | 4 | 55 | 19 | 4 | 47 | 3 | 73 | 0 | 42 | 8 | 1 | 51 | 183 |
| Total Volume | 0 | 0 | 0 | 12 | 12 | 7 | 174 | 0 | 18 | 199 | 103 | 16 | 182 | 21 | 322 | 0 | 177 | 30 | 5 | 212 | 745 |
| % App. Total | 0 | 0 | 0 | 100 | | 3.5 | 87.4 | 0 | 9 | | 32 | 5 | 56.5 | 6.5 | | 0 | 83.5 | 14.2 | 2.4 | | |
| PHF | .000 | .000 | .000 | .750 | .750 | .350 | .806 | .000 | .750 | .873 | .780 | .667 | .910 | .583 | .866 | .000 | .763 | .750 | .313 | .803 | .927 |

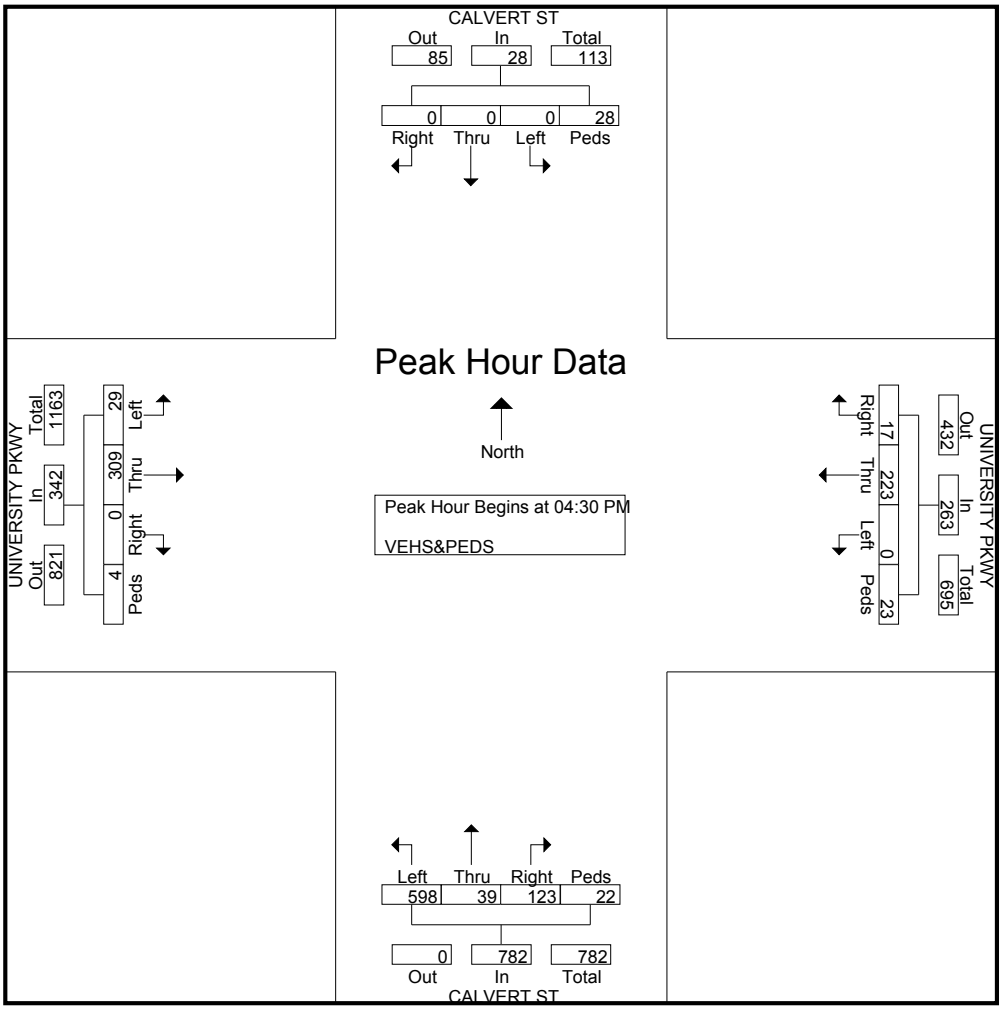


# Sabra, Wang & Assoc, Inc

7055 Samuel Morse Dr, Suite 100
Columbia, MD 21046
443-741-3500

File Name : Calvert St at University Pkwy
Site Code : 00000000
Start Date : 9/23/2015
Page No : 5

| | CALVERT ST From North | | | | | UNIVERSITY PKWY From East | | | | | CALVERT ST From South | | | | | UNIVERSITY PKWY From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:30 PM | 0 | 0 | 0 | **10** | **10** | 1 | **67** | 0 | **9** | **77** | **40** | 7 | 137 | **8** | 192 | 0 | **92** | 8 | 0 | **100** | **379** |
| 04:45 PM | 0 | 0 | 0 | 8 | 8 | 5 | 48 | 0 | 2 | 55 | 24 | 7 | 158 | 6 | 195 | 0 | 63 | 4 | 0 | 67 | 325 |
| 05:00 PM | 0 | 0 | 0 | 5 | 5 | **10** | 58 | 0 | 5 | 73 | 33 | 8 | 139 | 5 | 185 | 0 | 86 | **9** | **3** | 98 | 361 |
| 05:15 PM | 0 | 0 | 0 | 5 | 5 | 1 | 50 | 0 | 7 | 58 | 26 | **17** | **164** | 3 | **210** | 0 | 68 | 8 | 1 | 77 | 350 |
| Total Volume | 0 | 0 | 0 | 28 | 28 | 17 | 223 | 0 | 23 | 263 | 123 | 39 | 598 | 22 | 782 | 0 | 309 | 29 | 4 | 342 | 1415 |
| % App. Total | 0 | 0 | 0 | 100 | | 6.5 | 84.8 | 0 | 8.7 | | 15.7 | 5 | 76.5 | 2.8 | | 0 | 90.4 | 8.5 | 1.2 | | |
| PHF | .000 | .000 | .000 | .700 | .700 | .425 | .832 | .000 | .639 | .854 | .769 | .574 | .912 | .688 | .931 | .000 | .840 | .806 | .333 | .855 | .933 |



# APPENDIX B

# TRAFFIC OPERATIONS ANALYSIS WORKSHEETS

# Existing

# HCM Reports

# AM Peak Hour

| Movement | EBL2 | EBT | EBR | WBL2 | WBT | WBR | NBR2 | SBL | SBT | SBR2 | NER2 | SWL2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 10 | 233 | 279 | 44 | 440 | 110 | 5 | 30 | 794 | 13 | 0 | 8 |
| Future Volume (vph) | 10 | 233 | 279 | 44 | 440 | 110 | 5 | 30 | 794 | 13 | 0 | 8 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 8.1 | 8.1 | | 8.1 | 8.1 | 8.1 | | 7.1 | | | 7.1 |
| Lane Util. Factor | | 0.95 | 1.00 | | 0.91 | 0.91 | 1.00 | | 0.95 | | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.96 | | 1.00 | 0.99 | 0.98 | | 1.00 | | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | | | 0.99 |
| Frt | | 1.00 | 0.85 | | 1.00 | 0.85 | 0.86 | | 1.00 | | | 1.00 |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | | | 0.95 |
| Satd. Flow (prot) | | 3075 | 1323 | | 2923 | 1236 | 1373 | | 3066 | | | 1526 |
| Flt Permitted | | 0.92 | 1.00 | | 0.88 | 1.00 | 1.00 | | 1.00 | | | 0.95 |
| Satd. Flow (perm) | | 2839 | 1323 | | 2593 | 1236 | 1373 | | 3066 | | | 1526 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 10 | 240 | 288 | 45 | 454 | 113 | 5 | 31 | 819 | 13 | 0 | 8 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 250 | 288 | 0 | 510 | 102 | 3 | 0 | 863 | 0 | 0 | 8 |
| Confl. Peds. (#/hr) | 2 | | 21 | 21 | | 2 | 7 | 7 | | 29 | 21 | 7 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | Perm | NA | | Free | Perm |
| Protected Phases | | 2 | | | 2 | | | | 3 | | | |
| Permitted Phases | 2 | | 2 | 2 | | 2 | 2 3 | 3 | | | Free | 4 |
| Actuated Green, G (s) | | 46.9 | 46.9 | | 46.9 | 46.9 | 112.9 | | 57.9 | | | 37.9 |
| Effective Green, g (s) | | 46.9 | 46.9 | | 46.9 | 46.9 | 112.9 | | 57.9 | | | 37.9 |
| Actuated g/C Ratio | | 0.28 | 0.28 | | 0.28 | 0.28 | 0.68 | | 0.35 | | | 0.23 |
| Clearance Time (s) | | 8.1 | 8.1 | | 8.1 | 8.1 | | | 7.1 | | | 7.1 |
| Lane Grp Cap (vph) | | 806 | 376 | | 737 | 351 | 939 | | 1075 | | | 350 |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.09 | c0.22 | | 0.20 | 0.08 | 0.00 | | 0.28 | | | 0.01 |
| v/c Ratio | | 0.31 | 0.77 | | 0.69 | 0.29 | 0.00 | | 0.80 | | | 0.02 |
| Uniform Delay, d1 | | 46.4 | 54.0 | | 52.6 | 46.1 | 8.2 | | 48.4 | | | 49.2 |
| Progression Factor | | 0.54 | 0.49 | | 0.76 | 0.77 | 1.00 | | 1.00 | | | 1.00 |
| Incremental Delay, d2 | | 0.8 | 11.6 | | 5.0 | 2.0 | 0.0 | | 6.4 | | | 0.1 |
| Delay (s) | | 26.0 | 37.8 | | 44.9 | 37.3 | 8.3 | | 54.8 | | | 49.3 |
| Level of Service | | C | D | | D | D | A | | D | | | D |
| Approach Delay (s) | | 32.3 | | | 43.6 | | | | 54.8 | | | |
| Approach LOS | | C | | | D | | | | D | | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 45.5 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 165.0 | Sum of lost time (s) | 22.3 |
| Intersection Capacity Utilization | 142.9% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SWL | SWT | SWR |
|---|---|---|---|
| Lane Configurations | | | |
| Traffic Volume (vph) | 41 | 0 | 32 |
| Future Volume (vph) | 41 | 0 | 32 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 |
| Total Lost time (s) | 7.1 | 7.1 | |
| Lane Util. Factor | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.95 | |
| Flpb, ped/bikes | 0.97 | 1.00 | |
| Frt | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1497 | 1309 | |
| Flt Permitted | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1497 | 1309 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 42 | 0 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 0 |
| Lane Group Flow (vph) | 42 | 33 | 0 |
| Confl. Peds. (#/hr) | 21 | | 29 |
| Turn Type | Perm | NA | |
| Protected Phases | | 4 | |
| Permitted Phases | 4 | | |
| Actuated Green, G (s) | 37.9 | 37.9 | |
| Effective Green, g (s) | 37.9 | 37.9 | |
| Actuated g/C Ratio | 0.23 | 0.23 | |
| Clearance Time (s) | 7.1 | 7.1 | |
| Lane Grp Cap (vph) | 343 | 300 | |
| v/s Ratio Prot | | 0.03 | |
| v/s Ratio Perm | c0.03 | | |
| v/c Ratio | 0.12 | 0.11 | |
| Uniform Delay, d1 | 50.4 | 50.2 | |
| Progression Factor | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.7 | 0.7 | |
| Delay (s) | 51.1 | 51.0 | |
| Level of Service | D | D | |
| Approach Delay (s) | | 50.9 | |
| Approach LOS | | D | |

Intersection Summary

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 14 | 230 | 0 | 0 | 314 | 4 | 244 | 11 | 65 | 0 | 0 | 0 |
| Future Volume (vph) | 14 | 230 | 0 | 0 | 314 | 4 | 244 | 11 | 65 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | 6.6 | 6.6 | | | 6.6 | | 6.6 | 6.6 | | | | |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | | 0.95 | 0.95 | | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 0.97 | | | | |
| Flpb, ped/bikes | 0.95 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | | | |
| Frt | 1.00 | 1.00 | | | 1.00 | | 1.00 | 0.94 | | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.98 | | | | |
| Satd. Flow (prot) | 1468 | 1622 | | | 1616 | | 1463 | 1367 | | | | |
| Flt Permitted | 0.48 | 1.00 | | | 1.00 | | 0.95 | 0.98 | | | | |
| Satd. Flow (perm) | 749 | 1622 | | | 1616 | | 1463 | 1367 | | | | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 16 | 261 | 0 | 0 | 357 | 5 | 277 | 12 | 74 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 16 | 261 | 0 | 0 | 362 | 0 | 186 | 163 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 29 | | 30 | 30 | | 29 | 9 | | 19 | 19 | | 9 |
| Turn Type | Perm | NA | | | NA | | Split | NA | | | | |
| Protected Phases | | 2 | | | 2 | | 4 | 4 | | | | |
| Permitted Phases | 2 | | | | | | | | | | | |
| Actuated Green, G (s) | 96.4 | 96.4 | | | 96.4 | | 55.4 | 55.4 | | | | |
| Effective Green, g (s) | 96.4 | 96.4 | | | 96.4 | | 55.4 | 55.4 | | | | |
| Actuated g/C Ratio | 0.58 | 0.58 | | | 0.58 | | 0.34 | 0.34 | | | | |
| Clearance Time (s) | 6.6 | 6.6 | | | 6.6 | | 6.6 | 6.6 | | | | |
| Lane Grp Cap (vph) | 437 | 947 | | | 944 | | 491 | 458 | | | | |
| v/s Ratio Prot | | 0.16 | | | c0.22 | | c0.13 | 0.12 | | | | |
| v/s Ratio Perm | 0.02 | | | | | | | | | | | |
| v/c Ratio | 0.04 | 0.28 | | | 0.38 | | 0.38 | 0.36 | | | | |
| Uniform Delay, d1 | 14.6 | 17.0 | | | 18.4 | | 41.7 | 41.3 | | | | |
| Progression Factor | 0.21 | 0.18 | | | 1.00 | | 1.00 | 1.00 | | | | |
| Incremental Delay, d2 | 0.1 | 0.7 | | | 1.2 | | 2.2 | 2.1 | | | | |
| Delay (s) | 3.3 | 3.8 | | | 19.6 | | 43.9 | 43.5 | | | | |
| Level of Service | A | A | | | B | | D | D | | | | |
| Approach Delay (s) | | 3.7 | | | 19.6 | | | 43.7 | | | 0.0 | |
| Approach LOS | | A | | | B | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 24.0 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.38 | | |
| Actuated Cycle Length (s) | 165.0 | Sum of lost time (s) | 13.2 |
| Intersection Capacity Utilization | 56.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 111 | 797 | 0 | 0 | 1067 | 53 | 63 | 364 | 52 | 0 | 0 | 0 |
| Future Volume (vph) | 111 | 797 | 0 | 0 | 1067 | 53 | 63 | 364 | 52 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | 3.0 | 3.0 | | | 5.0 | | | 5.0 | 5.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.91 | | | 0.95 | 1.00 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 0.95 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 0.99 | | | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | | 0.99 | 1.00 | | | |
| Satd. Flow (prot) | 1386 | 2773 | | | 3945 | | | 2740 | 1181 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | | 0.99 | 1.00 | | | |
| Satd. Flow (perm) | 1386 | 2773 | | | 3945 | | | 2740 | 1181 | | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 114 | 822 | 0 | 0 | 1100 | 55 | 65 | 375 | 54 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 30 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 114 | 822 | 0 | 0 | 1150 | 0 | 0 | 440 | 24 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 26 | | 40 | 40 | | 26 | 32 | | 38 | 38 | | 32 |
| Turn Type | Prot | NA | | | NA | | Perm | NA | Perm | | | |
| Protected Phases | 3 | 3 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | 2 | | | |
| Actuated Green, G (s) | 13.0 | 51.0 | | | 35.0 | | | 49.0 | 49.0 | | | |
| Effective Green, g (s) | 13.0 | 51.0 | | | 35.0 | | | 49.0 | 49.0 | | | |
| Actuated g/C Ratio | 0.12 | 0.46 | | | 0.32 | | | 0.45 | 0.45 | | | |
| Clearance Time (s) | 3.0 | | | | 5.0 | | | 5.0 | 5.0 | | | |
| Lane Grp Cap (vph) | 163 | 1285 | | | 1255 | | | 1220 | 526 | | | |
| v/s Ratio Prot | c0.08 | 0.30 | | | c0.29 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.16 | 0.02 | | | |
| v/c Ratio | 0.70 | 0.64 | | | 0.92 | | | 0.36 | 0.05 | | | |
| Uniform Delay, d1 | 46.6 | 22.5 | | | 36.1 | | | 20.2 | 17.3 | | | |
| Progression Factor | 1.60 | 0.37 | | | 0.89 | | | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 2.3 | 0.2 | | | 11.9 | | | 0.8 | 0.2 | | | |
| Delay (s) | 77.0 | 8.5 | | | 44.1 | | | 21.0 | 17.4 | | | |
| Level of Service | E | A | | | D | | | C | B | | | |
| Approach Delay (s) | | 16.9 | | | 44.1 | | | 20.6 | | | 0.0 | |
| Approach LOS | | B | | | D | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 29.7 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 88.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 819 | 79 | 89 | 992 | 0 | 0 | 0 | 0 | 70 | 1122 | 177 |
| Future Volume (vph) | 0 | 819 | 79 | 89 | 992 | 0 | 0 | 0 | 0 | 70 | 1122 | 177 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 3.0 | 3.0 | 4.0 | 4.0 | | | | | | 5.0 | 5.0 |
| Lane Util. Factor | | 0.95 | 1.00 | 1.00 | 0.91 | | | | | | 0.95 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.93 | 1.00 | 1.00 | | | | | | 1.00 | 0.93 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | 2773 | 1159 | 1386 | 3984 | | | | | | 2756 | 1150 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2773 | 1159 | 1386 | 3984 | | | | | | 2756 | 1150 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 871 | 84 | 95 | 1055 | 0 | 0 | 0 | 0 | 74 | 1194 | 188 |
| RTOR Reduction (vph) | 0 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| Lane Group Flow (vph) | 0 | 871 | 36 | 95 | 1055 | 0 | 0 | 0 | 0 | 0 | 1268 | 171 |
| Confl. Peds. (#/hr) | 46 | | 33 | 33 | | 46 | 64 | | 55 | 55 | | 64 |
| Turn Type | | NA | Perm | Prot | NA | | | | | Perm | NA | Perm |
| Protected Phases | | 4 | | 3 | 3 4 | | | | | | 2 | |
| Permitted Phases | | | 4 | | | | | | | 2 | | 2 |
| Actuated Green, G (s) | | 28.0 | 28.0 | 8.0 | 40.0 | | | | | | 62.0 | 62.0 |
| Effective Green, g (s) | | 28.0 | 28.0 | 8.0 | 40.0 | | | | | | 62.0 | 62.0 |
| Actuated g/C Ratio | | 0.25 | 0.25 | 0.07 | 0.36 | | | | | | 0.56 | 0.56 |
| Clearance Time (s) | | 3.0 | 3.0 | 4.0 | | | | | | | 5.0 | 5.0 |
| Lane Grp Cap (vph) | | 705 | 295 | 100 | 1448 | | | | | | 1553 | 648 |
| v/s Ratio Prot | | c0.31 | | c0.07 | 0.26 | | | | | | | |
| v/s Ratio Perm | | | 0.03 | | | | | | | | 0.46 | 0.15 |
| v/c Ratio | | 1.24 | 0.12 | 0.95 | 0.73 | | | | | | 0.82 | 0.26 |
| Uniform Delay, d1 | | 41.0 | 31.6 | 50.8 | 30.3 | | | | | | 19.4 | 12.3 |
| Progression Factor | | 1.28 | 2.10 | 1.48 | 0.94 | | | | | | 0.46 | 0.12 |
| Incremental Delay, d2 | | 117.7 | 0.8 | 48.0 | 1.4 | | | | | | 4.4 | 0.9 |
| Delay (s) | | 170.1 | 67.0 | 123.3 | 29.8 | | | | | | 13.4 | 2.4 |
| Level of Service | | F | E | F | C | | | | | | B | A |
| Approach Delay (s) | | 161.0 | | | 37.5 | | | 0.0 | | | 11.9 | |
| Approach LOS | | F | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 60.2 | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 88.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 694 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 150 | 1708 | 0 |
| Future Volume (vph) | 0 | 694 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 150 | 1708 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | 4.0 | 4.0 | | | | | | | | 4.0 | |
| Lane Util. Factor | | 0.91 | 1.00 | | | | | | | | 0.86 | |
| Frt | | 1.00 | 0.85 | | | | | | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | | | | | | | | 1.00 | |
| Satd. Flow (prot) | | 4272 | 1250 | | | | | | | | 6000 | |
| Flt Permitted | | 1.00 | 1.00 | | | | | | | | 1.00 | |
| Satd. Flow (perm) | | 4272 | 1250 | | | | | | | | 6000 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 0 | 708 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 153 | 1743 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 708 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1896 | 0 |
| Bus Blockages (#/hr) | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 |
| Turn Type | | NA | Prot | | | | | | | Split | NA | |
| Protected Phases | | 4 | 4 | | | | | | | 2 | 2 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | 35.0 | 35.0 | | | | | | | | 67.0 | |
| Effective Green, g (s) | | 36.0 | 36.0 | | | | | | | | 66.0 | |
| Actuated g/C Ratio | | 0.33 | 0.33 | | | | | | | | 0.60 | |
| Clearance Time (s) | | 5.0 | 5.0 | | | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 1398 | 409 | | | | | | | | 3600 | |
| v/s Ratio Prot | | c0.17 | 0.07 | | | | | | | | c0.32 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | 0.51 | 0.22 | | | | | | | | 0.53 | |
| Uniform Delay, d1 | | 29.8 | 26.8 | | | | | | | | 12.9 | |
| Progression Factor | | 0.88 | 0.99 | | | | | | | | 0.52 | |
| Incremental Delay, d2 | | 1.2 | 1.2 | | | | | | | | 0.5 | |
| Delay (s) | | 27.6 | 27.7 | | | | | | | | 7.2 | |
| Level of Service | | C | C | | | | | | | | A | |
| Approach Delay (s) | | 27.6 | | | 0.0 | | | 0.0 | | | 7.2 | |
| Approach LOS | | C | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 13.2 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 64.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 264 | 561 | 0 | 0 | 0 | 0 | 0 | 1694 | 247 |
| Future Volume (vph) | 0 | 0 | 0 | 264 | 561 | 0 | 0 | 0 | 0 | 0 | 1694 | 247 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | | | 4.0 | 4.0 | | | | | | 4.0 | |
| Lane Util. Factor | | | | 0.86 | 0.86 | | | | | | 0.86 | |
| Frpb, ped/bikes | | | | 1.00 | 1.00 | | | | | | 0.97 | |
| Flpb, ped/bikes | | | | 0.71 | 0.95 | | | | | | 1.00 | |
| Frt | | | | 1.00 | 1.00 | | | | | | 0.98 | |
| Flt Protected | | | | 0.95 | 0.99 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | | 902 | 3818 | | | | | | 6000 | |
| Flt Permitted | | | | 0.95 | 0.99 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | | 902 | 3818 | | | | | | 6000 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 272 | 578 | 0 | 0 | 0 | 0 | 0 | 1746 | 255 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 163 | 687 | 0 | 0 | 0 | 0 | 0 | 2001 | 0 |
| Confl. Peds. (#/hr) | 134 | | 223 | 223 | | 134 | 166 | | 119 | 119 | | 166 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| Turn Type | | | | Perm | NA | | | | | | NA | |
| Protected Phases | | | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | | | |
| Actuated Green, G (s) | | | | 42.0 | 42.0 | | | | | | 62.0 | |
| Effective Green, g (s) | | | | 41.0 | 41.0 | | | | | | 61.0 | |
| Actuated g/C Ratio | | | | 0.37 | 0.37 | | | | | | 0.55 | |
| Clearance Time (s) | | | | 3.0 | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | | | 336 | 1423 | | | | | | 3327 | |
| v/s Ratio Prot | | | | | | | | | | | c0.33 | |
| v/s Ratio Perm | | | | c0.18 | 0.18 | | | | | | | |
| v/c Ratio | | | | 0.49 | 0.48 | | | | | | 0.60 | |
| Uniform Delay, d1 | | | | 26.4 | 26.4 | | | | | | 16.4 | |
| Progression Factor | | | | 0.30 | 0.31 | | | | | | 0.30 | |
| Incremental Delay, d2 | | | | 4.2 | 1.0 | | | | | | 0.2 | |
| Delay (s) | | | | 12.2 | 9.3 | | | | | | 5.1 | |
| Level of Service | | | | B | A | | | | | | A | |
| Approach Delay (s) | | 0.0 | | | 9.8 | | | 0.0 | | | 5.1 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 6.5 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 60.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 901 | 1343 | 0 | 0 | 0 | 0 | 0 | 1362 | 350 |
| Future Volume (vph) | 0 | 0 | 0 | 901 | 1343 | 0 | 0 | 0 | 0 | 0 | 1362 | 350 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | | | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | 0.76 | 0.76 | | | | | | 0.81 | 0.81 |
| Frt | | | | 1.00 | 1.00 | | | | | | 0.99 | 0.85 |
| Flt Protected | | | | 0.95 | 0.99 | | | | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | 2600 | 4685 | | | | | | 5015 | 1013 |
| Flt Permitted | | | | 0.95 | 0.99 | | | | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | 2600 | 4685 | | | | | | 5015 | 1013 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 0 | 0 | 948 | 1414 | 0 | 0 | 0 | 0 | 0 | 1434 | 368 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 787 | 1575 | 0 | 0 | 0 | 0 | 0 | 1544 | 258 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| Turn Type | | | | Prot | NA | | | | | | NA | custom |
| Protected Phases | | | | 4 | 3 4 | | | | | | 1 2 | 2 |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | 41.0 | 51.0 | | | | | | 50.0 | 37.0 |
| Effective Green, g (s) | | | | 40.0 | 49.0 | | | | | | 49.0 | 36.0 |
| Actuated g/C Ratio | | | | 0.36 | 0.45 | | | | | | 0.45 | 0.33 |
| Clearance Time (s) | | | | 3.0 | | | | | | | | 3.0 |
| Lane Grp Cap (vph) | | | | 945 | 2257 | | | | | | 2233 | 331 |
| v/s Ratio Prot | | | | c0.30 | c0.25 | | | | | | c0.31 | c0.25 |
| v/s Ratio Perm | | | | | 0.08 | | | | | | | |
| v/c Ratio | | | | 0.83 | 0.70 | | | | | | 0.69 | 0.78 |
| Uniform Delay, d1 | | | | 31.9 | 24.5 | | | | | | 24.4 | 33.4 |
| Progression Factor | | | | 0.20 | 0.20 | | | | | | 0.77 | 0.81 |
| Incremental Delay, d2 | | | | 5.7 | 1.2 | | | | | | 1.4 | 13.6 |
| Delay (s) | | | | 11.9 | 6.1 | | | | | | 20.2 | 40.7 |
| Level of Service | | | | B | A | | | | | | C | D |
| Approach Delay (s) | | 0.0 | | | 8.0 | | | 0.0 | | | 23.1 | |
| Approach LOS | | A | | | A | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 14.6 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 72.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBT | EBR | SBL | SBT | SBR | SWL |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 29 | 50 | 150 | 260 | 42 | 1828 |
| Future Volume (vph) | 29 | 50 | 150 | 260 | 42 | 1828 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | 4.0 | | | 4.0 | | 4.0 |
| Lane Util. Factor | 0.95 | | | 0.95 | | *0.91 |
| Frt | 0.91 | | | 0.99 | | 0.99 |
| Flt Protected | 1.00 | | | 0.98 | | 1.00 |
| Satd. Flow (prot) | 2693 | | | 2883 | | 4500 |
| Flt Permitted | 1.00 | | | 0.98 | | 1.00 |
| Satd. Flow (perm) | 2693 | | | 2883 | | 4500 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.94 | 0.94 | 0.94 | 0.82 |
| Adj. Flow (vph) | 32 | 54 | 160 | 277 | 45 | 2229 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 86 | 0 | 0 | 482 | 0 | 2229 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 15 | 0 |
| Turn Type | NA | | Perm | NA | | Prot |
| Protected Phases | 4 | | | 3 | | 2 |
| Permitted Phases | | | 3 | | | |
| Actuated Green, G (s) | 25.0 | | | 19.0 | | 51.0 |
| Effective Green, g (s) | 24.0 | | | 21.0 | | 53.0 |
| Actuated g/C Ratio | 0.22 | | | 0.19 | | 0.48 |
| Clearance Time (s) | 3.0 | | | 6.0 | | 6.0 |
| Lane Grp Cap (vph) | 587 | | | 550 | | 2168 |
| v/s Ratio Prot | c0.03 | | | | | c0.50 |
| v/s Ratio Perm | | | | 0.17 | | |
| v/c Ratio | 0.15 | | | 0.88 | | 1.03 |
| Uniform Delay, d1 | 34.7 | | | 43.2 | | 28.5 |
| Progression Factor | 1.01 | | | 0.42 | | 0.51 |
| Incremental Delay, d2 | 0.5 | | | 16.3 | | 24.1 |
| Delay (s) | 35.6 | | | 34.5 | | 38.7 |
| Level of Service | D | | | C | | D |
| Approach Delay (s) | 35.6 | | | 34.5 | | 38.7 |
| Approach LOS | D | | | C | | D |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 37.9 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 195 | 25 | 29 | 242 | 0 | 0 | 0 | 0 | 0 | 500 | 30 |
| Future Volume (vph) | 0 | 195 | 25 | 29 | 242 | 0 | 0 | 0 | 0 | 0 | 500 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | | | | 0.95 | |
| Frt | | 0.98 | | | 1.00 | | | | | | 0.99 | |
| Flt Protected | | 1.00 | | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1541 | | | 2957 | | | | | | 2948 | |
| Flt Permitted | | 1.00 | | | 0.90 | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1541 | | | 2669 | | | | | | 2948 | |
| Peak-hour factor, PHF | 1.00 | 0.84 | 0.84 | 0.79 | 0.79 | 0.79 | 1.00 | 1.00 | 1.00 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 0 | 232 | 30 | 37 | 306 | 0 | 0 | 0 | 0 | 0 | 549 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 262 | 0 | 0 | 343 | 0 | 0 | 0 | 0 | 0 | 582 | 0 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| Turn Type | | NA | | Perm | NA | | | | | | NA | |
| Protected Phases | | 4 | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | | | |
| Actuated Green, G (s) | | 57.0 | | | 57.0 | | | | | | 47.0 | |
| Effective Green, g (s) | | 56.0 | | | 56.0 | | | | | | 46.0 | |
| Actuated g/C Ratio | | 0.51 | | | 0.51 | | | | | | 0.42 | |
| Clearance Time (s) | | 3.0 | | | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 784 | | | 1358 | | | | | | 1232 | |
| v/s Ratio Prot | | c0.17 | | | | | | | | | c0.20 | |
| v/s Ratio Perm | | | | | 0.13 | | | | | | | |
| v/c Ratio | | 0.33 | | | 0.25 | | | | | | 0.47 | |
| Uniform Delay, d1 | | 16.0 | | | 15.2 | | | | | | 23.2 | |
| Progression Factor | | 0.34 | | | 0.45 | | | | | | 0.48 | |
| Incremental Delay, d2 | | 1.1 | | | 0.3 | | | | | | 1.1 | |
| Delay (s) | | 6.6 | | | 7.2 | | | | | | 12.2 | |
| Level of Service | | A | | | A | | | | | | B | |
| Approach Delay (s) | | 6.6 | | | 7.2 | | | 0.0 | | | 12.2 | |
| Approach LOS | | A | | | A | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 9.5 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 47.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 24 | 145 | 0 | 0 | 0 | 0 | 0 | 632 | 51 | 0 | 0 | 0 |
| Future Volume (vph) | 24 | 145 | 0 | 0 | 0 | 0 | 0 | 632 | 51 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | 4.0 | | | | | | 4.0 | | | | |
| Lane Util. Factor | | 0.95 | | | | | | 0.95 | | | | |
| Frt | | 1.00 | | | | | | 0.99 | | | | |
| Flt Protected | | 0.99 | | | | | | 1.00 | | | | |
| Satd. Flow (prot) | | 2952 | | | | | | 2940 | | | | |
| Flt Permitted | | 0.99 | | | | | | 1.00 | | | | |
| Satd. Flow (perm) | | 2952 | | | | | | 2940 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 24 | 145 | 0 | 0 | 0 | 0 | 0 | 632 | 51 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 169 | 0 | 0 | 0 | 0 | 0 | 675 | 0 | 0 | 0 | 0 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | | | | NA | | | | |
| Protected Phases | | 4 | | | | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | | 27.0 | | | | | | 47.0 | | | | |
| Effective Green, g (s) | | 26.0 | | | | | | 46.0 | | | | |
| Actuated g/C Ratio | | 0.32 | | | | | | 0.58 | | | | |
| Clearance Time (s) | | 3.0 | | | | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 959 | | | | | | 1690 | | | | |
| v/s Ratio Prot | | | | | | | | c0.23 | | | | |
| v/s Ratio Perm | | 0.06 | | | | | | | | | | |
| v/c Ratio | | 0.18 | | | | | | 0.40 | | | | |
| Uniform Delay, d1 | | 19.3 | | | | | | 9.4 | | | | |
| Progression Factor | | 0.79 | | | | | | 0.16 | | | | |
| Incremental Delay, d2 | | 0.4 | | | | | | 0.7 | | | | |
| Delay (s) | | 15.7 | | | | | | 2.1 | | | | |
| Level of Service | | B | | | | | | A | | | | |
| Approach Delay (s) | | 15.7 | | | 0.0 | | | 2.1 | | | 0.0 | |
| Approach LOS | | B | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 4.8 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.32 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 33.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 19 | 40 | 0 | 0 | 156 | 21 | 82 | 475 | 42 | 0 | 0 | 0 |
| Future Volume (vph) | 19 | 40 | 0 | 0 | 156 | 21 | 82 | 475 | 42 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 0.95 | | | | |
| Frt | | 1.00 | | | 0.98 | | | 0.99 | | | | |
| Flt Protected | | 0.98 | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (prot) | | 1540 | | | 1540 | | | 3500 | | | | |
| Flt Permitted | | 0.91 | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (perm) | | 1421 | | | 1540 | | | 3500 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 19 | 40 | 0 | 0 | 156 | 21 | 82 | 475 | 42 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 59 | 0 | 0 | 177 | 0 | 0 | 592 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 27.0 | | | 27.0 | | | 47.0 | | | | |
| Effective Green, g (s) | | 26.0 | | | 26.0 | | | 46.0 | | | | |
| Actuated g/C Ratio | | 0.32 | | | 0.32 | | | 0.58 | | | | |
| Clearance Time (s) | | 3.0 | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 461 | | | 500 | | | 2012 | | | | |
| v/s Ratio Prot | | | | | c0.11 | | | | | | | |
| v/s Ratio Perm | | 0.04 | | | | | | 0.17 | | | | |
| v/c Ratio | | 0.13 | | | 0.35 | | | 0.29 | | | | |
| Uniform Delay, d1 | | 19.0 | | | 20.6 | | | 8.7 | | | | |
| Progression Factor | | 0.78 | | | 0.95 | | | 0.18 | | | | |
| Incremental Delay, d2 | | 0.6 | | | 1.9 | | | 0.3 | | | | |
| Delay (s) | | 15.4 | | | 21.5 | | | 1.9 | | | | |
| Level of Service | | B | | | C | | | A | | | | |
| Approach Delay (s) | | 15.4 | | | 21.5 | | | 1.9 | | | 0.0 | |
| Approach LOS | | B | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 7.0 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.32 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 45.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 514 | 36 | 136 | 983 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 514 | 36 | 136 | 983 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | | | | 0.95 | | | 0.91 | | | | |
| Frt | | | | | 0.99 | | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (prot) | | | | | 2944 | | | 3200 | | | | |
| Flt Permitted | | | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (perm) | | | | | 2944 | | | 3200 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 514 | 36 | 136 | 983 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 550 | 0 | 0 | 1119 | 0 | 0 | 0 | 0 |
| Turn Type | | | | | NA | | Split | NA | | | | |
| Protected Phases | | | | | 4 | | 2 | 2 | | | | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | | 39.0 | | | 65.0 | | | | |
| Effective Green, g (s) | | | | | 38.0 | | | 64.0 | | | | |
| Actuated g/C Ratio | | | | | 0.35 | | | 0.58 | | | | |
| Clearance Time (s) | | | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | | | | 1017 | | | 1861 | | | | |
| v/s Ratio Prot | | | | | c0.19 | | | c0.35 | | | | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | 0.54 | | | 0.60 | | | | |
| Uniform Delay, d1 | | | | | 29.0 | | | 14.8 | | | | |
| Progression Factor | | | | | 0.39 | | | 0.35 | | | | |
| Incremental Delay, d2 | | | | | 1.8 | | | 1.3 | | | | |
| Delay (s) | | | | | 13.1 | | | 6.5 | | | | |
| Level of Service | | | | | B | | | A | | | | |
| Approach Delay (s) | | 0.0 | | | 13.1 | | | 6.5 | | | 0.0 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 8.7 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 64.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 130 | 665 | 0 | 0 | 0 | 0 | 0 | 522 | 444 | 0 | 0 | 0 |
| Future Volume (vph) | 130 | 665 | 0 | 0 | 0 | 0 | 0 | 522 | 444 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | 4.0 | 4.0 | | | | | | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | | | | 0.95 | 1.00 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | | | | 1.00 | 0.94 | | | |
| Flpb, ped/bikes | 0.95 | 1.00 | | | | | | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | | | | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | | | | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | 1408 | 4272 | | | | | | 3500 | 1244 | | | |
| Flt Permitted | 0.95 | 1.00 | | | | | | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | 1408 | 4272 | | | | | | 3500 | 1244 | | | |
| 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) | 135 | 693 | 0 | 0 | 0 | 0 | 0 | 544 | 462 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 135 | 693 | 0 | 0 | 0 | 0 | 0 | 544 | 463 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 42 | | 57 | 57 | | 42 | 31 | | 54 | 54 | | 31 |
| Turn Type | Perm | NA | | | | | | NA | Perm | | | |
| Protected Phases | | 4 | | | | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 30.0 | 30.0 | | | | | | 42.0 | 42.0 | | | |
| Effective Green, g (s) | 31.0 | 31.0 | | | | | | 41.0 | 41.0 | | | |
| Actuated g/C Ratio | 0.39 | 0.39 | | | | | | 0.51 | 0.51 | | | |
| Clearance Time (s) | 5.0 | 5.0 | | | | | | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 545 | 1655 | | | | | | 1793 | 637 | | | |
| v/s Ratio Prot | | c0.16 | | | | | | 0.16 | | | | |
| v/s Ratio Perm | 0.10 | | | | | | | | c0.37 | | | |
| v/c Ratio | 0.25 | 0.42 | | | | | | 0.30 | 0.73 | | | |
| Uniform Delay, d1 | 16.6 | 17.9 | | | | | | 11.3 | 15.1 | | | |
| Progression Factor | 0.56 | 0.50 | | | | | | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 1.0 | 0.7 | | | | | | 0.4 | 7.1 | | | |
| Delay (s) | 10.3 | 9.6 | | | | | | 11.7 | 22.3 | | | |
| Level of Service | B | A | | | | | | B | C | | | |
| Approach Delay (s) | | 9.7 | | | 0.0 | | | 16.6 | | | 0.0 | |
| Approach LOS | | A | | | A | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 13.5 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 57.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 540 | 8 | 48 | 697 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 540 | 8 | 48 | 697 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | | | | 0.91 | | | 0.95 | | | | |
| Frpb, ped/bikes | | | | | 1.00 | | | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | | | 1.00 | | | | |
| Frt | | | | | 1.00 | | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 4260 | | | 2955 | | | | |
| Flt Permitted | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 4260 | | | 2955 | | | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 557 | 8 | 49 | 719 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 565 | 0 | 0 | 768 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 23 | | 87 | 87 | | 23 | 38 | | 48 | 48 | | 38 |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 26.0 | | | 44.0 | | | | |
| Effective Green, g (s) | | | | | 27.0 | | | 45.0 | | | | |
| Actuated g/C Ratio | | | | | 0.34 | | | 0.56 | | | | |
| Clearance Time (s) | | | | | 5.0 | | | 5.0 | | | | |
| Lane Grp Cap (vph) | | | | | 1437 | | | 1662 | | | | |
| v/s Ratio Prot | | | | | c0.13 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.26 | | | | |
| v/c Ratio | | | | | 0.39 | | | 0.46 | | | | |
| Uniform Delay, d1 | | | | | 20.2 | | | 10.3 | | | | |
| Progression Factor | | | | | 0.55 | | | 0.13 | | | | |
| Incremental Delay, d2 | | | | | 0.7 | | | 0.8 | | | | |
| Delay (s) | | | | | 11.9 | | | 2.2 | | | | |
| Level of Service | | | | | B | | | A | | | | |
| Approach Delay (s) | | 0.0 | | | 11.9 | | | 2.2 | | | 0.0 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 6.3 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 54.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 46 | 34 | 46 | 778 | 39 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 46 | 34 | 46 | 778 | 39 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | | | | 1.00 | | | 0.95 | | | | |
| Frt | | | | | 0.94 | | | 0.99 | | | | |
| Flt Protected | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 1475 | | | 3500 | | | | |
| Flt Permitted | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 1475 | | | 3500 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 46 | 34 | 46 | 778 | 39 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 80 | 0 | 0 | 863 | 0 | 0 | 0 | 0 |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 29.0 | | | 45.0 | | | | |
| Effective Green, g (s) | | | | | 28.0 | | | 44.0 | | | | |
| Actuated g/C Ratio | | | | | 0.35 | | | 0.55 | | | | |
| Clearance Time (s) | | | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | | | | 516 | | | 1925 | | | | |
| v/s Ratio Prot | | | | | c0.05 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.25 | | | | |
| v/c Ratio | | | | | 0.16 | | | 0.45 | | | | |
| Uniform Delay, d1 | | | | | 17.9 | | | 10.8 | | | | |
| Progression Factor | | | | | 1.11 | | | 0.63 | | | | |
| Incremental Delay, d2 | | | | | 0.6 | | | 0.7 | | | | |
| Delay (s) | | | | | 20.5 | | | 7.6 | | | | |
| Level of Service | | | | | C | | | A | | | | |
| Approach Delay (s) | | 0.0 | | | 20.5 | | | 7.6 | | | 0.0 | |
| Approach LOS | | A | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 8.7 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.33 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 39.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 50 | 473 | 0 | 0 | 0 | 0 | 0 | 410 | 53 | 0 | 0 | 0 |
| Future Volume (vph) | 50 | 473 | 0 | 0 | 0 | 0 | 0 | 410 | 53 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | 4.0 | | | | | | 4.0 | | | | |
| Lane Util. Factor | | 0.95 | | | | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | | | | 1.00 | | | | |
| Flpb, ped/bikes | | 1.00 | | | | | | 1.00 | | | | |
| Frt | | 1.00 | | | | | | 0.98 | | | | |
| Flt Protected | | 1.00 | | | | | | 1.00 | | | | |
| Satd. Flow (prot) | | 2952 | | | | | | 2913 | | | | |
| Flt Permitted | | 1.00 | | | | | | 1.00 | | | | |
| Satd. Flow (perm) | | 2952 | | | | | | 2913 | | | | |
| 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) | 54 | 514 | 0 | 0 | 0 | 0 | 0 | 446 | 58 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 568 | 0 | 0 | 0 | 0 | 0 | 504 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 19 | | 16 | 16 | | 19 | 42 | | 13 | 13 | | 42 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | | | | NA | | | | |
| Protected Phases | | 4 | | | | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | | 37.0 | | | | | | 37.0 | | | | |
| Effective Green, g (s) | | 36.0 | | | | | | 36.0 | | | | |
| Actuated g/C Ratio | | 0.45 | | | | | | 0.45 | | | | |
| Clearance Time (s) | | 3.0 | | | | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 1328 | | | | | | 1310 | | | | |
| v/s Ratio Prot | | | | | | | | c0.17 | | | | |
| v/s Ratio Perm | | 0.19 | | | | | | | | | | |
| v/c Ratio | | 0.43 | | | | | | 0.38 | | | | |
| Uniform Delay, d1 | | 15.0 | | | | | | 14.6 | | | | |
| Progression Factor | | 0.57 | | | | | | 0.50 | | | | |
| Incremental Delay, d2 | | 0.9 | | | | | | 0.8 | | | | |
| Delay (s) | | 9.5 | | | | | | 8.1 | | | | |
| Level of Service | | A | | | | | | A | | | | |
| Approach Delay (s) | | 9.5 | | | 0.0 | | | 8.1 | | | 0.0 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 8.8 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 43.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 11 | 42 | 0 | 0 | 0 | 0 | 0 | 396 | 9 | 0 | 0 | 0 |
| Future Volume (vph) | 11 | 42 | 0 | 0 | 0 | 0 | 0 | 396 | 9 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | 4.0 | | | | | | 4.0 | 4.0 | | | |
| Lane Util. Factor | | 0.95 | | | | | | 0.95 | 1.00 | | | |
| Frt | | 1.00 | | | | | | 1.00 | 0.85 | | | |
| Flt Protected | | 0.99 | | | | | | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | | 2942 | | | | | | 3500 | 1277 | | | |
| Flt Permitted | | 0.99 | | | | | | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | | 2942 | | | | | | 3500 | 1277 | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 11 | 42 | 0 | 0 | 0 | 0 | 0 | 396 | 9 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 53 | 0 | 0 | 0 | 0 | 0 | 396 | 5 | 0 | 0 | 0 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | | | | NA | Perm | | | |
| Protected Phases | | 4 | | | | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | | | 2 | | | |
| Actuated Green, G (s) | | 27.0 | | | | | | 47.0 | 47.0 | | | |
| Effective Green, g (s) | | 26.0 | | | | | | 46.0 | 46.0 | | | |
| Actuated g/C Ratio | | 0.32 | | | | | | 0.58 | 0.58 | | | |
| Clearance Time (s) | | 3.0 | | | | | | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | | 956 | | | | | | 2012 | 734 | | | |
| v/s Ratio Prot | | | | | | | | c0.11 | | | | |
| v/s Ratio Perm | | 0.02 | | | | | | | 0.00 | | | |
| v/c Ratio | | 0.06 | | | | | | 0.20 | 0.01 | | | |
| Uniform Delay, d1 | | 18.6 | | | | | | 8.1 | 7.3 | | | |
| Progression Factor | | 1.40 | | | | | | 0.48 | 0.37 | | | |
| Incremental Delay, d2 | | 0.1 | | | | | | 0.2 | 0.0 | | | |
| Delay (s) | | 26.0 | | | | | | 4.1 | 2.7 | | | |
| Level of Service | | C | | | | | | A | A | | | |
| Approach Delay (s) | | 26.0 | | | 0.0 | | | 4.1 | | | 0.0 | |
| Approach LOS | | C | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 6.6 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.15 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 24.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 107 | 39 | 82 | 430 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 107 | 39 | 82 | 430 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | | | | 5.6 | | | 5.6 | | | | |
| Lane Util. Factor | | | | | 0.95 | | | 0.95 | | | | |
| Frpb, ped/bikes | | | | | 0.99 | | | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | | | 1.00 | | | | |
| Frt | | | | | 0.96 | | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (prot) | | | | | 2996 | | | 3107 | | | | |
| Flt Permitted | | | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (perm) | | | | | 2996 | | | 3107 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 107 | 39 | 82 | 430 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 14 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 121 | 0 | 0 | 498 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 7 | | 17 | 17 | | 7 | 12 | | 46 | 46 | | 12 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 38.4 | | | 60.4 | | | | |
| Effective Green, g (s) | | | | | 38.4 | | | 60.4 | | | | |
| Actuated g/C Ratio | | | | | 0.35 | | | 0.55 | | | | |
| Clearance Time (s) | | | | | 5.6 | | | 5.6 | | | | |
| Lane Grp Cap (vph) | | | | | 1045 | | | 1706 | | | | |
| v/s Ratio Prot | | | | | c0.04 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.16 | | | | |
| v/c Ratio | | | | | 0.12 | | | 0.29 | | | | |
| Uniform Delay, d1 | | | | | 24.3 | | | 13.3 | | | | |
| Progression Factor | | | | | 1.00 | | | 0.49 | | | | |
| Incremental Delay, d2 | | | | | 0.2 | | | 0.4 | | | | |
| Delay (s) | | | | | 24.5 | | | 6.9 | | | | |
| Level of Service | | | | | C | | | A | | | | |
| Approach Delay (s) | | 0.0 | | | 24.5 | | | 6.9 | | | 0.0 | |
| Approach LOS | | A | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 10.8 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.22 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 43.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 534 | 25 | 37 | 400 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 534 | 25 | 37 | 400 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | | 4.0 | | | | |
| Lane Util. Factor | | | | | 0.95 | 1.00 | | 0.95 | | | | |
| Frpb, ped/bikes | | | | | 1.00 | 0.96 | | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | | 1.00 | | | | |
| Frt | | | | | 1.00 | 0.85 | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | 1.00 | | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 2973 | 1270 | | 3500 | | | | |
| Flt Permitted | | | | | 1.00 | 1.00 | | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 2973 | 1270 | | 3500 | | | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 551 | 26 | 38 | 412 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 551 | 26 | 0 | 450 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 28 | | 27 | 27 | | 28 | 33 | | 20 | 20 | | 33 |
| Bus Blockages (#/hr) | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turn Type | | | | | NA | Perm | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | 4 | 2 | | | | | |
| Actuated Green, G (s) | | | | | 37.0 | 37.0 | | 37.0 | | | | |
| Effective Green, g (s) | | | | | 36.0 | 36.0 | | 36.0 | | | | |
| Actuated g/C Ratio | | | | | 0.45 | 0.45 | | 0.45 | | | | |
| Clearance Time (s) | | | | | 3.0 | 3.0 | | 3.0 | | | | |
| Lane Grp Cap (vph) | | | | | 1337 | 571 | | 1575 | | | | |
| v/s Ratio Prot | | | | | c0.19 | | | | | | | |
| v/s Ratio Perm | | | | | | 0.02 | | 0.13 | | | | |
| v/c Ratio | | | | | 0.41 | 0.05 | | 0.29 | | | | |
| Uniform Delay, d1 | | | | | 14.9 | 12.4 | | 13.9 | | | | |
| Progression Factor | | | | | 0.20 | 0.20 | | 0.39 | | | | |
| Incremental Delay, d2 | | | | | 0.8 | 0.1 | | 0.4 | | | | |
| Delay (s) | | | | | 3.9 | 2.6 | | 5.8 | | | | |
| Level of Service | | | | | A | A | | A | | | | |
| Approach Delay (s) | | 0.0 | | | 3.8 | | | 5.8 | | | 0.0 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 4.7 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 40.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 13 | 0 | 0 | 96 | 12 | 20 | 337 | 27 | 0 | 0 | 0 |
| Future Volume (vph) | 3 | 13 | 0 | 0 | 96 | 12 | 20 | 337 | 27 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | 5.6 | | | 5.6 | | | | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 1.00 | | | | |
| Flpb, ped/bikes | | 0.99 | | | 1.00 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.98 | | | 0.99 | | | | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | 1629 | | | 3074 | | | 3088 | | | | |
| Flt Permitted | | 0.97 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | 1592 | | | 3074 | | | 3088 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 3 | 13 | 0 | 0 | 96 | 12 | 20 | 337 | 27 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 5 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 16 | 0 | 0 | 100 | 0 | 0 | 379 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 20 | | 17 | 17 | | 20 | 7 | | 12 | 12 | | 7 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 33.4 | | | 33.4 | | | 65.4 | | | | |
| Effective Green, g (s) | | 33.4 | | | 33.4 | | | 65.4 | | | | |
| Actuated g/C Ratio | | 0.30 | | | 0.30 | | | 0.59 | | | | |
| Clearance Time (s) | | 5.6 | | | 5.6 | | | 5.6 | | | | |
| Lane Grp Cap (vph) | | 483 | | | 933 | | | 1835 | | | | |
| v/s Ratio Prot | | | | | c0.03 | | | | | | | |
| v/s Ratio Perm | | 0.01 | | | | | | 0.12 | | | | |
| v/c Ratio | | 0.03 | | | 0.11 | | | 0.21 | | | | |
| Uniform Delay, d1 | | 26.9 | | | 27.6 | | | 10.3 | | | | |
| Progression Factor | | 1.00 | | | 0.52 | | | 0.38 | | | | |
| Incremental Delay, d2 | | 0.1 | | | 0.2 | | | 0.3 | | | | |
| Delay (s) | | 27.1 | | | 14.6 | | | 4.2 | | | | |
| Level of Service | | C | | | B | | | A | | | | |
| Approach Delay (s) | | 27.1 | | | 14.6 | | | 4.2 | | | 0.0 | |
| Approach LOS | | C | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 7.1 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.17 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 47.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 59 | 288 | 0 | 0 | 357 | 40 | 80 | 321 | 7 | 0 | 0 | 0 |
| Future Volume (vph) | 59 | 288 | 0 | 0 | 357 | 40 | 80 | 321 | 7 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | | | 0.95 | | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Flpb, ped/bikes | 0.99 | 1.00 | | | 1.00 | | | 0.99 | | | | |
| Frt | 1.00 | 1.00 | | | 0.98 | | | 1.00 | | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (prot) | 1471 | 2973 | | | 2919 | | | 2917 | | | | |
| Flt Permitted | 0.48 | 1.00 | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (perm) | 740 | 2973 | | | 2919 | | | 2917 | | | | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 60 | 294 | 0 | 0 | 364 | 41 | 82 | 328 | 7 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 60 | 294 | 0 | 0 | 405 | 0 | 0 | 417 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 18 | | 30 | 30 | | 18 | 37 | | 28 | 28 | | 37 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | 32.0 | 32.0 | | | 32.0 | | | 37.0 | | | | |
| Effective Green, g (s) | 33.0 | 33.0 | | | 33.0 | | | 39.0 | | | | |
| Actuated g/C Ratio | 0.41 | 0.41 | | | 0.41 | | | 0.49 | | | | |
| Clearance Time (s) | 5.0 | 5.0 | | | 5.0 | | | 6.0 | | | | |
| Lane Grp Cap (vph) | 305 | 1226 | | | 1204 | | | 1422 | | | | |
| v/s Ratio Prot | | 0.10 | | | c0.14 | | | | | | | |
| v/s Ratio Perm | 0.08 | | | | | | | 0.14 | | | | |
| v/c Ratio | 0.20 | 0.24 | | | 0.34 | | | 0.29 | | | | |
| Uniform Delay, d1 | 15.0 | 15.3 | | | 16.0 | | | 12.3 | | | | |
| Progression Factor | 0.64 | 0.61 | | | 1.09 | | | 0.14 | | | | |
| Incremental Delay, d2 | 1.4 | 0.5 | | | 0.8 | | | 0.5 | | | | |
| Delay (s) | 11.0 | 9.8 | | | 18.3 | | | 2.2 | | | | |
| Level of Service | B | A | | | B | | | A | | | | |
| Approach Delay (s) | | 10.0 | | | 18.3 | | | 2.2 | | | 0.0 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 10.1 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.31 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 59.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 7 | 13 | 0 | 0 | 39 | 7 | 40 | 284 | 3 | 0 | 0 | 0 |
| Future Volume (vph) | 7 | 13 | 0 | 0 | 39 | 7 | 40 | 284 | 3 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | 5.6 | | | 5.6 | | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 1.00 | | | | |
| Flpb, ped/bikes | | 0.99 | | | 1.00 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.98 | | | 1.00 | | | | |
| Flt Protected | | 0.98 | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (prot) | | 1449 | | | 1449 | | | 2802 | | | | |
| Flt Permitted | | 0.94 | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (perm) | | 1391 | | | 1449 | | | 2802 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 7 | 13 | 0 | 0 | 39 | 7 | 40 | 284 | 3 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 20 | 0 | 0 | 42 | 0 | 0 | 327 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 15 | | 26 | 26 | | 15 | 5 | | 7 | 7 | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 39.4 | | | 39.4 | | | 59.4 | | | | |
| Effective Green, g (s) | | 39.4 | | | 39.4 | | | 59.4 | | | | |
| Actuated g/C Ratio | | 0.36 | | | 0.36 | | | 0.54 | | | | |
| Clearance Time (s) | | 5.6 | | | 5.6 | | | 5.6 | | | | |
| Lane Grp Cap (vph) | | 498 | | | 519 | | | 1513 | | | | |
| v/s Ratio Prot | | | | | c0.03 | | | | | | | |
| v/s Ratio Perm | | 0.01 | | | | | | 0.12 | | | | |
| v/c Ratio | | 0.04 | | | 0.08 | | | 0.22 | | | | |
| Uniform Delay, d1 | | 23.0 | | | 23.3 | | | 13.2 | | | | |
| Progression Factor | | 0.89 | | | 1.00 | | | 0.51 | | | | |
| Incremental Delay, d2 | | 0.1 | | | 0.3 | | | 0.3 | | | | |
| Delay (s) | | 20.6 | | | 23.6 | | | 7.0 | | | | |
| Level of Service | | C | | | C | | | A | | | | |
| Approach Delay (s) | | 20.6 | | | 23.6 | | | 7.0 | | | 0.0 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 9.6 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.16 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 46.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 1128 | 15 | 72 | 359 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 1128 | 15 | 72 | 359 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | | | | 5.6 | | | 5.6 | | | | |
| Lane Util. Factor | | | | | 0.95 | | | 0.95 | | | | |
| Frpb, ped/bikes | | | | | 1.00 | | | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | | | 0.99 | | | | |
| Frt | | | | | 1.00 | | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (prot) | | | | | 3135 | | | 3100 | | | | |
| Flt Permitted | | | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (perm) | | | | | 3135 | | | 3100 | | | | |
| 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) | 0 | 0 | 0 | 0 | 1175 | 16 | 75 | 374 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 15 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 1190 | 0 | 0 | 434 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 14 | | 7 | 7 | | 14 | 19 | | 9 | 9 | | 19 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 52.4 | | | 46.4 | | | | |
| Effective Green, g (s) | | | | | 52.4 | | | 46.4 | | | | |
| Actuated g/C Ratio | | | | | 0.48 | | | 0.42 | | | | |
| Clearance Time (s) | | | | | 5.6 | | | 5.6 | | | | |
| Lane Grp Cap (vph) | | | | | 1493 | | | 1307 | | | | |
| v/s Ratio Prot | | | | | c0.38 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.14 | | | | |
| v/c Ratio | | | | | 0.80 | | | 0.33 | | | | |
| Uniform Delay, d1 | | | | | 24.3 | | | 21.4 | | | | |
| Progression Factor | | | | | 0.55 | | | 0.61 | | | | |
| Incremental Delay, d2 | | | | | 4.2 | | | 0.7 | | | | |
| Delay (s) | | | | | 17.6 | | | 13.8 | | | | |
| Level of Service | | | | | B | | | B | | | | |
| Approach Delay (s) | | 0.0 | | | 17.6 | | | 13.8 | | | 0.0 | |
| Approach LOS | | A | | | B | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 16.6 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 64.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 40 | 540 | 0 | 0 | 671 | 70 | 33 | 243 | 64 | 0 | 0 | 0 |
| Future Volume (vph) | 40 | 540 | 0 | 0 | 671 | 70 | 33 | 243 | 64 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 4.6 | | | 5.6 | | | 6.1 | | | | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.99 | | | 0.97 | | | | |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | 3132 | | | 3098 | | | 3039 | | | | |
| Flt Permitted | | 0.83 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | 2615 | | | 3098 | | | 3039 | | | | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 42 | 568 | 0 | 0 | 706 | 74 | 35 | 256 | 67 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 610 | 0 | 0 | 773 | 0 | 0 | 340 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 1 | | | | | 1 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | D.P+P | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | 3 | 3 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 49.8 | | | 36.4 | | | 43.9 | | | | |
| Effective Green, g (s) | | 49.8 | | | 36.4 | | | 43.9 | | | | |
| Actuated g/C Ratio | | 0.45 | | | 0.33 | | | 0.40 | | | | |
| Clearance Time (s) | | | | | 5.6 | | | 6.1 | | | | |
| Lane Grp Cap (vph) | | 1246 | | | 1025 | | | 1212 | | | | |
| v/s Ratio Prot | | c0.06 | | | c0.25 | | | | | | | |
| v/s Ratio Perm | | 0.16 | | | | | | 0.11 | | | | |
| v/c Ratio | | 0.49 | | | 0.75 | | | 0.28 | | | | |
| Uniform Delay, d1 | | 21.2 | | | 32.8 | | | 22.4 | | | | |
| Progression Factor | | 0.44 | | | 1.35 | | | 0.40 | | | | |
| Incremental Delay, d2 | | 1.2 | | | 4.9 | | | 0.6 | | | | |
| Delay (s) | | 10.4 | | | 49.2 | | | 9.5 | | | | |
| Level of Service | | B | | | D | | | A | | | | |
| Approach Delay (s) | | 10.4 | | | 49.2 | | | 9.5 | | | 0.0 | |
| Approach LOS | | B | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 27.6 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 16.3 |
| Intersection Capacity Utilization | 70.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 19 | 56 | 0 | 0 | 46 | 19 | 18 | 368 | 32 | 0 | 0 | 0 |
| Future Volume (vph) | 19 | 56 | 0 | 0 | 46 | 19 | 18 | 368 | 32 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 6.1 | | | 6.1 | | | 5.6 | | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 0.99 | | | | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.96 | | | 0.99 | | | | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | 1627 | | | 1575 | | | 3062 | | | | |
| Flt Permitted | | 0.93 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | 1526 | | | 1575 | | | 3062 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 19 | 56 | 0 | 0 | 46 | 19 | 18 | 368 | 32 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 6 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 75 | 0 | 0 | 51 | 0 | 0 | 412 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 9 | | 36 | 36 | | 9 | 16 | | 37 | 37 | | 16 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 26.9 | | | 26.9 | | | 71.4 | | | | |
| Effective Green, g (s) | | 26.9 | | | 26.9 | | | 71.4 | | | | |
| Actuated g/C Ratio | | 0.24 | | | 0.24 | | | 0.65 | | | | |
| Clearance Time (s) | | 6.1 | | | 6.1 | | | 5.6 | | | | |
| Lane Grp Cap (vph) | | 373 | | | 385 | | | 1987 | | | | |
| v/s Ratio Prot | | | | | 0.03 | | | | | | | |
| v/s Ratio Perm | | c0.05 | | | | | | 0.13 | | | | |
| v/c Ratio | | 0.20 | | | 0.13 | | | 0.21 | | | | |
| Uniform Delay, d1 | | 33.0 | | | 32.4 | | | 7.8 | | | | |
| Progression Factor | | 1.04 | | | 1.00 | | | 0.10 | | | | |
| Incremental Delay, d2 | | 1.2 | | | 0.7 | | | 0.2 | | | | |
| Delay (s) | | 35.6 | | | 33.2 | | | 1.0 | | | | |
| Level of Service | | D | | | C | | | A | | | | |
| Approach Delay (s) | | 35.6 | | | 33.2 | | | 1.0 | | | 0.0 | |
| Approach LOS | | D | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 9.4 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.21 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.7 |
| Intersection Capacity Utilization | 43.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 15 | 16 | 0 | 0 | 34 | 12 | 13 | 331 | 10 | 0 | 0 | 0 |
| Future Volume (vph) | 15 | 16 | 0 | 0 | 34 | 12 | 13 | 331 | 10 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | 5.6 | | | 5.6 | | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | 0.98 | | | 1.00 | | | | |
| Flpb, ped/bikes | | 0.97 | | | 1.00 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.96 | | | 1.00 | | | | |
| Flt Protected | | 0.98 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | 1569 | | | 1565 | | | 3109 | | | | |
| Flt Permitted | | 0.90 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | 1444 | | | 1565 | | | 3109 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 15 | 16 | 0 | 0 | 34 | 12 | 13 | 331 | 10 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 31 | 0 | 0 | 38 | 0 | 0 | 352 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 36 | | 37 | 37 | | 36 | 17 | | 31 | 31 | | 17 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 34.4 | | | 34.4 | | | 64.4 | | | | |
| Effective Green, g (s) | | 34.4 | | | 34.4 | | | 64.4 | | | | |
| Actuated g/C Ratio | | 0.31 | | | 0.31 | | | 0.59 | | | | |
| Clearance Time (s) | | 5.6 | | | 5.6 | | | 5.6 | | | | |
| Lane Grp Cap (vph) | | 451 | | | 489 | | | 1820 | | | | |
| v/s Ratio Prot | | | | | c0.02 | | | | | | | |
| v/s Ratio Perm | | 0.02 | | | | | | 0.11 | | | | |
| v/c Ratio | | 0.07 | | | 0.08 | | | 0.19 | | | | |
| Uniform Delay, d1 | | 26.5 | | | 26.6 | | | 10.7 | | | | |
| Progression Factor | | 1.10 | | | 1.00 | | | 0.12 | | | | |
| Incremental Delay, d2 | | 0.3 | | | 0.3 | | | 0.2 | | | | |
| Delay (s) | | 29.6 | | | 26.9 | | | 1.5 | | | | |
| Level of Service | | C | | | C | | | A | | | | |
| Approach Delay (s) | | 29.6 | | | 26.9 | | | 1.5 | | | 0.0 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 6.3 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.15 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 47.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 45 | 202 | 0 | 0 | 641 | 138 | 16 | 276 | 90 | 0 | 0 | 0 |
| Future Volume (vph) | 45 | 202 | 0 | 0 | 641 | 138 | 16 | 276 | 90 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 6.6 | | | 6.6 | | | 6.1 | | | | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 0.99 | | | | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.97 | | | 0.96 | | | | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | 3106 | | | 3018 | | | 3000 | | | | |
| Flt Permitted | | 0.73 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | 2285 | | | 3018 | | | 3000 | | | | |
| 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) | 49 | 220 | 0 | 0 | 697 | 150 | 17 | 300 | 98 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 27 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 269 | 0 | 0 | 831 | 0 | 0 | 388 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 36 | | 47 | 47 | | 36 | 13 | | 21 | 21 | | 13 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 2 | | | 2 | | | 4 | | | | |
| Permitted Phases | 2 | | | | | | 4 | | | | | |
| Actuated Green, G (s) | | 58.4 | | | 58.4 | | | 38.9 | | | | |
| Effective Green, g (s) | | 58.4 | | | 58.4 | | | 38.9 | | | | |
| Actuated g/C Ratio | | 0.53 | | | 0.53 | | | 0.35 | | | | |
| Clearance Time (s) | | 6.6 | | | 6.6 | | | 6.1 | | | | |
| Lane Grp Cap (vph) | | 1213 | | | 1602 | | | 1060 | | | | |
| v/s Ratio Prot | | | | | c0.28 | | | | | | | |
| v/s Ratio Perm | | 0.12 | | | | | | 0.13 | | | | |
| v/c Ratio | | 0.22 | | | 0.52 | | | 0.37 | | | | |
| Uniform Delay, d1 | | 13.7 | | | 16.7 | | | 26.4 | | | | |
| Progression Factor | | 0.42 | | | 0.07 | | | 1.65 | | | | |
| Incremental Delay, d2 | | 0.4 | | | 0.1 | | | 1.0 | | | | |
| Delay (s) | | 6.2 | | | 1.3 | | | 44.5 | | | | |
| Level of Service | | A | | | A | | | D | | | | |
| Approach Delay (s) | | 6.2 | | | 1.3 | | | 44.5 | | | 0.0 | |
| Approach LOS | | A | | | A | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 13.9 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.7 |
| Intersection Capacity Utilization | 80.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | SBL2 | SBL | SBT |
|---|---|---|---|---|---|
| Lane Configurations | | | | | |
| Traffic Volume (vph) | 750 | 119 | 95 | 1000 | 597 |
| Future Volume (vph) | 750 | 119 | 95 | 1000 | 597 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 0.86 | | | 0.86 | 0.86 |
| Frpb, ped/bikes | 0.99 | | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | | 0.89 | 1.00 |
| Frt | 0.98 | | | 1.00 | 1.00 |
| Flt Protected | 1.00 | | | 0.95 | 0.99 |
| Satd. Flow (prot) | 5218 | | | 3000 | 3000 |
| Flt Permitted | 1.00 | | | 0.95 | 0.99 |
| Satd. Flow (perm) | 5218 | | | 3000 | 3000 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 789 | 125 | 100 | 1053 | 628 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 914 | 0 | 0 | 1016 | 765 |
| Confl. Peds. (#/hr) | | 59 | 115 | | |
| Turn Type | NA | | Perm | Perm | NA |
| Protected Phases | 4 | | | | 2 |
| Permitted Phases | | | 2 | 2 | |
| Actuated Green, G (s) | 32.0 | | | 38.0 | 38.0 |
| Effective Green, g (s) | 33.0 | | | 39.0 | 39.0 |
| Actuated g/C Ratio | 0.41 | | | 0.49 | 0.49 |
| Clearance Time (s) | 5.0 | | | 5.0 | 5.0 |
| Lane Grp Cap (vph) | 2152 | | | 1462 | 1462 |
| v/s Ratio Prot | c0.18 | | | | |
| v/s Ratio Perm | | | | c0.34 | 0.26 |
| v/c Ratio | 0.42 | | | 0.69 | 0.52 |
| Uniform Delay, d1 | 16.7 | | | 15.9 | 14.1 |
| Progression Factor | 0.45 | | | 0.34 | 0.36 |
| Incremental Delay, d2 | 0.5 | | | 1.8 | 0.9 |
| Delay (s) | 8.0 | | | 7.3 | 5.9 |
| Level of Service | A | | | A | A |
| Approach Delay (s) | 8.0 | | | | 6.7 |
| Approach LOS | A | | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 7.1 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 56.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 50 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 110 | 1375 | 0 |
| Future Volume (vph) | 0 | 50 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 110 | 1375 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | 4.0 | | | | | | | | | 4.0 | |
| Lane Util. Factor | | 0.95 | | | | | | | | | 0.91 | |
| Frt | | 0.93 | | | | | | | | | 1.00 | |
| Flt Protected | | 1.00 | | | | | | | | | 1.00 | |
| Satd. Flow (prot) | | 2767 | | | | | | | | | 6400 | |
| Flt Permitted | | 1.00 | | | | | | | | | 1.00 | |
| Satd. Flow (perm) | | 2767 | | | | | | | | | 6400 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 50 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 110 | 1375 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 93 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1485 | 0 |
| Turn Type | | NA | | | | | | | | Perm | NA | |
| Protected Phases | | 4 | | | | | | | | | 2 | |
| Permitted Phases | | | | | | | | | | 2 | | |
| Actuated Green, G (s) | | 27.0 | | | | | | | | | 47.0 | |
| Effective Green, g (s) | | 26.0 | | | | | | | | | 46.0 | |
| Actuated g/C Ratio | | 0.32 | | | | | | | | | 0.58 | |
| Clearance Time (s) | | 3.0 | | | | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 899 | | | | | | | | | 3680 | |
| v/s Ratio Prot | | c0.03 | | | | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | | 0.23 | |
| v/c Ratio | | 0.10 | | | | | | | | | 0.40 | |
| Uniform Delay, d1 | | 18.9 | | | | | | | | | 9.4 | |
| Progression Factor | | 1.45 | | | | | | | | | 0.17 | |
| Incremental Delay, d2 | | 0.2 | | | | | | | | | 0.3 | |
| Delay (s) | | 27.7 | | | | | | | | | 1.9 | |
| Level of Service | | C | | | | | | | | | A | |
| Approach Delay (s) | | 27.7 | | | 0.0 | | | 0.0 | | | 1.9 | |
| Approach LOS | | C | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 3.4 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.30 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 44.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 13 | 14 | 25 | 38 | 2 | 17 | 0 | 0 | 0 | 16 | 1434 | 15 |
| Future Volume (vph) | 13 | 14 | 25 | 38 | 2 | 17 | 0 | 0 | 0 | 16 | 1434 | 15 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | 5.6 | | | | | | 6.6 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | | | | 0.95 | |
| Frpb, ped/bikes | | 0.98 | | | 0.97 | | | | | | 1.00 | |
| Flpb, ped/bikes | | 0.98 | | | 0.98 | | | | | | 1.00 | |
| Frt | | 0.94 | | | 0.96 | | | | | | 1.00 | |
| Flt Protected | | 0.99 | | | 0.97 | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1474 | | | 1469 | | | | | | 3129 | |
| Flt Permitted | | 0.94 | | | 0.81 | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1403 | | | 1233 | | | | | | 3129 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 13 | 14 | 25 | 38 | 2 | 17 | 0 | 0 | 0 | 16 | 1434 | 15 |
| RTOR Reduction (vph) | 0 | 19 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 33 | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 1464 | 0 |
| Confl. Peds. (#/hr) | 30 | | 23 | 23 | | 30 | 20 | | 41 | 41 | | 20 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | Perm | NA | | | | | Perm | NA | |
| Protected Phases | | 4 | | | 4 | | | | | | 2 | |
| Permitted Phases | 4 | | | 4 | | | | | | 2 | | |
| Actuated Green, G (s) | | 28.4 | | | 28.4 | | | | | | 69.4 | |
| Effective Green, g (s) | | 28.4 | | | 28.4 | | | | | | 69.4 | |
| Actuated g/C Ratio | | 0.26 | | | 0.26 | | | | | | 0.63 | |
| Clearance Time (s) | | 5.6 | | | 5.6 | | | | | | 6.6 | |
| Lane Grp Cap (vph) | | 362 | | | 318 | | | | | | 1974 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.02 | | | c0.04 | | | | | | 0.47 | |
| v/c Ratio | | 0.09 | | | 0.14 | | | | | | 0.74 | |
| Uniform Delay, d1 | | 31.0 | | | 31.4 | | | | | | 14.1 | |
| Progression Factor | | 0.50 | | | 1.41 | | | | | | 0.12 | |
| Incremental Delay, d2 | | 0.5 | | | 0.9 | | | | | | 1.6 | |
| Delay (s) | | 16.1 | | | 45.2 | | | | | | 3.3 | |
| Level of Service | | B | | | D | | | | | | A | |
| Approach Delay (s) | | 16.1 | | | 45.2 | | | 0.0 | | | 3.3 | |
| Approach LOS | | B | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 5.3 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.2 |
| Intersection Capacity Utilization | 81.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 57 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 1349 | 0 |
| Future Volume (vph) | 0 | 57 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 1349 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | | | | | | | 5.6 | |
| Lane Util. Factor | | 1.00 | | | | | | | | | 0.91 | |
| Frpb, ped/bikes | | 0.98 | | | | | | | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | | | | | | | 1.00 | |
| Frt | | 0.93 | | | | | | | | | 1.00 | |
| Flt Protected | | 1.00 | | | | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1508 | | | | | | | | | 4510 | |
| Flt Permitted | | 1.00 | | | | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1508 | | | | | | | | | 4510 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 57 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 1349 | 0 |
| RTOR Reduction (vph) | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 0 | 81 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1355 | 0 |
| Confl. Peds. (#/hr) | 4 | | 20 | 20 | | 4 | 8 | | 15 | 15 | | 8 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | NA | | | | | | | | Perm | NA | |
| Protected Phases | | 4 | | | | | | | | | 2 | |
| Permitted Phases | | | | | | | | | | 2 | | |
| Actuated Green, G (s) | | 29.4 | | | | | | | | | 69.4 | |
| Effective Green, g (s) | | 29.4 | | | | | | | | | 69.4 | |
| Actuated g/C Ratio | | 0.27 | | | | | | | | | 0.63 | |
| Clearance Time (s) | | 5.6 | | | | | | | | | 5.6 | |
| Lane Grp Cap (vph) | | 403 | | | | | | | | | 2845 | |
| v/s Ratio Prot | | c0.05 | | | | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | | 0.30 | |
| v/c Ratio | | 0.20 | | | | | | | | | 0.48 | |
| Uniform Delay, d1 | | 31.2 | | | | | | | | | 10.7 | |
| Progression Factor | | 1.08 | | | | | | | | | 0.06 | |
| Incremental Delay, d2 | | 1.1 | | | | | | | | | 0.5 | |
| Delay (s) | | 34.7 | | | | | | | | | 1.2 | |
| Level of Service | | C | | | | | | | | | A | |
| Approach Delay (s) | | 34.7 | | | 0.0 | | | 0.0 | | | 1.2 | |
| Approach LOS | | C | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 3.8 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 58.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 26 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 1087 | 25 |
| Future Volume (vph) | 0 | 26 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 1087 | 25 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | 4.0 | | | | | | | | | 4.0 | |
| Lane Util. Factor | | 1.00 | | | | | | | | | 0.91 | |
| Frt | | 0.90 | | | | | | | | | 1.00 | |
| Flt Protected | | 1.00 | | | | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1401 | | | | | | | | | 4500 | |
| Flt Permitted | | 1.00 | | | | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1401 | | | | | | | | | 4249 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 26 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 1087 | 25 |
| RTOR Reduction (vph) | 0 | 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1152 | 0 |
| Turn Type | | NA | | | | | | | | Perm | NA | |
| Protected Phases | | 4 | | | | | | | | | 2 | |
| Permitted Phases | | | | | | | | | | 2 | | |
| Actuated Green, G (s) | | 27.0 | | | | | | | | | 47.0 | |
| Effective Green, g (s) | | 26.0 | | | | | | | | | 46.0 | |
| Actuated g/C Ratio | | 0.32 | | | | | | | | | 0.58 | |
| Clearance Time (s) | | 3.0 | | | | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 455 | | | | | | | | | 2443 | |
| v/s Ratio Prot | | c0.04 | | | | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | | c0.27 | |
| v/c Ratio | | 0.12 | | | | | | | | | 0.47 | |
| Uniform Delay, d1 | | 19.0 | | | | | | | | | 9.9 | |
| Progression Factor | | 0.40 | | | | | | | | | 0.18 | |
| Incremental Delay, d2 | | 0.6 | | | | | | | | | 0.6 | |
| Delay (s) | | 8.2 | | | | | | | | | 2.4 | |
| Level of Service | | A | | | | | | | | | A | |
| Approach Delay (s) | | 8.2 | | | 0.0 | | | 0.0 | | | 2.4 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 2.9 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 39.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 57 | 18 | 8 | 40 | 0 | 0 | 0 | 0 | 27 | 1367 | 18 |
| Future Volume (vph) | 0 | 57 | 18 | 8 | 40 | 0 | 0 | 0 | 0 | 27 | 1367 | 18 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 6.1 | | | 6.1 | | | | | | 5.6 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | | | | 0.91 | |
| Frpb, ped/bikes | | 0.99 | | | 1.00 | | | | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 0.99 | | | | | | 1.00 | |
| Frt | | 0.97 | | | 1.00 | | | | | | 1.00 | |
| Flt Protected | | 1.00 | | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1580 | | | 1630 | | | | | | 4496 | |
| Flt Permitted | | 1.00 | | | 0.96 | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1580 | | | 1580 | | | | | | 4496 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 57 | 18 | 8 | 40 | 0 | 0 | 0 | 0 | 27 | 1367 | 18 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 65 | 0 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 1411 | 0 |
| Confl. Peds. (#/hr) | 9 | | 23 | 23 | | 9 | 10 | | 15 | 15 | | 10 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | NA | | Perm | NA | | | | | Perm | NA | |
| Protected Phases | | 4 | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | 2 | | |
| Actuated Green, G (s) | | 28.9 | | | 28.9 | | | | | | 69.4 | |
| Effective Green, g (s) | | 28.9 | | | 28.9 | | | | | | 69.4 | |
| Actuated g/C Ratio | | 0.26 | | | 0.26 | | | | | | 0.63 | |
| Clearance Time (s) | | 6.1 | | | 6.1 | | | | | | 5.6 | |
| Lane Grp Cap (vph) | | 415 | | | 415 | | | | | | 2836 | |
| v/s Ratio Prot | | c0.04 | | | | | | | | | | |
| v/s Ratio Perm | | | | | 0.03 | | | | | | 0.31 | |
| v/c Ratio | | 0.16 | | | 0.12 | | | | | | 0.50 | |
| Uniform Delay, d1 | | 31.2 | | | 30.8 | | | | | | 10.9 | |
| Progression Factor | | 1.40 | | | 1.29 | | | | | | 0.12 | |
| Incremental Delay, d2 | | 0.8 | | | 0.6 | | | | | | 0.6 | |
| Delay (s) | | 44.4 | | | 40.3 | | | | | | 1.9 | |
| Level of Service | | D | | | D | | | | | | A | |
| Approach Delay (s) | | 44.4 | | | 40.3 | | | 0.0 | | | 1.9 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 5.2 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.7 |
| Intersection Capacity Utilization | 58.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | WBL2 | WBT | SBT | SBR2 | NER2 |
|---|---|---|---|---|---|
| Lane Configurations | | | | | |
| Traffic Volume (vph) | 32 | 60 | 1594 | 10 | 95 |
| Future Volume (vph) | 32 | 60 | 1594 | 10 | 95 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.91 | | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | | 0.86 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 1.00 |
| Satd. Flow (prot) | 1486 | 1565 | 4500 | | 1353 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 1.00 |
| Satd. Flow (perm) | 1486 | 1565 | 4500 | | 1353 |
| Peak-hour factor, PHF | 0.83 | 0.83 | 0.94 | 0.94 | 0.75 |
| Adj. Flow (vph) | 39 | 72 | 1696 | 11 | 127 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 39 | 72 | 1707 | 0 | 127 |
| Turn Type | custom | NA | NA | | Prot |
| Protected Phases | 4 | 4 | 2 | | 3 |
| Permitted Phases | 4 | | | | 3 |
| Actuated Green, G (s) | 19.0 | 19.0 | 45.0 | | 5.0 |
| Effective Green, g (s) | 18.0 | 18.0 | 46.0 | | 4.0 |
| Actuated g/C Ratio | 0.22 | 0.22 | 0.58 | | 0.05 |
| Clearance Time (s) | 3.0 | 3.0 | 5.0 | | 3.0 |
| Lane Grp Cap (vph) | 334 | 352 | 2587 | | 67 |
| v/s Ratio Prot | 0.03 | c0.05 | c0.38 | | c0.09 |
| v/s Ratio Perm | | | | | |
| v/c Ratio | 0.12 | 0.20 | 0.66 | | 1.90 |
| Uniform Delay, d1 | 24.7 | 25.2 | 11.6 | | 38.0 |
| Progression Factor | 0.79 | 0.78 | 0.40 | | 1.18 |
| Incremental Delay, d2 | 0.7 | 1.3 | 1.2 | | 453.4 |
| Delay (s) | 20.1 | 21.0 | 5.8 | | 498.3 |
| Level of Service | C | C | A | | F |
| Approach Delay (s) | | 20.7 | 5.8 | | |
| Approach LOS | | C | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 38.8 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 56.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 125 | 410 | 0 | 0 | 0 | 0 | 0 | 1586 | 76 |
| Future Volume (vph) | 0 | 0 | 0 | 125 | 410 | 0 | 0 | 0 | 0 | 0 | 1586 | 76 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | | | | 4.0 | | | | | | 4.0 | |
| Lane Util. Factor | | | | | 0.95 | | | | | | 0.91 | |
| Frpb, ped/bikes | | | | | 1.00 | | | | | | 1.00 | |
| Flpb, ped/bikes | | | | | 0.99 | | | | | | 1.00 | |
| Frt | | | | | 1.00 | | | | | | 0.99 | |
| Flt Protected | | | | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | | | 2905 | | | | | | 6000 | |
| Flt Permitted | | | | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | | | 2905 | | | | | | 4233 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 0 | 0 | 0 | 128 | 418 | 0 | 0 | 0 | 0 | 0 | 1618 | 78 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 546 | 0 | 0 | 0 | 0 | 0 | 1690 | 0 |
| Confl. Peds. (#/hr) | 47 | | 43 | 43 | | 47 | 31 | | 70 | 70 | | 31 |
| Turn Type | | | | Perm | NA | | | | | | NA | |
| Protected Phases | | | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | | | |
| Actuated Green, G (s) | | | | | 32.0 | | | | | | 42.0 | |
| Effective Green, g (s) | | | | | 31.0 | | | | | | 41.0 | |
| Actuated g/C Ratio | | | | | 0.39 | | | | | | 0.51 | |
| Clearance Time (s) | | | | | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 1125 | | | | | | 3075 | |
| v/s Ratio Prot | | | | | | | | | | | c0.28 | |
| v/s Ratio Perm | | | | | 0.19 | | | | | | | |
| v/c Ratio | | | | | 0.49 | | | | | | 0.55 | |
| Uniform Delay, d1 | | | | | 18.5 | | | | | | 13.2 | |
| Progression Factor | | | | | 0.30 | | | | | | 0.21 | |
| Incremental Delay, d2 | | | | | 1.4 | | | | | | 0.6 | |
| Delay (s) | | | | | 7.0 | | | | | | 3.3 | |
| Level of Service | | | | | A | | | | | | A | |
| Approach Delay (s) | | 0.0 | | | 7.0 | | | 0.0 | | | 3.3 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 4.2 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 62.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 27 | 30 | 70 | 160 | 0 | 0 | 0 | 0 | 38 | 1415 | 155 |
| Future Volume (vph) | 0 | 27 | 30 | 70 | 160 | 0 | 0 | 0 | 0 | 38 | 1415 | 155 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | | | | 0.91 | |
| Frt | | 0.93 | | | 1.00 | | | | | | 0.99 | |
| Flt Protected | | 1.00 | | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1454 | | | 1541 | | | | | | 6400 | |
| Flt Permitted | | 1.00 | | | 0.90 | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1454 | | | 1409 | | | | | | 6400 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 27 | 30 | 70 | 160 | 0 | 0 | 0 | 0 | 38 | 1415 | 155 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 57 | 0 | 0 | 230 | 0 | 0 | 0 | 0 | 0 | 1608 | 0 |
| Turn Type | | NA | | Perm | NA | | | | | Perm | NA | |
| Protected Phases | | 4 | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | 2 | | |
| Actuated Green, G (s) | | 29.0 | | | 29.0 | | | | | | 45.0 | |
| Effective Green, g (s) | | 28.0 | | | 28.0 | | | | | | 44.0 | |
| Actuated g/C Ratio | | 0.35 | | | 0.35 | | | | | | 0.55 | |
| Clearance Time (s) | | 3.0 | | | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 508 | | | 493 | | | | | | 3520 | |
| v/s Ratio Prot | | 0.04 | | | | | | | | | | |
| v/s Ratio Perm | | | | | c0.16 | | | | | | 0.25 | |
| v/c Ratio | | 0.11 | | | 0.47 | | | | | | 0.46 | |
| Uniform Delay, d1 | | 17.6 | | | 20.2 | | | | | | 10.8 | |
| Progression Factor | | 0.99 | | | 0.77 | | | | | | 0.16 | |
| Incremental Delay, d2 | | 0.4 | | | 3.0 | | | | | | 0.4 | |
| Delay (s) | | 17.8 | | | 18.7 | | | | | | 2.1 | |
| Level of Service | | B | | | B | | | | | | A | |
| Approach Delay (s) | | 17.8 | | | 18.7 | | | 0.0 | | | 2.1 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 4.5 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 62.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 41 | 28 | 29 | 70 | 0 | 0 | 0 | 0 | 13 | 1375 | 53 |
| Future Volume (vph) | 0 | 41 | 28 | 29 | 70 | 0 | 0 | 0 | 0 | 13 | 1375 | 53 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | | | | 0.91 | |
| Frt | | 0.95 | | | 1.00 | | | | | | 0.99 | |
| Flt Protected | | 1.00 | | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1479 | | | 1542 | | | | | | 4246 | |
| Flt Permitted | | 1.00 | | | 0.92 | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1479 | | | 1446 | | | | | | 4246 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 41 | 28 | 29 | 70 | 0 | 0 | 0 | 0 | 14 | 1495 | 58 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 69 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 1567 | 0 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| Turn Type | | NA | | Perm | NA | | | | | Perm | NA | |
| Protected Phases | | 4 | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | 2 | | |
| Actuated Green, G (s) | | 27.0 | | | 27.0 | | | | | | 47.0 | |
| Effective Green, g (s) | | 26.0 | | | 26.0 | | | | | | 46.0 | |
| Actuated g/C Ratio | | 0.32 | | | 0.32 | | | | | | 0.58 | |
| Clearance Time (s) | | 3.0 | | | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 480 | | | 469 | | | | | | 2441 | |
| v/s Ratio Prot | | 0.05 | | | | | | | | | | |
| v/s Ratio Perm | | | | | c0.07 | | | | | | 0.37 | |
| v/c Ratio | | 0.14 | | | 0.21 | | | | | | 0.64 | |
| Uniform Delay, d1 | | 19.1 | | | 19.6 | | | | | | 11.5 | |
| Progression Factor | | 0.69 | | | 1.46 | | | | | | 0.33 | |
| Incremental Delay, d2 | | 0.6 | | | 1.0 | | | | | | 1.2 | |
| Delay (s) | | 13.8 | | | 29.5 | | | | | | 5.0 | |
| Level of Service | | B | | | C | | | | | | A | |
| Approach Delay (s) | | 13.8 | | | 29.5 | | | 0.0 | | | 5.0 | |
| Approach LOS | | B | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 6.8 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 50.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 190 | 397 | 0 | 0 | 0 | 0 | 0 | 1393 | 53 |
| Future Volume (vph) | 0 | 0 | 0 | 190 | 397 | 0 | 0 | 0 | 0 | 0 | 1393 | 53 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | | | 4.0 | 4.0 | | | | | | 4.0 | |
| Lane Util. Factor | | | | 1.00 | 0.95 | | | | | | 0.91 | |
| Frpb, ped/bikes | | | | 1.00 | 1.00 | | | | | | 1.00 | |
| Flpb, ped/bikes | | | | 0.94 | 1.00 | | | | | | 1.00 | |
| Frt | | | | 1.00 | 1.00 | | | | | | 0.99 | |
| Flt Protected | | | | 0.95 | 1.00 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | | 1404 | 2973 | | | | | | 6000 | |
| Flt Permitted | | | | 0.95 | 1.00 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | | 1404 | 2973 | | | | | | 6000 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 196 | 409 | 0 | 0 | 0 | 0 | 0 | 1436 | 55 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 196 | 409 | 0 | 0 | 0 | 0 | 0 | 1491 | 0 |
| Confl. Peds. (#/hr) | 88 | | 46 | 46 | | 88 | 37 | | 89 | 89 | | 37 |
| Turn Type | | | | Perm | NA | | | | | | NA | |
| Protected Phases | | | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | | | |
| Actuated Green, G (s) | | | | 32.0 | 32.0 | | | | | | 40.0 | |
| Effective Green, g (s) | | | | 31.0 | 31.0 | | | | | | 41.0 | |
| Actuated g/C Ratio | | | | 0.39 | 0.39 | | | | | | 0.51 | |
| Clearance Time (s) | | | | 3.0 | 3.0 | | | | | | 5.0 | |
| Lane Grp Cap (vph) | | | | 544 | 1152 | | | | | | 3075 | |
| v/s Ratio Prot | | | | | 0.14 | | | | | | c0.25 | |
| v/s Ratio Perm | | | | c0.14 | | | | | | | | |
| v/c Ratio | | | | 0.36 | 0.36 | | | | | | 0.48 | |
| Uniform Delay, d1 | | | | 17.4 | 17.4 | | | | | | 12.6 | |
| Progression Factor | | | | 0.70 | 0.69 | | | | | | 0.18 | |
| Incremental Delay, d2 | | | | 1.7 | 0.8 | | | | | | 0.4 | |
| Delay (s) | | | | 14.0 | 12.7 | | | | | | 2.6 | |
| Level of Service | | | | B | B | | | | | | A | |
| Approach Delay (s) | | 0.0 | | | 13.2 | | | 0.0 | | | 2.6 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 5.7 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 54.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 334 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 183 | 1552 | 0 |
| Future Volume (vph) | 0 | 334 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 183 | 1552 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | 4.0 | | | | | | | | | 4.0 | |
| Lane Util. Factor | | 0.95 | | | | | | | | | 0.91 | |
| Frpb, ped/bikes | | 0.99 | | | | | | | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | | | | | | | 1.00 | |
| Frt | | 0.98 | | | | | | | | | 1.00 | |
| Flt Protected | | 1.00 | | | | | | | | | 0.99 | |
| Satd. Flow (prot) | | 2879 | | | | | | | | | 4236 | |
| Flt Permitted | | 1.00 | | | | | | | | | 0.99 | |
| Satd. Flow (perm) | | 2879 | | | | | | | | | 6000 | |
| 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) | 0 | 348 | 62 | 0 | 0 | 0 | 0 | 0 | 0 | 191 | 1617 | 0 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 |
| Lane Group Flow (vph) | 0 | 404 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1790 | 0 |
| Confl. Peds. (#/hr) | 28 | | 40 | 40 | | 28 | 40 | | 25 | 25 | | 40 |
| Bus Blockages (#/hr) | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turn Type | | NA | | | | | | | | Perm | NA | |
| Protected Phases | | 4 | | | | | | | | | 2 | |
| Permitted Phases | | | | | | | | | | 2 | | |
| Actuated Green, G (s) | | 32.0 | | | | | | | | | 42.0 | |
| Effective Green, g (s) | | 31.0 | | | | | | | | | 41.0 | |
| Actuated g/C Ratio | | 0.39 | | | | | | | | | 0.51 | |
| Clearance Time (s) | | 3.0 | | | | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 1115 | | | | | | | | | 3075 | |
| v/s Ratio Prot | | c0.14 | | | | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | | c0.30 | |
| v/c Ratio | | 0.36 | | | | | | | | | 0.58 | |
| Uniform Delay, d1 | | 17.5 | | | | | | | | | 13.5 | |
| Progression Factor | | 0.58 | | | | | | | | | 0.24 | |
| Incremental Delay, d2 | | 0.9 | | | | | | | | | 0.7 | |
| Delay (s) | | 11.0 | | | | | | | | | 4.0 | |
| Level of Service | | B | | | | | | | | | A | |
| Approach Delay (s) | | 11.0 | | | 0.0 | | | 0.0 | | | 4.0 | |
| Approach LOS | | B | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 5.3 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 63.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBT | SBL | SBT | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 192 | 65 | 403 | 145 | 912 | 650 |
| Future Volume (vph) | 192 | 65 | 403 | 145 | 912 | 650 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.95 | 1.00 | 0.95 | 1.00 | 0.91 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.86 |
| Flt Protected | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 2973 | 1330 | 2973 | 1486 | 4800 | 1353 |
| Flt Permitted | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 2973 | 1330 | 2973 | 1486 | 4272 | 1353 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 200 | 68 | 420 | 151 | 950 | 677 |
| RTOR Reduction (vph) | 0 | 14 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 200 | 54 | 420 | 151 | 950 | 677 |
| Turn Type | NA | Perm | NA | Perm | NA | Perm |
| Protected Phases | 4 | | 4 | | 2 | |
| Permitted Phases | | 4 | | 2 | | 2 |
| Actuated Green, G (s) | 28.0 | 28.0 | 28.0 | 46.0 | 46.0 | 46.0 |
| Effective Green, g (s) | 27.0 | 27.0 | 27.0 | 45.0 | 45.0 | 45.0 |
| Actuated g/C Ratio | 0.34 | 0.34 | 0.34 | 0.56 | 0.56 | 0.56 |
| Clearance Time (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1003 | 448 | 1003 | 835 | 2700 | 761 |
| v/s Ratio Prot | 0.07 | | c0.14 | | 0.20 | |
| v/s Ratio Perm | | 0.04 | | 0.10 | | c0.50 |
| v/c Ratio | 0.20 | 0.12 | 0.42 | 0.18 | 0.35 | 0.89 |
| Uniform Delay, d1 | 18.8 | 18.3 | 20.4 | 8.5 | 9.5 | 15.3 |
| Progression Factor | 0.38 | 0.35 | 0.70 | 0.21 | 0.25 | 1.00 |
| Incremental Delay, d2 | 0.4 | 0.5 | 1.2 | 0.4 | 0.3 | 14.7 |
| Delay (s) | 7.6 | 7.0 | 15.5 | 2.2 | 2.7 | 30.0 |
| Level of Service | A | A | B | A | A | C |
| Approach Delay (s) | 7.4 | | 15.5 | | 2.7 | |
| Approach LOS | A | | B | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 12.9 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 86.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 5 | 173 | 24 | 263 | 403 | 6 | 0 | 5 | 14 | 20 | 1185 | 160 |
| Future Volume (vph) | 5 | 173 | 24 | 263 | 403 | 6 | 0 | 5 | 14 | 20 | 1185 | 160 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | 6.6 | 6.6 | 6.6 | 4.6 | 4.6 | | | 7.1 | | | 7.1 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.87 | 1.00 | 1.00 | | | 0.88 | | | 1.00 | |
| Flpb, ped/bikes | 0.98 | 1.00 | 1.00 | 0.94 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.90 | | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1542 | 3143 | 1226 | 1483 | 1650 | | | 1305 | | | 3064 | |
| Flt Permitted | 0.51 | 1.00 | 1.00 | 0.64 | 1.00 | | | 1.00 | | | 0.95 | |
| Satd. Flow (perm) | 828 | 3143 | 1226 | 992 | 1650 | | | 1305 | | | 2917 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 5 | 184 | 26 | 280 | 429 | 6 | 0 | 5 | 15 | 21 | 1261 | 170 |
| RTOR Reduction (vph) | 0 | 0 | 20 | 0 | 1 | 0 | 0 | 8 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 5 | 184 | 6 | 280 | 434 | 0 | 0 | 12 | 0 | 0 | 1443 | 0 |
| Confl. Peds. (#/hr) | 19 | | 111 | 111 | | 19 | 20 | | 112 | 112 | | 20 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | Perm | D.P+P | NA | | | NA | | Perm | NA | |
| Protected Phases | | 4 | | 3 | 3 4 | | | 2 | | | 2 | |
| Permitted Phases | 4 | | 4 | 4 | | | 2 | | | 2 | | |
| Actuated Green, G (s) | 27.4 | 27.4 | 27.4 | 42.8 | 47.4 | | | 48.9 | | | 48.9 | |
| Effective Green, g (s) | 27.4 | 27.4 | 27.4 | 42.8 | 47.4 | | | 48.9 | | | 48.9 | |
| Actuated g/C Ratio | 0.25 | 0.25 | 0.25 | 0.39 | 0.43 | | | 0.44 | | | 0.44 | |
| Clearance Time (s) | 6.6 | 6.6 | 6.6 | 4.6 | | | | 7.1 | | | 7.1 | |
| Lane Grp Cap (vph) | 206 | 782 | 305 | 454 | 711 | | | 580 | | | 1296 | |
| v/s Ratio Prot | | 0.06 | | 0.09 | c0.26 | | | 0.01 | | | | |
| v/s Ratio Perm | 0.01 | | 0.01 | 0.15 | | | | | | | c0.49 | |
| v/c Ratio | 0.02 | 0.24 | 0.02 | 0.62 | 0.61 | | | 0.02 | | | 1.11 | |
| Uniform Delay, d1 | 31.2 | 32.9 | 31.2 | 25.3 | 24.2 | | | 17.1 | | | 30.6 | |
| Progression Factor | 0.67 | 0.61 | 1.00 | 1.17 | 1.11 | | | 0.67 | | | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.7 | 0.1 | 5.4 | 3.4 | | | 0.1 | | | 62.1 | |
| Delay (s) | 21.2 | 20.7 | 31.3 | 35.1 | 30.2 | | | 11.5 | | | 92.6 | |
| Level of Service | C | C | C | D | C | | | B | | | F | |
| Approach Delay (s) | | 22.0 | | | 32.1 | | | 11.5 | | | 92.6 | |
| Approach LOS | | C | | | C | | | B | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 67.6 | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 18.3 |
| Intersection Capacity Utilization | 105.5% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 13 | 29 | 62 | 0 | 0 | 0 | 0 | 0 | 1208 | 36 |
| Future Volume (vph) | 0 | 0 | 13 | 29 | 62 | 0 | 0 | 0 | 0 | 0 | 1208 | 36 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | |
| Lane Util. Factor | | | 1.00 | 1.00 | 1.00 | | | | | | 0.95 | |
| Frt | | | 0.86 | 1.00 | 1.00 | | | | | | 1.00 | |
| Flt Protected | | | 1.00 | 0.95 | 1.00 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | 1353 | 1486 | 1565 | | | | | | 4800 | |
| Flt Permitted | | | 1.00 | 0.95 | 1.00 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | 1353 | 1486 | 1565 | | | | | | 4800 | |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.69 | 0.69 | 0.69 | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 15 | 42 | 90 | 0 | 0 | 0 | 0 | 0 | 1208 | 36 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 15 | 42 | 90 | 0 | 0 | 0 | 0 | 0 | 1244 | 0 |
| Turn Type | | | Perm | Perm | NA | | | | | | NA | |
| Protected Phases | | | | | 4 | | | | | | 2 | |
| Permitted Phases | | | 2 | 4 | | | | | | | | |
| Actuated Green, G (s) | | | 47.0 | 27.0 | 27.0 | | | | | | 47.0 | |
| Effective Green, g (s) | | | 46.0 | 26.0 | 26.0 | | | | | | 46.0 | |
| Actuated g/C Ratio | | | 0.58 | 0.32 | 0.32 | | | | | | 0.58 | |
| Clearance Time (s) | | | 3.0 | 3.0 | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | | 777 | 482 | 508 | | | | | | 2760 | |
| v/s Ratio Prot | | | | | c0.06 | | | | | | c0.26 | |
| v/s Ratio Perm | | | 0.01 | 0.03 | | | | | | | | |
| v/c Ratio | | | 0.02 | 0.09 | 0.18 | | | | | | 0.45 | |
| Uniform Delay, d1 | | | 7.3 | 18.8 | 19.3 | | | | | | 9.8 | |
| Progression Factor | | | 0.07 | 0.88 | 0.87 | | | | | | 1.00 | |
| Incremental Delay, d2 | | | 0.0 | 0.4 | 0.8 | | | | | | 0.5 | |
| Delay (s) | | | 0.6 | 16.9 | 17.5 | | | | | | 10.3 | |
| Level of Service | | | A | B | B | | | | | | B | |
| Approach Delay (s) | | 0.6 | | | 17.3 | | | 0.0 | | | 10.3 | |
| Approach LOS | | A | | | B | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 10.9 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 60.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 157 | 1041 | 0 | 0 | 0 | 0 | 0 | 1053 | 344 |
| Future Volume (vph) | 0 | 0 | 0 | 157 | 1041 | 0 | 0 | 0 | 0 | 0 | 1053 | 344 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | | | | 6.0 | | | | | | 6.0 | |
| Lane Util. Factor | | | | | 0.95 | | | | | | 0.91 | |
| Frpb, ped/bikes | | | | | 1.00 | | | | | | 0.97 | |
| Flpb, ped/bikes | | | | | 0.99 | | | | | | 1.00 | |
| Frt | | | | | 1.00 | | | | | | 0.96 | |
| Flt Protected | | | | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | | | 3084 | | | | | | 4224 | |
| Flt Permitted | | | | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | | | 3084 | | | | | | 4224 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 162 | 1073 | 0 | 0 | 0 | 0 | 0 | 1086 | 355 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 1217 | 0 | 0 | 0 | 0 | 0 | 1431 | 0 |
| Confl. Peds. (#/hr) | 56 | | 53 | 53 | | 56 | 61 | | 42 | 42 | | 61 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | | | Perm | NA | | | | | | NA | |
| Protected Phases | | | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | | | |
| Actuated Green, G (s) | | | | | 44.0 | | | | | | 54.0 | |
| Effective Green, g (s) | | | | | 44.0 | | | | | | 54.0 | |
| Actuated g/C Ratio | | | | | 0.40 | | | | | | 0.49 | |
| Clearance Time (s) | | | | | 6.0 | | | | | | 6.0 | |
| Lane Grp Cap (vph) | | | | | 1233 | | | | | | 2073 | |
| v/s Ratio Prot | | | | | | | | | | | c0.34 | |
| v/s Ratio Perm | | | | | 0.39 | | | | | | | |
| v/c Ratio | | | | | 0.99 | | | | | | 0.69 | |
| Uniform Delay, d1 | | | | | 32.7 | | | | | | 21.6 | |
| Progression Factor | | | | | 0.27 | | | | | | 0.43 | |
| Incremental Delay, d2 | | | | | 17.3 | | | | | | 1.3 | |
| Delay (s) | | | | | 26.1 | | | | | | 10.6 | |
| Level of Service | | | | | C | | | | | | B | |
| Approach Delay (s) | | 0.0 | | | 26.1 | | | 0.0 | | | 10.6 | |
| Approach LOS | | A | | | C | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 17.7 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 84.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 832 | 150 | 111 | 1100 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 832 | 150 | 111 | 1100 | 0 | 0 | 0 | 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 | | | | | 0.91 | | 1.00 | 0.91 | | | | |
| Frpb, ped/bikes | | | | | 0.96 | | 1.00 | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | | 0.75 | 1.00 | | | | |
| Frt | | | | | 0.98 | | 1.00 | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | 0.95 | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 4142 | | 1162 | 4800 | | | | |
| Flt Permitted | | | | | 1.00 | | 0.95 | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 4142 | | 1162 | 4800 | | | | |
| 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) | 0 | 0 | 0 | 0 | 867 | 156 | 116 | 1146 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 1023 | 0 | 116 | 1146 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 219 | | 297 | 297 | | 219 | 186 | | 264 | 264 | | 186 |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 45.0 | | 57.0 | 57.0 | | | | |
| Effective Green, g (s) | | | | | 46.0 | | 56.0 | 56.0 | | | | |
| Actuated g/C Ratio | | | | | 0.42 | | 0.51 | 0.51 | | | | |
| Clearance Time (s) | | | | | 5.0 | | 3.0 | 3.0 | | | | |
| Lane Grp Cap (vph) | | | | | 1732 | | 591 | 2443 | | | | |
| v/s Ratio Prot | | | | | c0.25 | | | c0.24 | | | | |
| v/s Ratio Perm | | | | | | | 0.10 | | | | | |
| v/c Ratio | | | | | 0.59 | | 0.20 | 0.47 | | | | |
| Uniform Delay, d1 | | | | | 24.7 | | 14.7 | 17.4 | | | | |
| Progression Factor | | | | | 1.04 | | 0.62 | 0.57 | | | | |
| Incremental Delay, d2 | | | | | 1.4 | | 0.6 | 0.6 | | | | |
| Delay (s) | | | | | 27.0 | | 9.8 | 10.5 | | | | |
| Level of Service | | | | | C | | A | B | | | | |
| Approach Delay (s) | | 0.0 | | | 27.0 | | | 10.5 | | | 0.0 | |
| Approach LOS | | A | | | C | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 17.9 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 60.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 171 | 1630 | 0 | 0 | 0 | 0 | 0 | 212 | 366 |
| Future Volume (vph) | 0 | 0 | 0 | 171 | 1630 | 0 | 0 | 0 | 0 | 0 | 212 | 366 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | | | | 4.0 | | | | | | 4.0 | |
| Lane Util. Factor | | | | | 0.91 | | | | | | 0.91 | |
| Frpb, ped/bikes | | | | | 1.00 | | | | | | 1.00 | |
| Flpb, ped/bikes | | | | | 1.00 | | | | | | 1.00 | |
| Frt | | | | | 1.00 | | | | | | 0.91 | |
| Flt Protected | | | | | 1.00 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | | | 4252 | | | | | | 3866 | |
| Flt Permitted | | | | | 1.00 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | | | 4252 | | | | | | 3866 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 0 | 0 | 0 | 174 | 1663 | 0 | 0 | 0 | 0 | 0 | 216 | 373 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 1837 | 0 | 0 | 0 | 0 | 0 | 589 | 0 |
| Confl. Peds. (#/hr) | 6 | | | | | 6 | | | | | | |
| Turn Type | | | | Perm | NA | | | | | | NA | |
| Protected Phases | | | | | 2 | | | | | | 4 | |
| Permitted Phases | | | | 2 | | | | | | | | |
| Actuated Green, G (s) | | | | | 61.0 | | | | | | 23.0 | |
| Effective Green, g (s) | | | | | 60.0 | | | | | | 22.0 | |
| Actuated g/C Ratio | | | | | 0.55 | | | | | | 0.20 | |
| Clearance Time (s) | | | | | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 2319 | | | | | | 773 | |
| v/s Ratio Prot | | | | | | | | | | | c0.15 | |
| v/s Ratio Perm | | | | | 0.43 | | | | | | | |
| v/c Ratio | | | | | 0.79 | | | | | | 1.38dr | |
| Uniform Delay, d1 | | | | | 20.0 | | | | | | 41.5 | |
| Progression Factor | | | | | 1.00 | | | | | | 1.00 | |
| Incremental Delay, d2 | | | | | 2.9 | | | | | | 7.0 | |
| Delay (s) | | | | | 22.9 | | | | | | 48.5 | |
| Level of Service | | | | | C | | | | | | D | |
| Approach Delay (s) | | 0.0 | | | 22.9 | | | 0.0 | | | 48.5 | |
| Approach LOS | | A | | | C | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 29.1 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 65.7% | 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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 11 | 15 | 38 | 46 | 0 | 0 | 0 | 0 | 13 | 1302 | 56 |
| Future Volume (vph) | 0 | 11 | 15 | 38 | 46 | 0 | 0 | 0 | 0 | 13 | 1302 | 56 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | 5.6 | | | | | | 5.6 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | | | | 0.91 | |
| Frt | | 0.92 | | | 1.00 | | | | | | 0.99 | |
| Flt Protected | | 1.00 | | | 0.98 | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1373 | | | 1456 | | | | | | 4037 | |
| Flt Permitted | | 1.00 | | | 0.87 | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1373 | | | 1300 | | | | | | 4037 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 11 | 15 | 38 | 46 | 0 | 0 | 0 | 0 | 13 | 1302 | 56 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 15 | 0 | 0 | 84 | 0 | 0 | 0 | 0 | 0 | 1367 | 0 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | NA | | Perm | NA | | | | | Perm | NA | |
| Protected Phases | | 4 | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | 2 | | |
| Actuated Green, G (s) | | 29.4 | | | 29.4 | | | | | | 69.4 | |
| Effective Green, g (s) | | 29.4 | | | 29.4 | | | | | | 69.4 | |
| Actuated g/C Ratio | | 0.27 | | | 0.27 | | | | | | 0.63 | |
| Clearance Time (s) | | 5.6 | | | 5.6 | | | | | | 5.6 | |
| Lane Grp Cap (vph) | | 366 | | | 347 | | | | | | 2546 | |
| v/s Ratio Prot | | 0.01 | | | | | | | | | | |
| v/s Ratio Perm | | | | | c0.06 | | | | | | 0.34 | |
| v/c Ratio | | 0.04 | | | 0.24 | | | | | | 0.54 | |
| Uniform Delay, d1 | | 29.9 | | | 31.6 | | | | | | 11.3 | |
| Progression Factor | | 0.36 | | | 0.85 | | | | | | 0.19 | |
| Incremental Delay, d2 | | 0.2 | | | 1.6 | | | | | | 0.7 | |
| Delay (s) | | 10.8 | | | 28.6 | | | | | | 2.9 | |
| Level of Service | | B | | | C | | | | | | A | |
| Approach Delay (s) | | 10.8 | | | 28.6 | | | 0.0 | | | 2.9 | |
| Approach LOS | | B | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 4.5 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 55.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 52 | 32 | 120 | 1337 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 52 | 32 | 120 | 1337 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | | | | 0.95 | | | 0.95 | | | | |
| Frt | | | | | 0.94 | | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 2802 | | | 2961 | | | | |
| Flt Permitted | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 2802 | | | 6400 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 0.73 | 0.73 | 0.90 | 0.90 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 71 | 44 | 133 | 1486 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 115 | 0 | 0 | 1619 | 0 | 0 | 0 | 0 |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 27.0 | | | 77.0 | | | | |
| Effective Green, g (s) | | | | | 26.0 | | | 76.0 | | | | |
| Actuated g/C Ratio | | | | | 0.24 | | | 0.69 | | | | |
| Clearance Time (s) | | | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | | | | 662 | | | 4421 | | | | |
| v/s Ratio Prot | | | | | c0.04 | | | | | | | |
| v/s Ratio Perm | | | | | | | | c0.25 | | | | |
| v/c Ratio | | | | | 0.17 | | | 0.37 | | | | |
| Uniform Delay, d1 | | | | | 33.4 | | | 7.0 | | | | |
| Progression Factor | | | | | 1.43 | | | 0.25 | | | | |
| Incremental Delay, d2 | | | | | 0.6 | | | 0.2 | | | | |
| Delay (s) | | | | | 48.4 | | | 1.9 | | | | |
| Level of Service | | | | | D | | | A | | | | |
| Approach Delay (s) | | 0.0 | | | 48.4 | | | 1.9 | | | 0.0 | |
| Approach LOS | | A | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 5.0 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.32 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 57.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 59 | 75 | 0 | 0 | 0 | 0 | 0 | 1228 | 70 | 0 | 0 | 0 |
| Future Volume (vph) | 59 | 75 | 0 | 0 | 0 | 0 | 0 | 1228 | 70 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | 4.0 | 4.0 | | | | | | 4.0 | | | | |
| Lane Util. Factor | 1.00 | 0.95 | | | | | | 0.91 | | | | |
| Frt | 1.00 | 1.00 | | | | | | 0.99 | | | | |
| Flt Protected | 0.95 | 1.00 | | | | | | 1.00 | | | | |
| Satd. Flow (prot) | 1486 | 2973 | | | | | | 4800 | | | | |
| Flt Permitted | 0.95 | 1.00 | | | | | | 1.00 | | | | |
| Satd. Flow (perm) | 1486 | 2973 | | | | | | 4800 | | | | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 65 | 82 | 0 | 0 | 0 | 0 | 0 | 1228 | 70 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 65 | 82 | 0 | 0 | 0 | 0 | 0 | 1298 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | | | | NA | | | | |
| Protected Phases | | 4 | | | | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | 35.0 | 35.0 | | | | | | 69.0 | | | | |
| Effective Green, g (s) | 34.0 | 34.0 | | | | | | 68.0 | | | | |
| Actuated g/C Ratio | 0.31 | 0.31 | | | | | | 0.62 | | | | |
| Clearance Time (s) | 3.0 | 3.0 | | | | | | 3.0 | | | | |
| Lane Grp Cap (vph) | 459 | 918 | | | | | | 2967 | | | | |
| v/s Ratio Prot | | 0.03 | | | | | | c0.27 | | | | |
| v/s Ratio Perm | c0.04 | | | | | | | | | | | |
| v/c Ratio | 0.14 | 0.09 | | | | | | 0.44 | | | | |
| Uniform Delay, d1 | 27.5 | 27.0 | | | | | | 11.0 | | | | |
| Progression Factor | 0.03 | 0.03 | | | | | | 0.33 | | | | |
| Incremental Delay, d2 | 0.4 | 0.1 | | | | | | 0.4 | | | | |
| Delay (s) | 1.4 | 1.1 | | | | | | 4.0 | | | | |
| Level of Service | A | A | | | | | | A | | | | |
| Approach Delay (s) | | 1.2 | | | 0.0 | | | 4.0 | | | 0.0 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 3.7 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.34 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 40.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 34 | 37 | 135 | 0 | 0 | 0 | 0 | 0 | 1775 | 82 |
| Future Volume (vph) | 0 | 0 | 34 | 37 | 135 | 0 | 0 | 0 | 0 | 0 | 1775 | 82 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | | 4.0 | | 4.0 | | | | | | 4.0 | |
| Lane Util. Factor | | | 1.00 | | 0.95 | | | | | | 0.86 | |
| Frt | | | 0.86 | | 1.00 | | | | | | 0.99 | |
| Flt Protected | | | 1.00 | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | 1353 | | 2941 | | | | | | 5347 | |
| Flt Permitted | | | 1.00 | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | 1353 | | 2941 | | | | | | 5347 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 0.75 | 0.71 | 0.71 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.87 | 0.87 |
| Adj. Flow (vph) | 0 | 0 | 45 | 52 | 190 | 0 | 0 | 0 | 0 | 0 | 2040 | 94 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 45 | 0 | 232 | 0 | 0 | 0 | 0 | 0 | 2134 | 0 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| Turn Type | | | Prot | Perm | NA | | | | | | NA | |
| Protected Phases | | | 4 | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | | | |
| Actuated Green, G (s) | | | 29.0 | | 29.0 | | | | | | 72.0 | |
| Effective Green, g (s) | | | 31.0 | | 31.0 | | | | | | 71.0 | |
| Actuated g/C Ratio | | | 0.28 | | 0.28 | | | | | | 0.65 | |
| Clearance Time (s) | | | 6.0 | | 6.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | | 381 | | 828 | | | | | | 3451 | |
| v/s Ratio Prot | | | 0.03 | | | | | | | | c0.40 | |
| v/s Ratio Perm | | | | | 0.08 | | | | | | | |
| v/c Ratio | | | 0.12 | | 0.28 | | | | | | 0.62 | |
| Uniform Delay, d1 | | | 29.3 | | 30.8 | | | | | | 11.5 | |
| Progression Factor | | | 0.97 | | 0.97 | | | | | | 0.18 | |
| Incremental Delay, d2 | | | 0.6 | | 0.8 | | | | | | 0.8 | |
| Delay (s) | | | 29.0 | | 30.8 | | | | | | 2.9 | |
| Level of Service | | | C | | C | | | | | | A | |
| Approach Delay (s) | | 29.0 | | | 30.8 | | | 0.0 | | | 2.9 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 6.2 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 51.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 243 | 658 | 0 | 0 | 0 | 0 | 0 | 1016 | 320 | 0 | 0 | 0 |
| Future Volume (vph) | 243 | 658 | 0 | 0 | 0 | 0 | 0 | 1016 | 320 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | 4.0 | 4.0 | | | | | | 4.0 | | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | | | | 0.95 | | | | |
| Frt | 1.00 | 1.00 | | | | | | 0.96 | | | | |
| Flt Protected | 0.95 | 1.00 | | | | | | 1.00 | | | | |
| Satd. Flow (prot) | 1486 | 4272 | | | | | | 4800 | | | | |
| Flt Permitted | 0.95 | 1.00 | | | | | | 1.00 | | | | |
| Satd. Flow (perm) | 1486 | 4272 | | | | | | 4800 | | | | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 256 | 693 | 0 | 0 | 0 | 0 | 0 | 1069 | 337 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 256 | 693 | 0 | 0 | 0 | 0 | 0 | 1406 | 0 | 0 | 0 | 0 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | | | | NA | | | | |
| Protected Phases | | 4 | | | | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | 42.0 | 42.0 | | | | | | 62.0 | | | | |
| Effective Green, g (s) | 41.0 | 41.0 | | | | | | 61.0 | | | | |
| Actuated g/C Ratio | 0.37 | 0.37 | | | | | | 0.55 | | | | |
| Clearance Time (s) | 3.0 | 3.0 | | | | | | 3.0 | | | | |
| Lane Grp Cap (vph) | 553 | 1592 | | | | | | 2661 | | | | |
| v/s Ratio Prot | | 0.16 | | | | | | c0.29 | | | | |
| v/s Ratio Perm | c0.17 | | | | | | | | | | | |
| v/c Ratio | 0.46 | 0.44 | | | | | | 0.53 | | | | |
| Uniform Delay, d1 | 26.2 | 25.8 | | | | | | 15.4 | | | | |
| Progression Factor | 0.43 | 0.43 | | | | | | 0.24 | | | | |
| Incremental Delay, d2 | 2.5 | 0.8 | | | | | | 0.7 | | | | |
| Delay (s) | 13.8 | 11.8 | | | | | | 4.5 | | | | |
| Level of Service | B | B | | | | | | A | | | | |
| Approach Delay (s) | | 12.4 | | | 0.0 | | | 4.5 | | | 0.0 | |
| Approach LOS | | B | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 7.7 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 64.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 141 | 78 | 0 | 0 | 425 | 36 | 73 | 887 | 27 | 0 | 0 | 0 |
| Future Volume (vph) | 141 | 78 | 0 | 0 | 425 | 36 | 73 | 887 | 27 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | 0.91 | | | | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 0.99 | | | | |
| Flpb, ped/bikes | | 0.99 | | | 1.00 | | | 0.99 | | | | |
| Frt | | 1.00 | | | 0.99 | | | 1.00 | | | | |
| Flt Protected | | 0.97 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | 1507 | | | 2920 | | | 4190 | | | | |
| Flt Permitted | | 0.39 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | 604 | | | 2920 | | | 4190 | | | | |
| 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) | 147 | 81 | 0 | 0 | 443 | 38 | 76 | 924 | 28 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 228 | 0 | 0 | 481 | 0 | 0 | 1028 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 39 | | 97 | 97 | | 39 | 42 | | 57 | 57 | | 42 |
| Turn Type | pm+pt | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | 3 | 3 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 3 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 44.0 | | | 29.0 | | | 57.0 | | | | |
| Effective Green, g (s) | | 42.0 | | | 28.0 | | | 56.0 | | | | |
| Actuated g/C Ratio | | 0.38 | | | 0.25 | | | 0.51 | | | | |
| Clearance Time (s) | | | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 345 | | | 743 | | | 2133 | | | | |
| v/s Ratio Prot | | c0.08 | | | 0.16 | | | | | | | |
| v/s Ratio Perm | | c0.17 | | | | | | 0.25 | | | | |
| v/c Ratio | | 0.66 | | | 0.65 | | | 0.48 | | | | |
| Uniform Delay, d1 | | 28.1 | | | 36.6 | | | 17.6 | | | | |
| Progression Factor | | 1.08 | | | 1.09 | | | 0.31 | | | | |
| Incremental Delay, d2 | | 8.4 | | | 3.7 | | | 0.7 | | | | |
| Delay (s) | | 38.7 | | | 43.5 | | | 6.2 | | | | |
| Level of Service | | D | | | D | | | A | | | | |
| Approach Delay (s) | | 38.7 | | | 43.5 | | | 6.2 | | | 0.0 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 20.8 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 51 | 37 | 0 | 0 | 0 | 0 | 0 | 1372 | 12 |
| Future Volume (vph) | 0 | 0 | 0 | 51 | 37 | 0 | 0 | 0 | 0 | 0 | 1372 | 12 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | | | | 5.6 | | | | | | 5.6 | |
| Lane Util. Factor | | | | | 0.95 | | | | | | 0.91 | |
| Frpb, ped/bikes | | | | | 1.00 | | | | | | 1.00 | |
| Flpb, ped/bikes | | | | | 0.99 | | | | | | 1.00 | |
| Frt | | | | | 1.00 | | | | | | 1.00 | |
| Flt Protected | | | | | 0.97 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | | | 3031 | | | | | | 4507 | |
| Flt Permitted | | | | | 0.97 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | | | 3031 | | | | | | 4507 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 51 | 37 | 0 | 0 | 0 | 0 | 0 | 1372 | 12 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 1383 | 0 |
| Confl. Peds. (#/hr) | 4 | | 7 | 7 | | 4 | 24 | | 17 | 17 | | 24 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | | | Perm | NA | | | | | | NA | |
| Protected Phases | | | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | | | |
| Actuated Green, G (s) | | | | | 29.4 | | | | | | 69.4 | |
| Effective Green, g (s) | | | | | 29.4 | | | | | | 69.4 | |
| Actuated g/C Ratio | | | | | 0.27 | | | | | | 0.63 | |
| Clearance Time (s) | | | | | 5.6 | | | | | | 5.6 | |
| Lane Grp Cap (vph) | | | | | 810 | | | | | | 2843 | |
| v/s Ratio Prot | | | | | | | | | | | c0.31 | |
| v/s Ratio Perm | | | | | 0.02 | | | | | | | |
| v/c Ratio | | | | | 0.06 | | | | | | 0.49 | |
| Uniform Delay, d1 | | | | | 30.0 | | | | | | 10.8 | |
| Progression Factor | | | | | 1.85 | | | | | | 0.04 | |
| Incremental Delay, d2 | | | | | 0.1 | | | | | | 0.5 | |
| Delay (s) | | | | | 55.7 | | | | | | 0.9 | |
| Level of Service | | | | | E | | | | | | A | |
| Approach Delay (s) | | 0.0 | | | 55.7 | | | 0.0 | | | 0.9 | |
| Approach LOS | | A | | | E | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 4.2 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 55.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 2239 | 62 | 98 | 1183 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 2239 | 62 | 98 | 1183 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | | |
| Lane Util. Factor | | | | | 0.81 | | 1.00 | 0.95 | | | | |
| Frt | | | | | 1.00 | | 1.00 | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | 0.95 | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 7500 | | 1486 | 2973 | | | | |
| Flt Permitted | | | | | 1.00 | | 0.95 | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 7500 | | 1486 | 2973 | | | | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 2357 | 65 | 103 | 1245 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 2422 | 0 | 103 | 1245 | 0 | 0 | 0 | 0 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 47.0 | | 57.0 | 57.0 | | | | |
| Effective Green, g (s) | | | | | 46.0 | | 56.0 | 56.0 | | | | |
| Actuated g/C Ratio | | | | | 0.42 | | 0.51 | 0.51 | | | | |
| Clearance Time (s) | | | | | 3.0 | | 3.0 | 3.0 | | | | |
| Lane Grp Cap (vph) | | | | | 3136 | | 756 | 1513 | | | | |
| v/s Ratio Prot | | | | | c0.32 | | | c0.42 | | | | |
| v/s Ratio Perm | | | | | | | 0.07 | | | | | |
| v/c Ratio | | | | | 0.77 | | 0.14 | 0.82 | | | | |
| Uniform Delay, d1 | | | | | 27.5 | | 14.2 | 22.8 | | | | |
| Progression Factor | | | | | 0.43 | | 0.48 | 0.37 | | | | |
| Incremental Delay, d2 | | | | | 1.6 | | 0.2 | 3.1 | | | | |
| Delay (s) | | | | | 13.4 | | 7.1 | 11.7 | | | | |
| Level of Service | | | | | B | | A | B | | | | |
| Approach Delay (s) | | 0.0 | | | 13.4 | | | 11.3 | | | 0.0 | |
| Approach LOS | | A | | | B | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 12.6 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 72.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 60 | 69 | 56 | 360 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 60 | 69 | 56 | 360 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | | | | 0.95 | | | 0.91 | | | | |
| Frpb, ped/bikes | | | | | 0.86 | | | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | | | 0.97 | | | | |
| Frt | | | | | 0.92 | | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (prot) | | | | | 2342 | | | 5250 | | | | |
| Flt Permitted | | | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (perm) | | | | | 2342 | | | 5250 | | | | |
| 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) | 0 | 0 | 0 | 0 | 62 | 72 | 58 | 375 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 135 | 0 | 0 | 433 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 219 | | 297 | 297 | | 219 | 186 | | 264 | 264 | | 186 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 27.0 | | | 47.0 | | | | |
| Effective Green, g (s) | | | | | 26.0 | | | 46.0 | | | | |
| Actuated g/C Ratio | | | | | 0.32 | | | 0.58 | | | | |
| Clearance Time (s) | | | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | | | | 761 | | | 3018 | | | | |
| v/s Ratio Prot | | | | | c0.06 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.08 | | | | |
| v/c Ratio | | | | | 0.18 | | | 0.14 | | | | |
| Uniform Delay, d1 | | | | | 19.3 | | | 7.9 | | | | |
| Progression Factor | | | | | 0.96 | | | 0.18 | | | | |
| Incremental Delay, d2 | | | | | 0.5 | | | 0.1 | | | | |
| Delay (s) | | | | | 19.0 | | | 1.5 | | | | |
| Level of Service | | | | | B | | | A | | | | |
| Approach Delay (s) | | 0.0 | | | 19.0 | | | 1.5 | | | 0.0 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 5.7 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.16 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 60.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 50 | 47 | 0 | 0 | 0 | 0 | 0 | 1299 | 33 |
| Future Volume (vph) | 0 | 0 | 0 | 50 | 47 | 0 | 0 | 0 | 0 | 0 | 1299 | 33 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | | | | 5.6 | | | | | | 5.6 | |
| Lane Util. Factor | | | | | 1.00 | | | | | | 0.91 | |
| Frt | | | | | 1.00 | | | | | | 1.00 | |
| Flt Protected | | | | | 0.97 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1612 | | | | | | 4499 | |
| Flt Permitted | | | | | 0.97 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1612 | | | | | | 4499 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 50 | 47 | 0 | 0 | 0 | 0 | 0 | 1299 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 62 | 0 | 0 | 0 | 0 | 0 | 1330 | 0 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | | | Perm | NA | | | | | | NA | |
| Protected Phases | | | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | | | |
| Actuated Green, G (s) | | | | | 29.4 | | | | | | 69.4 | |
| Effective Green, g (s) | | | | | 29.4 | | | | | | 69.4 | |
| Actuated g/C Ratio | | | | | 0.27 | | | | | | 0.63 | |
| Clearance Time (s) | | | | | 5.6 | | | | | | 5.6 | |
| Lane Grp Cap (vph) | | | | | 430 | | | | | | 2838 | |
| v/s Ratio Prot | | | | | | | | | | | c0.30 | |
| v/s Ratio Perm | | | | | 0.04 | | | | | | | |
| v/c Ratio | | | | | 0.14 | | | | | | 0.47 | |
| Uniform Delay, d1 | | | | | 30.7 | | | | | | 10.6 | |
| Progression Factor | | | | | 0.73 | | | | | | 0.11 | |
| Incremental Delay, d2 | | | | | 0.7 | | | | | | 0.4 | |
| Delay (s) | | | | | 23.1 | | | | | | 1.6 | |
| Level of Service | | | | | C | | | | | | A | |
| Approach Delay (s) | | 0.0 | | | 23.1 | | | 0.0 | | | 1.6 | |
| Approach LOS | | A | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 3.0 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.37 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 45.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 575 | 44 | 51 | 614 | 0 | 0 | 0 | 0 | 55 | 1187 | 82 |
| Future Volume (vph) | 0 | 575 | 44 | 51 | 614 | 0 | 0 | 0 | 0 | 55 | 1187 | 82 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 6.1 | | | 6.1 | | | | | | 6.1 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | | | | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | | 1.00 | |
| Frt | | 0.99 | | | 1.00 | | | | | | 0.99 | |
| Flt Protected | | 1.00 | | | 1.00 | | | | | | 1.00 | |
| Satd. Flow (prot) | | 3101 | | | 3129 | | | | | | 4446 | |
| Flt Permitted | | 1.00 | | | 0.80 | | | | | | 1.00 | |
| Satd. Flow (perm) | | 3101 | | | 2513 | | | | | | 4446 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 0 | 618 | 47 | 55 | 660 | 0 | 0 | 0 | 0 | 59 | 1276 | 88 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 0 | 660 | 0 | 0 | 715 | 0 | 0 | 0 | 0 | 0 | 1416 | 0 |
| Confl. Peds. (#/hr) | 26 | | 16 | 16 | | 26 | 27 | | 19 | 19 | | 27 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | NA | | Perm | NA | | | | | Perm | NA | |
| Protected Phases | | 4 | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | 2 | | |
| Actuated Green, G (s) | | 43.9 | | | 43.9 | | | | | | 53.9 | |
| Effective Green, g (s) | | 43.9 | | | 43.9 | | | | | | 53.9 | |
| Actuated g/C Ratio | | 0.40 | | | 0.40 | | | | | | 0.49 | |
| Clearance Time (s) | | 6.1 | | | 6.1 | | | | | | 6.1 | |
| Lane Grp Cap (vph) | | 1237 | | | 1002 | | | | | | 2178 | |
| v/s Ratio Prot | | 0.21 | | | | | | | | | | |
| v/s Ratio Perm | | | | | c0.28 | | | | | | 0.32 | |
| v/c Ratio | | 0.53 | | | 0.71 | | | | | | 0.65 | |
| Uniform Delay, d1 | | 25.2 | | | 27.8 | | | | | | 21.0 | |
| Progression Factor | | 0.41 | | | 0.52 | | | | | | 0.27 | |
| Incremental Delay, d2 | | 1.5 | | | 2.9 | | | | | | 1.3 | |
| Delay (s) | | 11.9 | | | 17.2 | | | | | | 7.1 | |
| Level of Service | | B | | | B | | | | | | A | |
| Approach Delay (s) | | 11.9 | | | 17.2 | | | 0.0 | | | 7.1 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 10.8 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.2 |
| Intersection Capacity Utilization | 88.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 1595 | 191 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 366 | 0 |
| Future Volume (vph) | 0 | 1595 | 191 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 366 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | 4.0 | | | | | | | | 4.0 | 4.0 | |
| Lane Util. Factor | | 0.91 | | | | | | | | 1.00 | 0.95 | |
| Frpb, ped/bikes | | 1.00 | | | | | | | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | | | | | | 1.00 | 1.00 | |
| Frt | | 0.98 | | | | | | | | 1.00 | 1.00 | |
| Flt Protected | | 1.00 | | | | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 4191 | | | | | | | | 1486 | 2973 | |
| Flt Permitted | | 1.00 | | | | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 4191 | | | | | | | | 1486 | 2973 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 0 | 1792 | 215 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 411 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 2007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 411 | 0 |
| Confl. Peds. (#/hr) | | | 8 | | | | 39 | | | | | 39 |
| Turn Type | | NA | | | | | | | | Prot | NA | |
| Protected Phases | | 2 | | | | | | | | 1 | 4 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | 70.0 | | | | | | | | 19.0 | 34.0 | |
| Effective Green, g (s) | | 69.0 | | | | | | | | 18.0 | 33.0 | |
| Actuated g/C Ratio | | 0.63 | | | | | | | | 0.16 | 0.30 | |
| Clearance Time (s) | | 3.0 | | | | | | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 2628 | | | | | | | | 243 | 891 | |
| v/s Ratio Prot | | c0.48 | | | | | | | | 0.03 | c0.14 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | 0.76 | | | | | | | | 0.21 | 0.46 | |
| Uniform Delay, d1 | | 14.7 | | | | | | | | 39.9 | 31.3 | |
| Progression Factor | | 0.13 | | | | | | | | 0.76 | 0.78 | |
| Incremental Delay, d2 | | 1.4 | | | | | | | | 1.5 | 1.3 | |
| Delay (s) | | 3.3 | | | | | | | | 31.8 | 25.7 | |
| Level of Service | | A | | | | | | | | C | C | |
| Approach Delay (s) | | 3.3 | | | 0.0 | | | 0.0 | | | 26.4 | |
| Approach LOS | | A | | | A | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 7.6 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 65.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 5 | 10 | 0 | 0 | 0 | 66 | 0 | 997 | 37 | 0 | 0 | 0 |
| Future Volume (vph) | 5 | 10 | 0 | 0 | 0 | 66 | 0 | 997 | 37 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | 4.0 | | | | 4.0 | | 4.0 | | | | |
| Lane Util. Factor | | 1.00 | | | | 1.00 | | 0.91 | | | | |
| Frt | | 1.00 | | | | 0.86 | | 0.99 | | | | |
| Flt Protected | | 0.98 | | | | 1.00 | | 1.00 | | | | |
| Satd. Flow (prot) | | 1539 | | | | 1353 | | 4249 | | | | |
| Flt Permitted | | 0.98 | | | | 1.00 | | 1.00 | | | | |
| Satd. Flow (perm) | | 1539 | | | | 1353 | | 4249 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.80 | 0.80 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 5 | 10 | 0 | 0 | 0 | 66 | 0 | 1246 | 46 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 11 | 0 | 0 | 0 | 66 | 0 | 1292 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | | Perm | | NA | | | | |
| Protected Phases | | 4 | | | | | | 2 | | | | |
| Permitted Phases | 4 | | | | | 4 | | | | | | |
| Actuated Green, G (s) | | 27.0 | | | | 27.0 | | 77.0 | | | | |
| Effective Green, g (s) | | 26.0 | | | | 26.0 | | 76.0 | | | | |
| Actuated g/C Ratio | | 0.24 | | | | 0.24 | | 0.69 | | | | |
| Clearance Time (s) | | 3.0 | | | | 3.0 | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 363 | | | | 319 | | 2935 | | | | |
| v/s Ratio Prot | | | | | | | | c0.30 | | | | |
| v/s Ratio Perm | | 0.01 | | | | c0.05 | | | | | | |
| v/c Ratio | | 0.03 | | | | 0.21 | | 0.44 | | | | |
| Uniform Delay, d1 | | 32.3 | | | | 33.7 | | 7.6 | | | | |
| Progression Factor | | 1.00 | | | | 1.00 | | 0.27 | | | | |
| Incremental Delay, d2 | | 0.2 | | | | 1.5 | | 0.4 | | | | |
| Delay (s) | | 32.5 | | | | 35.2 | | 2.5 | | | | |
| Level of Service | | C | | | | D | | A | | | | |
| Approach Delay (s) | | 32.5 | | | 35.2 | | | 2.5 | | | 0.0 | |
| Approach LOS | | C | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 4.4 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.38 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 44.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 122 | 624 | 0 | 0 | 0 | 0 | 0 | 313 | 30 | 0 | 0 | 0 |
| Future Volume (vph) | 122 | 624 | 0 | 0 | 0 | 0 | 0 | 313 | 30 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | | | | 5.6 | | | | |
| Lane Util. Factor | | 0.95 | | | | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | | | | 1.00 | | | | |
| Flpb, ped/bikes | | 1.00 | | | | | | 1.00 | | | | |
| Frt | | 1.00 | | | | | | 0.99 | | | | |
| Flt Protected | | 0.99 | | | | | | 1.00 | | | | |
| Satd. Flow (prot) | | 3109 | | | | | | 3093 | | | | |
| Flt Permitted | | 0.99 | | | | | | 1.00 | | | | |
| Satd. Flow (perm) | | 3109 | | | | | | 3093 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 122 | 624 | 0 | 0 | 0 | 0 | 0 | 313 | 30 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 730 | 0 | 0 | 0 | 0 | 0 | 336 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 9 | | 6 | 6 | | 9 | 9 | | 12 | 12 | | 9 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | | | | | NA | | | | |
| Protected Phases | | 4 | | | | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | | 44.4 | | | | | | 54.4 | | | | |
| Effective Green, g (s) | | 44.4 | | | | | | 54.4 | | | | |
| Actuated g/C Ratio | | 0.40 | | | | | | 0.49 | | | | |
| Clearance Time (s) | | 5.6 | | | | | | 5.6 | | | | |
| Lane Grp Cap (vph) | | 1254 | | | | | | 1529 | | | | |
| v/s Ratio Prot | | | | | | | | c0.11 | | | | |
| v/s Ratio Perm | | 0.23 | | | | | | | | | | |
| v/c Ratio | | 0.58 | | | | | | 0.22 | | | | |
| Uniform Delay, d1 | | 25.6 | | | | | | 15.8 | | | | |
| Progression Factor | | 0.10 | | | | | | 1.32 | | | | |
| Incremental Delay, d2 | | 1.6 | | | | | | 0.3 | | | | |
| Delay (s) | | 4.1 | | | | | | 21.1 | | | | |
| Level of Service | | A | | | | | | C | | | | |
| Approach Delay (s) | | 4.1 | | | 0.0 | | | 21.1 | | | 0.0 | |
| Approach LOS | | A | | | A | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 9.5 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.38 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 53.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 679 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 1221 | 0 |
| Future Volume (vph) | 0 | 679 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 1221 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | | | | | | | 5.6 | |
| Lane Util. Factor | | 0.95 | | | | | | | | | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | | | | | | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | | | | | | | 1.00 | |
| Frt | | 0.98 | | | | | | | | | 1.00 | |
| Flt Protected | | 1.00 | | | | | | | | | 1.00 | |
| Satd. Flow (prot) | | 3072 | | | | | | | | | 4510 | |
| Flt Permitted | | 1.00 | | | | | | | | | 1.00 | |
| Satd. Flow (perm) | | 3072 | | | | | | | | | 4510 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 679 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 1221 | 0 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 0 | 768 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1227 | 0 |
| Confl. Peds. (#/hr) | 8 | | 8 | 8 | | 8 | 28 | | 16 | 16 | | 28 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | NA | | | | | | | | Perm | NA | |
| Protected Phases | | 4 | | | | | | | | | 2 | |
| Permitted Phases | | | | | | | | | | 2 | | |
| Actuated Green, G (s) | | 44.4 | | | | | | | | | 54.4 | |
| Effective Green, g (s) | | 44.4 | | | | | | | | | 54.4 | |
| Actuated g/C Ratio | | 0.40 | | | | | | | | | 0.49 | |
| Clearance Time (s) | | 5.6 | | | | | | | | | 5.6 | |
| Lane Grp Cap (vph) | | 1239 | | | | | | | | | 2230 | |
| v/s Ratio Prot | | c0.25 | | | | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | | 0.27 | |
| v/c Ratio | | 0.62 | | | | | | | | | 0.55 | |
| Uniform Delay, d1 | | 26.1 | | | | | | | | | 19.3 | |
| Progression Factor | | 0.20 | | | | | | | | | 0.23 | |
| Incremental Delay, d2 | | 1.3 | | | | | | | | | 0.7 | |
| Delay (s) | | 6.4 | | | | | | | | | 5.1 | |
| Level of Service | | A | | | | | | | | | A | |
| Approach Delay (s) | | 6.4 | | | 0.0 | | | 0.0 | | | 5.1 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 5.6 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 64.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 650 | 0 | 0 | 0 | 0 | 1119 |
| Future Volume (vph) | 650 | 0 | 0 | 0 | 0 | 1119 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | 4.0 | | | | | 4.0 |
| Lane Util. Factor | 0.97 | | | | | 0.91 |
| Frt | 1.00 | | | | | 1.00 |
| Flt Protected | 0.95 | | | | | 1.00 |
| Satd. Flow (prot) | 2884 | | | | | 4272 |
| Flt Permitted | 0.95 | | | | | 1.00 |
| Satd. Flow (perm) | 2884 | | | | | 4272 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.90 |
| Adj. Flow (vph) | 650 | 0 | 0 | 0 | 0 | 1243 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 650 | 0 | 0 | 0 | 0 | 1243 |
| Turn Type | Prot | | | | | NA |
| Protected Phases | 4 | | | | | 2 |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 42.0 | | | | | 62.0 |
| Effective Green, g (s) | 41.0 | | | | | 61.0 |
| Actuated g/C Ratio | 0.37 | | | | | 0.55 |
| Clearance Time (s) | 3.0 | | | | | 3.0 |
| Lane Grp Cap (vph) | 1074 | | | | | 2369 |
| v/s Ratio Prot | c0.23 | | | | | c0.29 |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.61 | | | | | 0.52 |
| Uniform Delay, d1 | 27.9 | | | | | 15.4 |
| Progression Factor | 0.44 | | | | | 1.00 |
| Incremental Delay, d2 | 2.1 | | | | | 0.8 |
| Delay (s) | 14.3 | | | | | 16.2 |
| Level of Service | B | | | | | B |
| Approach Delay (s) | 14.3 | | 0.0 | | | 16.2 |
| Approach LOS | B | | A | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 15.6 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 75.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 164 | 64 | 181 | 275 | 0 | 0 | 0 | 0 | 60 | 1610 | 116 |
| Future Volume (vph) | 0 | 164 | 64 | 181 | 275 | 0 | 0 | 0 | 0 | 60 | 1610 | 116 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | | | | 0.91 | |
| Frpb, ped/bikes | | 0.98 | | | 1.00 | | | | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 0.99 | | | | | | 0.99 | |
| Frt | | 0.96 | | | 1.00 | | | | | | 0.99 | |
| Flt Protected | | 1.00 | | | 0.98 | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1478 | | | 2876 | | | | | | 4500 | |
| Flt Permitted | | 1.00 | | | 0.69 | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1478 | | | 2034 | | | | | | 4189 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 169 | 66 | 187 | 284 | 0 | 0 | 0 | 0 | 62 | 1660 | 120 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 235 | 0 | 0 | 471 | 0 | 0 | 0 | 0 | 0 | 1842 | 0 |
| Confl. Peds. (#/hr) | 38 | | 39 | 39 | | 38 | 3 | | 90 | 90 | | 3 |
| Turn Type | | NA | | Perm | NA | | | | | Perm | NA | |
| Protected Phases | | 4 | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | 2 | | |
| Actuated Green, G (s) | | 45.0 | | | 45.0 | | | | | | 59.0 | |
| Effective Green, g (s) | | 44.0 | | | 44.0 | | | | | | 58.0 | |
| Actuated g/C Ratio | | 0.40 | | | 0.40 | | | | | | 0.53 | |
| Clearance Time (s) | | 3.0 | | | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 591 | | | 813 | | | | | | 2208 | |
| v/s Ratio Prot | | 0.16 | | | | | | | | | | |
| v/s Ratio Perm | | | | | c0.23 | | | | | | c0.44 | |
| v/c Ratio | | 0.40 | | | 0.58 | | | | | | 0.83 | |
| Uniform Delay, d1 | | 23.5 | | | 25.8 | | | | | | 21.9 | |
| Progression Factor | | 0.29 | | | 0.38 | | | | | | 0.68 | |
| Incremental Delay, d2 | | 1.9 | | | 2.4 | | | | | | 3.3 | |
| Delay (s) | | 8.7 | | | 12.1 | | | | | | 18.2 | |
| Level of Service | | A | | | B | | | | | | B | |
| Approach Delay (s) | | 8.7 | | | 12.1 | | | 0.0 | | | 18.2 | |
| Approach LOS | | A | | | B | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 16.2 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 91.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 44 | 7 | 26 | 350 | 4 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 44 | 7 | 26 | 350 | 4 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | | | | 5.6 | | | 5.6 | | | | |
| Lane Util. Factor | | | | | 1.00 | | | 0.95 | | | | |
| Frpb, ped/bikes | | | | | 1.00 | | | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | | | 1.00 | | | | |
| Frt | | | | | 0.98 | | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 1616 | | | 3123 | | | | |
| Flt Permitted | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 1616 | | | 3123 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 44 | 7 | 26 | 350 | 4 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 6 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 46 | 0 | 0 | 374 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 12 | | 9 | 9 | | 12 | 5 | | 3 | 3 | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 33.4 | | | 65.4 | | | | |
| Effective Green, g (s) | | | | | 33.4 | | | 65.4 | | | | |
| Actuated g/C Ratio | | | | | 0.30 | | | 0.59 | | | | |
| Clearance Time (s) | | | | | 5.6 | | | 5.6 | | | | |
| Lane Grp Cap (vph) | | | | | 490 | | | 1856 | | | | |
| v/s Ratio Prot | | | | | c0.03 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.12 | | | | |
| v/c Ratio | | | | | 0.09 | | | 0.20 | | | | |
| Uniform Delay, d1 | | | | | 27.5 | | | 10.3 | | | | |
| Progression Factor | | | | | 1.00 | | | 0.21 | | | | |
| Incremental Delay, d2 | | | | | 0.4 | | | 0.2 | | | | |
| Delay (s) | | | | | 27.8 | | | 2.4 | | | | |
| Level of Service | | | | | C | | | A | | | | |
| Approach Delay (s) | | 0.0 | | | 27.8 | | | 2.4 | | | 0.0 | |
| Approach LOS | | A | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 5.4 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.17 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 44.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 25 | 21 | 0 | 0 | 71 | 27 | 32 | 681 | 34 | 0 | 0 | 0 |
| Future Volume (vph) | 25 | 21 | 0 | 0 | 71 | 27 | 32 | 681 | 34 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 0.95 | | | | |
| Frt | | 1.00 | | | 0.96 | | | 0.99 | | | | |
| Flt Protected | | 0.97 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | 1523 | | | 1507 | | | 3500 | | | | |
| Flt Permitted | | 0.87 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | 1354 | | | 1507 | | | 3500 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 25 | 21 | 0 | 0 | 71 | 27 | 32 | 681 | 34 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 46 | 0 | 0 | 98 | 0 | 0 | 743 | 0 | 0 | 0 | 0 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 23.0 | | | 23.0 | | | 51.0 | | | | |
| Effective Green, g (s) | | 22.0 | | | 22.0 | | | 50.0 | | | | |
| Actuated g/C Ratio | | 0.28 | | | 0.28 | | | 0.62 | | | | |
| Clearance Time (s) | | 3.0 | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 372 | | | 414 | | | 2187 | | | | |
| v/s Ratio Prot | | | | | c0.07 | | | | | | | |
| v/s Ratio Perm | | 0.03 | | | | | | 0.21 | | | | |
| v/c Ratio | | 0.12 | | | 0.24 | | | 0.34 | | | | |
| Uniform Delay, d1 | | 21.8 | | | 22.5 | | | 7.1 | | | | |
| Progression Factor | | 0.78 | | | 0.76 | | | 0.04 | | | | |
| Incremental Delay, d2 | | 0.7 | | | 1.3 | | | 0.4 | | | | |
| Delay (s) | | 17.6 | | | 18.3 | | | 0.7 | | | | |
| Level of Service | | B | | | B | | | A | | | | |
| Approach Delay (s) | | 17.6 | | | 18.3 | | | 0.7 | | | 0.0 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 3.5 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.31 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 39.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 15 | 30 | 0 | 0 | 23 | 19 | 7 | 318 | 11 | 0 | 0 | 0 |
| Future Volume (vph) | 15 | 30 | 0 | 0 | 23 | 19 | 7 | 318 | 11 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | 5.6 | | | 4.6 | | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | 0.98 | | | 1.00 | | | | |
| Flpb, ped/bikes | | 0.99 | | | 1.00 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.94 | | | 1.00 | | | | |
| Flt Protected | | 0.98 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | 1610 | | | 1522 | | | 3117 | | | | |
| Flt Permitted | | 0.93 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | 1522 | | | 1522 | | | 3117 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 15 | 30 | 0 | 0 | 23 | 19 | 7 | 318 | 11 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 45 | 0 | 0 | 30 | 0 | 0 | 334 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 19 | | 13 | 13 | | 19 | 16 | | 7 | 7 | | 16 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 39.4 | | | 39.4 | | | 60.4 | | | | |
| Effective Green, g (s) | | 39.4 | | | 39.4 | | | 60.4 | | | | |
| Actuated g/C Ratio | | 0.36 | | | 0.36 | | | 0.55 | | | | |
| Clearance Time (s) | | 5.6 | | | 5.6 | | | 4.6 | | | | |
| Lane Grp Cap (vph) | | 545 | | | 545 | | | 1711 | | | | |
| v/s Ratio Prot | | | | | 0.02 | | | | | | | |
| v/s Ratio Perm | | c0.03 | | | | | | 0.11 | | | | |
| v/c Ratio | | 0.08 | | | 0.05 | | | 0.20 | | | | |
| Uniform Delay, d1 | | 23.3 | | | 23.1 | | | 12.5 | | | | |
| Progression Factor | | 0.86 | | | 1.00 | | | 0.19 | | | | |
| Incremental Delay, d2 | | 0.3 | | | 0.2 | | | 0.3 | | | | |
| Delay (s) | | 20.3 | | | 23.3 | | | 2.7 | | | | |
| Level of Service | | C | | | C | | | A | | | | |
| Approach Delay (s) | | 20.3 | | | 23.3 | | | 2.7 | | | 0.0 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 6.6 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.15 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 10.2 |
| Intersection Capacity Utilization | 40.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

Description: As provided 1651 - Intersection Timing Sheets use 1702 split 6

c Critical Lane Group

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 64 | 0 | 211 | 230 | 0 | 0 |
| Future Volume (vph) | 64 | 0 | 211 | 230 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | 5.6 | | | 5.6 | | |
| Lane Util. Factor | 1.00 | | | 0.95 | | |
| Frpb, ped/bikes | 1.00 | | | 1.00 | | |
| Flpb, ped/bikes | 1.00 | | | 0.99 | | |
| Frt | 1.00 | | | 1.00 | | |
| Flt Protected | 0.95 | | | 0.98 | | |
| Satd. Flow (prot) | 1571 | | | 3029 | | |
| Flt Permitted | 0.95 | | | 0.98 | | |
| Satd. Flow (perm) | 1571 | | | 3029 | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 64 | 0 | 211 | 230 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 64 | 0 | 0 | 441 | 0 | 0 |
| Confl. Peds. (#/hr) | 13 | 9 | 9 | | | 9 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Prot | | Perm | NA | | |
| Protected Phases | 4 | | | 2 | | |
| Permitted Phases | | | 2 | | | |
| Actuated Green, G (s) | 39.4 | | | 59.4 | | |
| Effective Green, g (s) | 39.4 | | | 59.4 | | |
| Actuated g/C Ratio | 0.36 | | | 0.54 | | |
| Clearance Time (s) | 5.6 | | | 5.6 | | |
| Lane Grp Cap (vph) | 562 | | | 1635 | | |
| v/s Ratio Prot | c0.04 | | | | | |
| v/s Ratio Perm | | | | 0.15 | | |
| v/c Ratio | 0.11 | | | 0.27 | | |
| Uniform Delay, d1 | 23.6 | | | 13.6 | | |
| Progression Factor | 1.00 | | | 0.43 | | |
| Incremental Delay, d2 | 0.4 | | | 0.4 | | |
| Delay (s) | 24.0 | | | 6.3 | | |
| Level of Service | C | | | A | | |
| Approach Delay (s) | 24.0 | | | 6.3 | 0.0 | |
| Approach LOS | C | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 8.5 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.21 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 43.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 5 | 18 | 10 | 15 | 10 | 5 | 12 | 6 | 12 | 15 | 1483 | 15 |
| Future Volume (vph) | 5 | 18 | 10 | 15 | 10 | 5 | 12 | 6 | 12 | 15 | 1483 | 15 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | 5.6 | | | 5.6 | | | 5.6 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 0.95 | |
| Frt | | 0.96 | | | 0.98 | | | 0.95 | | | 1.00 | |
| Flt Protected | | 0.99 | | | 0.98 | | | 0.98 | | | 1.00 | |
| Satd. Flow (prot) | | 1544 | | | 1546 | | | 1504 | | | 3075 | |
| Flt Permitted | | 0.97 | | | 0.89 | | | 0.69 | | | 0.95 | |
| Satd. Flow (perm) | | 1513 | | | 1410 | | | 1065 | | | 2932 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 5 | 18 | 10 | 15 | 10 | 5 | 12 | 6 | 12 | 15 | 1483 | 15 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 25 | 0 | 0 | 26 | 0 | 0 | 26 | 0 | 0 | 1512 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | 2 | |
| Permitted Phases | 4 | | | 4 | | | 2 | | | 2 | | |
| Actuated Green, G (s) | | 25.4 | | | 25.4 | | | 73.4 | | | 73.4 | |
| Effective Green, g (s) | | 25.4 | | | 25.4 | | | 73.4 | | | 73.4 | |
| Actuated g/C Ratio | | 0.23 | | | 0.23 | | | 0.67 | | | 0.67 | |
| Clearance Time (s) | | 5.6 | | | 5.6 | | | 5.6 | | | 5.6 | |
| Lane Grp Cap (vph) | | 349 | | | 325 | | | 710 | | | 1956 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.02 | | | c0.02 | | | 0.02 | | | c0.52 | |
| v/c Ratio | | 0.07 | | | 0.08 | | | 0.04 | | | 0.77 | |
| Uniform Delay, d1 | | 33.1 | | | 33.1 | | | 6.2 | | | 12.6 | |
| Progression Factor | | 1.00 | | | 1.23 | | | 2.81 | | | 0.20 | |
| Incremental Delay, d2 | | 0.4 | | | 0.5 | | | 0.1 | | | 0.3 | |
| Delay (s) | | 33.5 | | | 41.1 | | | 17.7 | | | 2.8 | |
| Level of Service | | C | | | D | | | B | | | A | |
| Approach Delay (s) | | 33.5 | | | 41.1 | | | 17.7 | | | 2.8 | |
| Approach LOS | | C | | | D | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 4.4 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 63.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

# Existing

# HCM Reports

# PM Peak Hour

# HCM Signalized Intersection Capacity Analysis
## 41: St. Paul (Upper) & Franklin St

10/28/2015

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 113 | 1805 | 0 | 0 | 0 | 0 | 0 | 225 | 249 |
| Future Volume (vph) | 0 | 0 | 0 | 113 | 1805 | 0 | 0 | 0 | 0 | 0 | 225 | 249 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | | | | | 4.0 | |
| Lane Util. Factor | | | | | 0.91 | | | | | | 0.91 | |
| Frpb, ped/bikes | | | | | 1.00 | | | | | | 1.00 | |
| Flpb, ped/bikes | | | | | 1.00 | | | | | | 1.00 | |
| Frt | | | | | 1.00 | | | | | | 0.92 | |
| Flt Protected | | | | | 1.00 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | | | 4259 | | | | | | 3935 | |
| Flt Permitted | | | | | 1.00 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | | | 4259 | | | | | | 3935 | |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 0 | 0 | 0 | 114 | 1823 | 0 | 0 | 0 | 0 | 0 | 227 | 252 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 201 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 1923 | 0 | 0 | 0 | 0 | 0 | 278 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | 1 | 1 | | |
| Turn Type | | | | Perm | NA | | | | | | NA | |
| Protected Phases | | | | | 2 | | | | | | 4 | |
| Permitted Phases | | | | 2 | | | | | | | | |
| Actuated Green, G (s) | | | | | 59.0 | | | | | | 15.0 | |
| Effective Green, g (s) | | | | | 58.0 | | | | | | 14.0 | |
| Actuated g/C Ratio | | | | | 0.58 | | | | | | 0.14 | |
| Clearance Time (s) | | | | | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 2470 | | | | | | 550 | |
| v/s Ratio Prot | | | | | | | | | | | c0.07 | |
| v/s Ratio Perm | | | | | 0.45 | | | | | | | |
| v/c Ratio | | | | | 0.78 | | | | | | 0.51 | |
| Uniform Delay, d1 | | | | | 16.1 | | | | | | 39.8 | |
| Progression Factor | | | | | 1.00 | | | | | | 1.00 | |
| Incremental Delay, d2 | | | | | 2.5 | | | | | | 3.3 | |
| Delay (s) | | | | | 18.6 | | | | | | 43.1 | |
| Level of Service | | | | | B | | | | | | D | |
| Approach Delay (s) | | 0.0 | | | 18.6 | | | 0.0 | | | 43.1 | |
| Approach LOS | | A | | | B | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 23.4 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 59.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL2 | EBT | EBR | WBL2 | WBT | WBR | NBR2 | SBL | SBT | SBR2 | NER2 | SWL2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 19 | 264 | 141 | 40 | 402 | 538 | 13 | 45 | 305 | 10 | 0 | 6 |
| Future Volume (vph) | 19 | 264 | 141 | 40 | 402 | 538 | 13 | 45 | 305 | 10 | 0 | 6 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 8.1 | 8.1 | | 8.1 | 8.1 | 8.1 | | 7.1 | | | 7.1 |
| Lane Util. Factor | | 0.95 | 1.00 | | 0.91 | 0.91 | 1.00 | | 0.95 | | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.95 | | 0.99 | 0.97 | 0.98 | | 1.00 | | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | | | 0.99 |
| Frt | | 1.00 | 0.85 | | 0.95 | 0.85 | 0.86 | | 1.00 | | | 1.00 |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 0.99 | | | 0.95 |
| Satd. Flow (prot) | | 3070 | 1306 | | 2764 | 1221 | 1376 | | 3042 | | | 1530 |
| Flt Permitted | | 0.83 | 1.00 | | 0.90 | 1.00 | 1.00 | | 0.99 | | | 0.95 |
| Satd. Flow (perm) | | 2561 | 1306 | | 2487 | 1221 | 1376 | | 3042 | | | 1530 |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 22 | 300 | 160 | 45 | 457 | 611 | 15 | 51 | 347 | 11 | 0 | 7 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 322 | 160 | 0 | 759 | 354 | 15 | 0 | 409 | 0 | 0 | 7 |
| Confl. Peds. (#/hr) | 11 | | 30 | 30 | | 11 | 5 | 5 | | 40 | 30 | 5 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | Perm | NA | | Free | Perm |
| Protected Phases | | 2 | | | 2 | | | | 3 | | | |
| Permitted Phases | 2 | | 2 | 2 | | 2 | 2 3 4 | 3 | | | Free | 4 |
| Actuated Green, G (s) | | 64.9 | 64.9 | | 64.9 | 64.9 | 165.0 | | 39.9 | | | 37.9 |
| Effective Green, g (s) | | 64.9 | 64.9 | | 64.9 | 64.9 | 150.8 | | 39.9 | | | 37.9 |
| Actuated g/C Ratio | | 0.39 | 0.39 | | 0.39 | 0.39 | 0.91 | | 0.24 | | | 0.23 |
| Clearance Time (s) | | 8.1 | 8.1 | | 8.1 | 8.1 | | | 7.1 | | | 7.1 |
| Lane Grp Cap (vph) | | 1007 | 513 | | 978 | 480 | 1257 | | 735 | | | 351 |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.13 | 0.12 | | c0.31 | 0.29 | 0.01 | | 0.13 | | | 0.00 |
| v/c Ratio | | 0.32 | 0.31 | | 0.78 | 0.74 | 0.01 | | 0.56 | | | 0.02 |
| Uniform Delay, d1 | | 34.7 | 34.6 | | 43.7 | 42.8 | 0.6 | | 54.8 | | | 49.2 |
| Progression Factor | | 0.47 | 0.47 | | 0.76 | 0.75 | 1.00 | | 1.00 | | | 1.00 |
| Incremental Delay, d2 | | 0.8 | 1.5 | | 5.1 | 8.2 | 0.0 | | 3.0 | | | 0.1 |
| Delay (s) | | 17.1 | 17.7 | | 38.2 | 40.3 | 0.6 | | 57.8 | | | 49.3 |
| Level of Service | | B | B | | D | D | A | | E | | | D |
| Approach Delay (s) | | 17.3 | | | 38.9 | | | | 57.8 | | | |
| Approach LOS | | B | | | D | | | | E | | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 37.7 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 165.0 | Sum of lost time (s) | 22.3 |
| Intersection Capacity Utilization | 127.8% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SWL | SWT | SWR | SWR2 |
|---|---|---|---|---|
| Lane Configurations | | | | |
| Traffic Volume (vph) | 30 | 0 | 12 | 6 |
| Future Volume (vph) | 30 | 0 | 12 | 6 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 |
| Total Lost time (s) | 7.1 | 7.1 | | |
| Lane Util. Factor | 1.00 | 1.00 | | |
| Frpb, ped/bikes | 1.00 | 0.92 | | |
| Flpb, ped/bikes | 0.96 | 1.00 | | |
| Frt | 1.00 | 0.85 | | |
| Flt Protected | 0.95 | 1.00 | | |
| Satd. Flow (prot) | 1479 | 1270 | | |
| Flt Permitted | 0.95 | 1.00 | | |
| Satd. Flow (perm) | 1479 | 1270 | | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 34 | 0 | 14 | 7 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 34 | 21 | 0 | 0 |
| Confl. Peds. (#/hr) | 30 | | 40 | 11 |
| Turn Type | Perm | NA | | |
| Protected Phases | | 4 | | |
| Permitted Phases | 4 | | | |
| Actuated Green, G (s) | 37.9 | 37.9 | | |
| Effective Green, g (s) | 37.9 | 37.9 | | |
| Actuated g/C Ratio | 0.23 | 0.23 | | |
| Clearance Time (s) | 7.1 | 7.1 | | |
| Lane Grp Cap (vph) | 339 | 291 | | |
| v/s Ratio Prot | | 0.02 | | |
| v/s Ratio Perm | c0.02 | | | |
| v/c Ratio | 0.10 | 0.07 | | |
| Uniform Delay, d1 | 50.1 | 49.8 | | |
| Progression Factor | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 0.6 | 0.5 | | |
| Delay (s) | 50.7 | 50.3 | | |
| Level of Service | D | D | | |
| Approach Delay (s) | | 50.4 | | |
| Approach LOS | | D | | |

Intersection Summary

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 29 | 309 | 0 | 0 | 300 | 17 | 680 | 39 | 123 | 0 | 0 | 0 |
| Future Volume (vph) | 29 | 309 | 0 | 0 | 300 | 17 | 680 | 39 | 123 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | 6.6 | 6.6 | | | 6.6 | | 6.6 | 6.6 | | | | |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | | 0.95 | 0.95 | | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 0.99 | | 1.00 | 0.98 | | | | |
| Flpb, ped/bikes | 0.96 | 1.00 | | | 1.00 | | 0.99 | 1.00 | | | | |
| Frt | 1.00 | 1.00 | | | 0.99 | | 1.00 | 0.96 | | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.97 | | | | |
| Satd. Flow (prot) | 1479 | 1622 | | | 1600 | | 1454 | 1388 | | | | |
| Flt Permitted | 0.43 | 1.00 | | | 1.00 | | 0.95 | 0.97 | | | | |
| Satd. Flow (perm) | 663 | 1622 | | | 1600 | | 1454 | 1388 | | | | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 31 | 332 | 0 | 0 | 323 | 18 | 731 | 42 | 132 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 9 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 31 | 332 | 0 | 0 | 340 | 0 | 461 | 435 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 28 | | 22 | 22 | | 28 | 4 | | 23 | 23 | | 4 |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 2 | | | 2 | | | 4 | | | | |
| Permitted Phases | 2 | | | | 2 | | 4 | | | | | |
| Actuated Green, G (s) | 68.4 | 68.4 | | | 68.4 | | 83.4 | 83.4 | | | | |
| Effective Green, g (s) | 68.4 | 68.4 | | | 68.4 | | 83.4 | 83.4 | | | | |
| Actuated g/C Ratio | 0.41 | 0.41 | | | 0.41 | | 0.51 | 0.51 | | | | |
| Clearance Time (s) | 6.6 | 6.6 | | | 6.6 | | 6.6 | 6.6 | | | | |
| Lane Grp Cap (vph) | 274 | 672 | | | 663 | | 734 | 701 | | | | |
| v/s Ratio Prot | | 0.20 | | | c0.21 | | | | | | | |
| v/s Ratio Perm | 0.05 | | | | | | c0.32 | 0.31 | | | | |
| v/c Ratio | 0.11 | 0.49 | | | 0.51 | | 0.63 | 0.62 | | | | |
| Uniform Delay, d1 | 29.7 | 35.6 | | | 35.9 | | 29.6 | 29.4 | | | | |
| Progression Factor | 1.63 | 1.68 | | | 1.00 | | 1.00 | 1.00 | | | | |
| Incremental Delay, d2 | 0.8 | 2.5 | | | 2.8 | | 4.0 | 4.1 | | | | |
| Delay (s) | 49.2 | 62.1 | | | 38.7 | | 33.6 | 33.5 | | | | |
| Level of Service | D | E | | | D | | C | C | | | | |
| Approach Delay (s) | | 61.0 | | | 38.7 | | | 33.5 | | | 0.0 | |
| Approach LOS | | E | | | D | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 40.8 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 165.0 | Sum of lost time (s) | 13.2 |
| Intersection Capacity Utilization | 72.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 61 | 902 | 0 | 0 | 964 | 83 | 59 | 940 | 156 | 0 | 0 | 0 |
| Future Volume (vph) | 61 | 902 | 0 | 0 | 964 | 83 | 59 | 940 | 156 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | 3.0 | 5.0 | | | 5.0 | | | 5.0 | 5.0 | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.95 | | | 0.95 | 1.00 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 0.95 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 0.99 | | | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | 1386 | 3984 | | | 2728 | | | 2760 | 1184 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | 1386 | 3984 | | | 2728 | | | 2760 | 1184 | | | |
| 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) | 64 | 940 | 0 | 0 | 1004 | 86 | 61 | 979 | 162 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 90 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 64 | 940 | 0 | 0 | 1083 | 0 | 0 | 1040 | 73 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 28 | | 46 | 46 | | 28 | 30 | | 39 | 39 | | 30 |
| Turn Type | Prot | NA | | | NA | | Perm | NA | Perm | | | |
| Protected Phases | 3 | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | 2 | | | |
| Actuated Green, G (s) | 8.0 | 34.0 | | | 34.0 | | | 45.0 | 45.0 | | | |
| Effective Green, g (s) | 8.0 | 34.0 | | | 34.0 | | | 45.0 | 45.0 | | | |
| Actuated g/C Ratio | 0.08 | 0.34 | | | 0.34 | | | 0.45 | 0.45 | | | |
| Clearance Time (s) | 3.0 | 5.0 | | | 5.0 | | | 5.0 | 5.0 | | | |
| Lane Grp Cap (vph) | 110 | 1354 | | | 927 | | | 1242 | 532 | | | |
| v/s Ratio Prot | c0.05 | 0.24 | | | c0.40 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.38 | 0.06 | | | |
| v/c Ratio | 0.58 | 0.69 | | | 1.17 | | | 0.84 | 0.14 | | | |
| Uniform Delay, d1 | 44.4 | 28.5 | | | 33.0 | | | 24.3 | 16.1 | | | |
| Progression Factor | 1.65 | 0.35 | | | 0.59 | | | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 16.5 | 2.3 | | | 87.3 | | | 6.8 | 0.5 | | | |
| Delay (s) | 89.6 | 12.3 | | | 106.8 | | | 31.1 | 16.7 | | | |
| Level of Service | F | B | | | F | | | C | B | | | |
| Approach Delay (s) | | 17.2 | | | 106.8 | | | 29.1 | | | 0.0 | |
| Approach LOS | | B | | | F | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 51.2 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.94 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 90.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 893 | 35 | 70 | 997 | 0 | 0 | 0 | 0 | 70 | 819 | 75 |
| Future Volume (vph) | 0 | 893 | 35 | 70 | 997 | 0 | 0 | 0 | 0 | 70 | 819 | 75 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 3.0 | | 4.0 | 4.0 | | | | | | 5.0 | 5.0 |
| Lane Util. Factor | | 0.91 | | 1.00 | 0.95 | | | | | | 0.95 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | | | | | 1.00 | 0.96 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frt | | 0.99 | | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | | | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3955 | | 1386 | 2773 | | | | | | 2754 | 1192 |
| Flt Permitted | | 1.00 | | 0.95 | 1.00 | | | | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | 3955 | | 1386 | 2773 | | | | | | 2754 | 1192 |
| 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) | 0 | 930 | 36 | 73 | 1039 | 0 | 0 | 0 | 0 | 73 | 853 | 78 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| Lane Group Flow (vph) | 0 | 962 | 0 | 73 | 1039 | 0 | 0 | 0 | 0 | 0 | 926 | 43 |
| Confl. Peds. (#/hr) | 51 | | 24 | 24 | | 51 | 31 | | 44 | 44 | | 31 |
| Turn Type | | NA | | Prot | NA | | | | | Perm | NA | Perm |
| Protected Phases | | 4 | | 3 | 3 4 | | | | | | 2 | |
| Permitted Phases | | | | | | | | | | 2 | | 2 |
| Actuated Green, G (s) | | 41.0 | | 8.0 | 53.0 | | | | | | 39.0 | 39.0 |
| Effective Green, g (s) | | 41.0 | | 8.0 | 53.0 | | | | | | 39.0 | 39.0 |
| Actuated g/C Ratio | | 0.41 | | 0.08 | 0.53 | | | | | | 0.39 | 0.39 |
| Clearance Time (s) | | 3.0 | | 4.0 | | | | | | | 5.0 | 5.0 |
| Lane Grp Cap (vph) | | 1621 | | 110 | 1469 | | | | | | 1074 | 464 |
| v/s Ratio Prot | | 0.24 | | 0.05 | c0.37 | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | | 0.34 | 0.04 |
| v/c Ratio | | 0.59 | | 0.66 | 0.71 | | | | | | 0.86 | 0.09 |
| Uniform Delay, d1 | | 23.0 | | 44.7 | 17.7 | | | | | | 28.0 | 19.3 |
| Progression Factor | | 1.30 | | 1.27 | 0.85 | | | | | | 0.54 | 0.16 |
| Incremental Delay, d2 | | 1.6 | | 2.9 | 0.3 | | | | | | 8.6 | 0.4 |
| Delay (s) | | 31.5 | | 59.6 | 15.2 | | | | | | 23.8 | 3.4 |
| Level of Service | | C | | E | B | | | | | | C | A |
| Approach Delay (s) | | 31.5 | | | 18.1 | | | 0.0 | | | 22.2 | |
| Approach LOS | | C | | | B | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 23.6 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 90.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 734 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 109 | 1441 | 0 |
| Future Volume (vph) | 0 | 734 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 109 | 1441 | 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 | | 0.95 | 1.00 | | | | | | | | 0.86 | |
| Frt | | 1.00 | 0.85 | | | | | | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | | | | | | | | 1.00 | |
| Satd. Flow (prot) | | 2973 | 1250 | | | | | | | | 5257 | |
| Flt Permitted | | 1.00 | 1.00 | | | | | | | | 1.00 | |
| Satd. Flow (perm) | | 2973 | 1250 | | | | | | | | 5257 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 757 | 102 | 0 | 0 | 0 | 0 | 0 | 0 | 112 | 1486 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 757 | 102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1598 | 0 |
| Bus Blockages (#/hr) | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 |
| Turn Type | | NA | Prot | | | | | | | Split | NA | |
| Protected Phases | | 4 | 4 | | | | | | | 2 | 2 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | 30.0 | 30.0 | | | | | | | | 62.0 | |
| Effective Green, g (s) | | 31.0 | 31.0 | | | | | | | | 61.0 | |
| Actuated g/C Ratio | | 0.31 | 0.31 | | | | | | | | 0.61 | |
| Clearance Time (s) | | 5.0 | 5.0 | | | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 921 | 387 | | | | | | | | 3206 | |
| v/s Ratio Prot | | c0.25 | 0.08 | | | | | | | | c0.30 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | 0.82 | 0.26 | | | | | | | | 0.50 | |
| Uniform Delay, d1 | | 31.9 | 25.9 | | | | | | | | 10.9 | |
| Progression Factor | | 0.85 | 0.96 | | | | | | | | 0.28 | |
| Incremental Delay, d2 | | 0.8 | 0.1 | | | | | | | | 0.5 | |
| Delay (s) | | 27.8 | 24.9 | | | | | | | | 3.6 | |
| Level of Service | | C | C | | | | | | | | A | |
| Approach Delay (s) | | 27.5 | | | 0.0 | | | 0.0 | | | 3.6 | |
| Approach LOS | | C | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 11.9 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 56.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 255 | 495 | 0 | 0 | 0 | 0 | 0 | 1254 | 235 |
| Future Volume (vph) | 0 | 0 | 0 | 255 | 495 | 0 | 0 | 0 | 0 | 0 | 1254 | 235 |
| 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 | | | | | | 0.86 | |
| Frpb, ped/bikes | | | | 1.00 | 1.00 | | | | | | 0.95 | |
| Flpb, ped/bikes | | | | 0.71 | 0.98 | | | | | | 1.00 | |
| Frt | | | | 1.00 | 1.00 | | | | | | 0.98 | |
| Flt Protected | | | | 0.95 | 1.00 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | | 904 | 3937 | | | | | | 5000 | |
| Flt Permitted | | | | 0.95 | 1.00 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | | 904 | 3937 | | | | | | 5000 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 0 | 0 | 271 | 527 | 0 | 0 | 0 | 0 | 0 | 1334 | 250 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 10 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 220 | 560 | 0 | 0 | 0 | 0 | 0 | 1584 | 0 |
| Confl. Peds. (#/hr) | 173 | | 244 | 244 | | 173 | 228 | | 208 | 208 | | 228 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| Turn Type | | | | Perm | NA | | | | | | NA | |
| Protected Phases | | | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | | | |
| Actuated Green, G (s) | | | | 37.0 | 37.0 | | | | | | 57.0 | |
| Effective Green, g (s) | | | | 36.0 | 36.0 | | | | | | 56.0 | |
| Actuated g/C Ratio | | | | 0.36 | 0.36 | | | | | | 0.56 | |
| Clearance Time (s) | | | | 3.0 | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | | | 325 | 1417 | | | | | | 2800 | |
| v/s Ratio Prot | | | | | | | | | | | c0.32 | |
| v/s Ratio Perm | | | | c0.24 | 0.14 | | | | | | | |
| v/c Ratio | | | | 0.68 | 0.39 | | | | | | 0.57 | |
| Uniform Delay, d1 | | | | 27.1 | 23.9 | | | | | | 14.2 | |
| Progression Factor | | | | 0.40 | 0.40 | | | | | | 0.47 | |
| Incremental Delay, d2 | | | | 9.7 | 0.7 | | | | | | 0.7 | |
| Delay (s) | | | | 20.4 | 10.3 | | | | | | 7.4 | |
| Level of Service | | | | C | B | | | | | | A | |
| Approach Delay (s) | | 0.0 | | | 13.2 | | | 0.0 | | | 7.4 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 9.3 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 53.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 1036 | 1606 | 0 | 0 | 0 | 0 | 0 | 1336 | 340 |
| Future Volume (vph) | 0 | 0 | 0 | 1036 | 1606 | 0 | 0 | 0 | 0 | 0 | 1336 | 340 |
| 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 | | | | 0.76 | 0.76 | | | | | | 0.81 | 0.81 |
| Frt | | | | 1.00 | 1.00 | | | | | | 0.99 | 0.85 |
| Flt Protected | | | | 0.95 | 1.00 | | | | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | 2600 | 4500 | | | | | | 5004 | 1013 |
| Flt Permitted | | | | 0.95 | 1.00 | | | | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | 2600 | 4500 | | | | | | 5004 | 1013 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 0 | 0 | 0 | 1057 | 1639 | 0 | 0 | 0 | 0 | 0 | 1363 | 347 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 951 | 1745 | 0 | 0 | 0 | 0 | 0 | 1491 | 219 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| Turn Type | | | | Prot | NA | | | | | | NA | custom |
| Protected Phases | | | | 4 | 3 4 | | | | | | 1 2 | 2 |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | 40.0 | 49.0 | | | | | | 42.0 | 30.0 |
| Effective Green, g (s) | | | | 39.0 | 47.0 | | | | | | 41.0 | 29.0 |
| Actuated g/C Ratio | | | | 0.39 | 0.47 | | | | | | 0.41 | 0.29 |
| Clearance Time (s) | | | | 3.0 | | | | | | | | 3.0 |
| Lane Grp Cap (vph) | | | | 1014 | 2295 | | | | | | 2051 | 293 |
| v/s Ratio Prot | | | | c0.37 | c0.30 | | | | | | c0.30 | 0.22 |
| v/s Ratio Perm | | | | | 0.09 | | | | | | | |
| v/c Ratio | | | | 0.94 | 0.76 | | | | | | 0.73 | 0.75 |
| Uniform Delay, d1 | | | | 29.3 | 21.9 | | | | | | 24.8 | 32.2 |
| Progression Factor | | | | 0.63 | 0.61 | | | | | | 0.48 | 0.58 |
| Incremental Delay, d2 | | | | 10.6 | 1.3 | | | | | | 2.1 | 14.5 |
| Delay (s) | | | | 29.1 | 14.6 | | | | | | 13.9 | 33.2 |
| Level of Service | | | | C | B | | | | | | B | C |
| Approach Delay (s) | | 0.0 | | | 19.8 | | | 0.0 | | | 16.3 | |
| Approach LOS | | A | | | B | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 18.4 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 62.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | SBL | SBT | SBR | SWL |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 105 | 45 | 45 | 165 | 50 | 1250 |
| Future Volume (vph) | 105 | 45 | 45 | 165 | 50 | 1250 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | | 4.0 |
| Lane Util. Factor | 0.95 | | | 0.91 | | *0.91 |
| Frpb, ped/bikes | 0.98 | | | 0.98 | | 1.00 |
| Flpb, ped/bikes | 1.00 | | | 0.99 | | 1.00 |
| Frt | 0.95 | | | 0.97 | | 1.00 |
| Flt Protected | 1.00 | | | 0.99 | | 1.00 |
| Satd. Flow (prot) | 2784 | | | 3989 | | 4800 |
| Flt Permitted | 1.00 | | | 0.99 | | 1.00 |
| Satd. Flow (perm) | 2784 | | | 3989 | | 4272 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.94 | 0.94 | 1.00 | 0.94 |
| Adj. Flow (vph) | 114 | 49 | 48 | 176 | 50 | 1330 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 163 | 0 | 0 | 274 | 0 | 1330 |
| Confl. Peds. (#/hr) | | 25 | 32 | | 25 | |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 15 | 0 |
| Turn Type | NA | | Perm | NA | | Prot |
| Protected Phases | 4 | | | 3 | | 2 |
| Permitted Phases | | | 3 | | | |
| Actuated Green, G (s) | 16.0 | | | 18.0 | | 50.0 |
| Effective Green, g (s) | 18.0 | | | 19.0 | | 51.0 |
| Actuated g/C Ratio | 0.18 | | | 0.19 | | 0.51 |
| Clearance Time (s) | 6.0 | | | 5.0 | | 5.0 |
| Lane Grp Cap (vph) | 501 | | | 757 | | 2448 |
| v/s Ratio Prot | c0.06 | | | | | c0.28 |
| v/s Ratio Perm | | | | 0.07 | | |
| v/c Ratio | 0.33 | | | 0.36 | | 0.54 |
| Uniform Delay, d1 | 35.7 | | | 35.2 | | 16.6 |
| Progression Factor | 1.00 | | | 1.21 | | 0.44 |
| Incremental Delay, d2 | 1.7 | | | 1.3 | | 0.7 |
| Delay (s) | 37.3 | | | 44.0 | | 8.1 |
| Level of Service | D | | | D | | A |
| Approach Delay (s) | 37.3 | | | 44.0 | | 8.1 |
| Approach LOS | D | | | D | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 16.3 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 59.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 180 | 25 | 22 | 371 | 0 | 0 | 0 | 0 | 0 | 255 | 50 |
| Future Volume (vph) | 0 | 180 | 25 | 22 | 371 | 0 | 0 | 0 | 0 | 0 | 255 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 3.0 | | 4.0 | | | | | | 4.0 | |
| Lane Util. Factor | | 0.95 | 0.95 | | 0.95 | | | | | | 0.95 | |
| Frt | | 0.99 | 0.85 | | 1.00 | | | | | | 0.98 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1472 | 1263 | | 2965 | | | | | | 2900 | |
| Flt Permitted | | 1.00 | 1.00 | | 0.92 | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1472 | 1263 | | 2742 | | | | | | 2900 | |
| Peak-hour factor, PHF | 0.59 | 0.59 | 0.59 | 0.76 | 0.76 | 0.76 | 1.00 | 1.00 | 1.00 | 1.00 | 0.64 | 0.64 |
| Adj. Flow (vph) | 0 | 305 | 42 | 29 | 488 | 0 | 0 | 0 | 0 | 0 | 398 | 78 |
| RTOR Reduction (vph) | 0 | 2 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 0 | 324 | 11 | 0 | 517 | 0 | 0 | 0 | 0 | 0 | 459 | 0 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| Turn Type | | NA | Perm | Perm | NA | | | | | | NA | |
| Protected Phases | | 4 | | | 4 | | | | | | 2 | |
| Permitted Phases | | | 4 | 4 | | | | | | | | |
| Actuated Green, G (s) | | 52.0 | 52.0 | | 52.0 | | | | | | 42.0 | |
| Effective Green, g (s) | | 51.0 | 52.0 | | 51.0 | | | | | | 41.0 | |
| Actuated g/C Ratio | | 0.51 | 0.52 | | 0.51 | | | | | | 0.41 | |
| Clearance Time (s) | | 3.0 | 3.0 | | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 750 | 656 | | 1398 | | | | | | 1189 | |
| v/s Ratio Prot | | c0.22 | | | | | | | | | c0.16 | |
| v/s Ratio Perm | | | 0.01 | | 0.19 | | | | | | | |
| v/c Ratio | | 0.43 | 0.02 | | 0.37 | | | | | | 0.39 | |
| Uniform Delay, d1 | | 15.4 | 11.6 | | 14.8 | | | | | | 20.7 | |
| Progression Factor | | 0.82 | 0.75 | | 1.24 | | | | | | 1.32 | |
| Incremental Delay, d2 | | 1.8 | 0.0 | | 0.6 | | | | | | 0.9 | |
| Delay (s) | | 14.4 | 8.8 | | 18.9 | | | | | | 28.3 | |
| Level of Service | | B | A | | B | | | | | | C | |
| Approach Delay (s) | | 14.1 | | | 18.9 | | | 0.0 | | | 28.3 | |
| Approach LOS | | B | | | B | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 21.0 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 42.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 117 | 190 | 0 | 0 | 0 | 0 | 0 | 1014 | 20 | 0 | 0 | 0 |
| Future Volume (vph) | 117 | 190 | 0 | 0 | 0 | 0 | 0 | 1014 | 20 | 0 | 0 | 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 | | 0.95 | | | | | | 0.95 | 1.00 | | | |
| Frpb, ped/bikes | | 1.00 | | | | | | 1.00 | 0.94 | | | |
| Flpb, ped/bikes | | 0.99 | | | | | | 1.00 | 1.00 | | | |
| Frt | | 1.00 | | | | | | 1.00 | 0.85 | | | |
| Flt Protected | | 0.98 | | | | | | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | | 2884 | | | | | | 2973 | 1203 | | | |
| Flt Permitted | | 0.98 | | | | | | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | | 2884 | | | | | | 2973 | 1203 | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 117 | 190 | 0 | 0 | 0 | 0 | 0 | 1014 | 20 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 307 | 0 | 0 | 0 | 0 | 0 | 1014 | 13 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 25 | | 12 | 12 | | 25 | 36 | | 21 | 21 | | 36 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | | | | NA | Perm | | | |
| Protected Phases | | 4 | | | | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | | | 2 | | | |
| Actuated Green, G (s) | | 22.0 | | | | | | 52.0 | 52.0 | | | |
| Effective Green, g (s) | | 21.0 | | | | | | 51.0 | 51.0 | | | |
| Actuated g/C Ratio | | 0.26 | | | | | | 0.64 | 0.64 | | | |
| Clearance Time (s) | | 3.0 | | | | | | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | | 757 | | | | | | 1895 | 766 | | | |
| v/s Ratio Prot | | | | | | | | c0.34 | | | | |
| v/s Ratio Perm | | 0.11 | | | | | | | 0.01 | | | |
| v/c Ratio | | 0.41 | | | | | | 0.54 | 0.02 | | | |
| Uniform Delay, d1 | | 24.3 | | | | | | 8.0 | 5.3 | | | |
| Progression Factor | | 0.95 | | | | | | 0.31 | 0.11 | | | |
| Incremental Delay, d2 | | 1.6 | | | | | | 1.0 | 0.0 | | | |
| Delay (s) | | 24.8 | | | | | | 3.4 | 0.6 | | | |
| Level of Service | | C | | | | | | A | A | | | |
| Approach Delay (s) | | 24.8 | | | 0.0 | | | 3.4 | | | 0.0 | |
| Approach LOS | | C | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 8.3 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 54.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 45 | 60 | 0 | 0 | 127 | 40 | 75 | 1021 | 35 | 0 | 0 | 0 |
| Future Volume (vph) | 45 | 60 | 0 | 0 | 127 | 40 | 75 | 1021 | 35 | 0 | 0 | 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 | | 1.00 | | | 1.00 | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 1.00 | | | | |
| Flpb, ped/bikes | | 0.99 | | | 1.00 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.97 | | | 1.00 | | | | |
| Flt Protected | | 0.98 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | 1511 | | | 1494 | | | 2938 | | | | |
| Flt Permitted | | 0.84 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | 1294 | | | 1494 | | | 2938 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 45 | 60 | 0 | 0 | 127 | 40 | 75 | 1021 | 35 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 105 | 0 | 0 | 153 | 0 | 0 | 1128 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 36 | | 16 | 16 | | 36 | 13 | | 28 | 28 | | 13 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 22.0 | | | 22.0 | | | 52.0 | | | | |
| Effective Green, g (s) | | 21.0 | | | 21.0 | | | 51.0 | | | | |
| Actuated g/C Ratio | | 0.26 | | | 0.26 | | | 0.64 | | | | |
| Clearance Time (s) | | 3.0 | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 339 | | | 392 | | | 1872 | | | | |
| v/s Ratio Prot | | | | | c0.10 | | | | | | | |
| v/s Ratio Perm | | 0.08 | | | | | | 0.38 | | | | |
| v/c Ratio | | 0.31 | | | 0.39 | | | 0.60 | | | | |
| Uniform Delay, d1 | | 23.7 | | | 24.2 | | | 8.5 | | | | |
| Progression Factor | | 1.41 | | | 0.12 | | | 0.42 | | | | |
| Incremental Delay, d2 | | 2.3 | | | 2.8 | | | 1.3 | | | | |
| Delay (s) | | 35.6 | | | 5.7 | | | 4.8 | | | | |
| Level of Service | | D | | | A | | | A | | | | |
| Approach Delay (s) | | 35.6 | | | 5.7 | | | 4.8 | | | 0.0 | |
| Approach LOS | | D | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 7.2 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 81.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 350 | 75 | 50 | 1258 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 350 | 75 | 50 | 1258 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | | | | 0.95 | | | 0.95 | | | | |
| Frpb, ped/bikes | | | | | 0.98 | | | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | | | 1.00 | | | | |
| Frt | | | | | 0.97 | | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 2823 | | | 2960 | | | | |
| Flt Permitted | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 2823 | | | 2960 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 350 | 75 | 50 | 1258 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 407 | 0 | 0 | 1308 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 87 | | 39 | 39 | | 87 | 40 | | 75 | 75 | | 40 |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 25.0 | | | 69.0 | | | | |
| Effective Green, g (s) | | | | | 24.0 | | | 68.0 | | | | |
| Actuated g/C Ratio | | | | | 0.24 | | | 0.68 | | | | |
| Clearance Time (s) | | | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | | | | 677 | | | 2012 | | | | |
| v/s Ratio Prot | | | | | c0.14 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.44 | | | | |
| v/c Ratio | | | | | 0.60 | | | 0.65 | | | | |
| Uniform Delay, d1 | | | | | 33.7 | | | 9.2 | | | | |
| Progression Factor | | | | | 0.36 | | | 0.65 | | | | |
| Incremental Delay, d2 | | | | | 2.8 | | | 1.0 | | | | |
| Delay (s) | | | | | 14.8 | | | 7.0 | | | | |
| Level of Service | | | | | B | | | A | | | | |
| Approach Delay (s) | | 0.0 | | | 14.8 | | | 7.0 | | | 0.0 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 8.9 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 72.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 160 | 918 | 0 | 0 | 0 | 0 | 0 | 837 | 642 | 0 | 0 | 0 |
| Future Volume (vph) | 160 | 918 | 0 | 0 | 0 | 0 | 0 | 837 | 642 | 0 | 0 | 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 | | | | | | 0.95 | 1.00 | | | |
| Frpb, ped/bikes | | 1.00 | | | | | | 1.00 | 0.96 | | | |
| Flpb, ped/bikes | | 0.99 | | | | | | 1.00 | 1.00 | | | |
| Frt | | 1.00 | | | | | | 1.00 | 0.85 | | | |
| Flt Protected | | 0.99 | | | | | | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | | 5295 | | | | | | 2973 | 1276 | | | |
| Flt Permitted | | 0.99 | | | | | | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | | 5295 | | | | | | 2973 | 1276 | | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 165 | 946 | 0 | 0 | 0 | 0 | 0 | 863 | 662 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 1072 | 0 | 0 | 0 | 0 | 0 | 863 | 650 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 48 | | 57 | 57 | | 48 | 71 | | 29 | 29 | | 71 |
| Turn Type | Perm | NA | | | | | | NA | Perm | | | |
| Protected Phases | | 4 | | | | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | | | 2 | | | |
| Actuated Green, G (s) | | 26.0 | | | | | | 46.0 | 46.0 | | | |
| Effective Green, g (s) | | 27.0 | | | | | | 45.0 | 45.0 | | | |
| Actuated g/C Ratio | | 0.34 | | | | | | 0.56 | 0.56 | | | |
| Clearance Time (s) | | 5.0 | | | | | | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | | 1787 | | | | | | 1672 | 717 | | | |
| v/s Ratio Prot | | | | | | | | 0.29 | | | | |
| v/s Ratio Perm | | 0.20 | | | | | | | c0.51 | | | |
| v/c Ratio | | 0.60 | | | | | | 0.52 | 0.91 | | | |
| Uniform Delay, d1 | | 22.0 | | | | | | 10.8 | 15.6 | | | |
| Progression Factor | | 0.54 | | | | | | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | | 1.3 | | | | | | 1.1 | 17.3 | | | |
| Delay (s) | | 13.2 | | | | | | 11.9 | 32.9 | | | |
| Level of Service | | B | | | | | | B | C | | | |
| Approach Delay (s) | | 13.2 | | | 0.0 | | | 21.0 | | | 0.0 | |
| Approach LOS | | B | | | A | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 17.8 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 71.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 398 | 70 | 44 | 993 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 398 | 70 | 44 | 993 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | | | | 0.91 | | | 0.95 | | | | |
| Frpb, ped/bikes | | | | | 0.99 | | | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | | | 1.00 | | | | |
| Frt | | | | | 0.98 | | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 4135 | | | 2956 | | | | |
| Flt Permitted | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 4135 | | | 3500 | | | | |
| 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 | 0 | 433 | 76 | 48 | 1079 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 11 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 478 | 0 | 0 | 1116 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 45 | | 61 | 61 | | 45 | 72 | | 36 | 36 | | 72 |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 25.0 | | | 45.0 | | | | |
| Effective Green, g (s) | | | | | 26.0 | | | 46.0 | | | | |
| Actuated g/C Ratio | | | | | 0.32 | | | 0.58 | | | | |
| Clearance Time (s) | | | | | 5.0 | | | 5.0 | | | | |
| Lane Grp Cap (vph) | | | | | 1343 | | | 2012 | | | | |
| v/s Ratio Prot | | | | | c0.12 | | | | | | | |
| v/s Ratio Perm | | | | | | | | c0.32 | | | | |
| v/c Ratio | | | | | 0.36 | | | 0.55 | | | | |
| Uniform Delay, d1 | | | | | 20.6 | | | 10.6 | | | | |
| Progression Factor | | | | | 0.51 | | | 0.30 | | | | |
| Incremental Delay, d2 | | | | | 0.7 | | | 1.0 | | | | |
| Delay (s) | | | | | 11.2 | | | 4.1 | | | | |
| Level of Service | | | | | B | | | A | | | | |
| Approach Delay (s) | | 0.0 | | | 11.2 | | | 4.1 | | | 0.0 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 6.3 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 58.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 50 | 45 | 50 | 942 | 50 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 50 | 45 | 50 | 942 | 50 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | | | | 1.00 | | | 0.95 | | | | |
| Frpb, ped/bikes | | | | | 0.98 | | | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | | | 1.00 | | | | |
| Frt | | | | | 0.94 | | | 0.99 | | | | |
| Flt Protected | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 1442 | | | 2937 | | | | |
| Flt Permitted | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 1442 | | | 2937 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 0.87 | 0.87 | 0.87 | 0.96 | 0.96 | 0.96 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 57 | 52 | 52 | 981 | 52 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 38 | 0 | 0 | 9 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 71 | 0 | 0 | 1076 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 17 | | 19 | 19 | | 17 | 8 | | 12 | 12 | | 8 |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 22.0 | | | 52.0 | | | | |
| Effective Green, g (s) | | | | | 21.0 | | | 51.0 | | | | |
| Actuated g/C Ratio | | | | | 0.26 | | | 0.64 | | | | |
| Clearance Time (s) | | | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | | | | 378 | | | 1872 | | | | |
| v/s Ratio Prot | | | | | c0.05 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.37 | | | | |
| v/c Ratio | | | | | 0.19 | | | 0.57 | | | | |
| Uniform Delay, d1 | | | | | 22.9 | | | 8.3 | | | | |
| Progression Factor | | | | | 0.73 | | | 0.58 | | | | |
| Incremental Delay, d2 | | | | | 1.1 | | | 1.1 | | | | |
| Delay (s) | | | | | 17.7 | | | 6.0 | | | | |
| Level of Service | | | | | B | | | A | | | | |
| Approach Delay (s) | | 0.0 | | | 17.7 | | | 6.0 | | | 0.0 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 7.0 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 59.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 115 | 619 | 0 | 0 | 0 | 0 | 0 | 988 | 118 | 0 | 0 | 0 |
| Future Volume (vph) | 115 | 619 | 0 | 0 | 0 | 0 | 0 | 988 | 118 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | | | | 4.0 | | | | |
| Lane Util. Factor | | 0.91 | | | | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | | | | 1.00 | | | | |
| Flpb, ped/bikes | | 0.99 | | | | | | 1.00 | | | | |
| Frt | | 1.00 | | | | | | 0.98 | | | | |
| Flt Protected | | 0.99 | | | | | | 1.00 | | | | |
| Satd. Flow (prot) | | 4211 | | | | | | 2916 | | | | |
| Flt Permitted | | 0.99 | | | | | | 1.00 | | | | |
| Satd. Flow (perm) | | 4211 | | | | | | 2916 | | | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 119 | 638 | 0 | 0 | 0 | 0 | 0 | 1019 | 122 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 757 | 0 | 0 | 0 | 0 | 0 | 1129 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 34 | | 45 | 45 | | 34 | 55 | | 16 | 16 | | 55 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | | | | NA | | | | |
| Protected Phases | | 4 | | | | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | | 25.0 | | | | | | 49.0 | | | | |
| Effective Green, g (s) | | 24.0 | | | | | | 48.0 | | | | |
| Actuated g/C Ratio | | 0.30 | | | | | | 0.60 | | | | |
| Clearance Time (s) | | 3.0 | | | | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 1263 | | | | | | 1749 | | | | |
| v/s Ratio Prot | | | | | | | | c0.39 | | | | |
| v/s Ratio Perm | | 0.18 | | | | | | | | | | |
| v/c Ratio | | 0.60 | | | | | | 0.65 | | | | |
| Uniform Delay, d1 | | 23.9 | | | | | | 10.4 | | | | |
| Progression Factor | | 0.32 | | | | | | 0.34 | | | | |
| Incremental Delay, d2 | | 1.9 | | | | | | 1.5 | | | | |
| Delay (s) | | 9.5 | | | | | | 5.1 | | | | |
| Level of Service | | A | | | | | | A | | | | |
| Approach Delay (s) | | 9.5 | | | 0.0 | | | 5.1 | | | 0.0 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 6.8 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 59.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 35 | 35 | 0 | 0 | 0 | 0 | 0 | 1125 | 10 | 0 | 0 | 0 |
| Future Volume (vph) | 35 | 35 | 0 | 0 | 0 | 0 | 0 | 1125 | 10 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | | | | 4.0 | | | | |
| Lane Util. Factor | | 0.95 | | | | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | | | | 1.00 | | | | |
| Flpb, ped/bikes | | 1.00 | | | | | | 1.00 | | | | |
| Frt | | 1.00 | | | | | | 1.00 | | | | |
| Flt Protected | | 0.98 | | | | | | 1.00 | | | | |
| Satd. Flow (prot) | | 2898 | | | | | | 2968 | | | | |
| Flt Permitted | | 0.98 | | | | | | 1.00 | | | | |
| Satd. Flow (perm) | | 2898 | | | | | | 2968 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 35 | 35 | 0 | 0 | 0 | 0 | 0 | 1125 | 10 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 70 | 0 | 0 | 0 | 0 | 0 | 1134 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 1 | | 8 | 8 | | 1 | 1 | | 7 | 7 | | 1 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | | | | NA | | | | |
| Protected Phases | | 4 | | | | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | | 19.0 | | | | | | 55.0 | | | | |
| Effective Green, g (s) | | 18.0 | | | | | | 54.0 | | | | |
| Actuated g/C Ratio | | 0.22 | | | | | | 0.68 | | | | |
| Clearance Time (s) | | 3.0 | | | | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 652 | | | | | | 2003 | | | | |
| v/s Ratio Prot | | | | | | | | c0.38 | | | | |
| v/s Ratio Perm | | 0.02 | | | | | | | | | | |
| v/c Ratio | | 0.11 | | | | | | 0.57 | | | | |
| Uniform Delay, d1 | | 24.6 | | | | | | 6.8 | | | | |
| Progression Factor | | 1.01 | | | | | | 0.69 | | | | |
| Incremental Delay, d2 | | 0.3 | | | | | | 0.8 | | | | |
| Delay (s) | | 25.3 | | | | | | 5.5 | | | | |
| Level of Service | | C | | | | | | A | | | | |
| Approach Delay (s) | | 25.3 | | | 0.0 | | | 5.5 | | | 0.0 | |
| Approach LOS | | C | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 6.7 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 55.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 75 | 75 | 28 | 1056 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 75 | 75 | 28 | 1056 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | | | | 5.6 | | | 5.6 | | | | |
| Lane Util. Factor | | | | | 0.95 | | | 0.95 | | | | |
| Frpb, ped/bikes | | | | | 0.98 | | | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | | | 1.00 | | | | |
| Frt | | | | | 0.93 | | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 2854 | | | 3138 | | | | |
| Flt Permitted | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 2854 | | | 3138 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 75 | 75 | 28 | 1056 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 53 | 0 | 0 | 11 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 97 | 0 | 0 | 1073 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 14 | | 45 | 45 | | 14 | 4 | | 20 | 20 | | 4 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 29.4 | | | 59.4 | | | | |
| Effective Green, g (s) | | | | | 29.4 | | | 59.4 | | | | |
| Actuated g/C Ratio | | | | | 0.29 | | | 0.59 | | | | |
| Clearance Time (s) | | | | | 5.6 | | | 5.6 | | | | |
| Lane Grp Cap (vph) | | | | | 839 | | | 1863 | | | | |
| v/s Ratio Prot | | | | | c0.03 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.34 | | | | |
| v/c Ratio | | | | | 0.12 | | | 0.58 | | | | |
| Uniform Delay, d1 | | | | | 25.8 | | | 12.5 | | | | |
| Progression Factor | | | | | 1.00 | | | 0.80 | | | | |
| Incremental Delay, d2 | | | | | 0.3 | | | 0.7 | | | | |
| Delay (s) | | | | | 26.1 | | | 10.6 | | | | |
| Level of Service | | | | | C | | | B | | | | |
| Approach Delay (s) | | 0.0 | | | 26.1 | | | 10.6 | | | 0.0 | |
| Approach LOS | | A | | | C | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 12.5 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 61.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 363 | 41 | 125 | 978 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 363 | 41 | 125 | 978 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | | | | 0.95 | | | 0.95 | | | | |
| Frpb, ped/bikes | | | | | 0.99 | | | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | | | 0.99 | | | | |
| Frt | | | | | 0.98 | | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (prot) | | | | | 2909 | | | 2938 | | | | |
| Flt Permitted | | | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (perm) | | | | | 2909 | | | 2938 | | | | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 382 | 43 | 132 | 1029 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 415 | 0 | 0 | 1161 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 44 | | 40 | 40 | | 44 | 45 | | 40 | 40 | | 45 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 22.0 | | | 52.0 | | | | |
| Effective Green, g (s) | | | | | 21.0 | | | 51.0 | | | | |
| Actuated g/C Ratio | | | | | 0.26 | | | 0.64 | | | | |
| Clearance Time (s) | | | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | | | | 763 | | | 1872 | | | | |
| v/s Ratio Prot | | | | | c0.14 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.40 | | | | |
| v/c Ratio | | | | | 0.54 | | | 0.62 | | | | |
| Uniform Delay, d1 | | | | | 25.4 | | | 8.7 | | | | |
| Progression Factor | | | | | 0.56 | | | 0.32 | | | | |
| Incremental Delay, d2 | | | | | 2.6 | | | 1.2 | | | | |
| Delay (s) | | | | | 16.9 | | | 4.0 | | | | |
| Level of Service | | | | | B | | | A | | | | |
| Approach Delay (s) | | 0.0 | | | 16.9 | | | 4.0 | | | 0.0 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 7.4 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 60.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 11 | 0 | 0 | 47 | 9 | 38 | 1115 | 49 | 0 | 0 | 0 |
| Future Volume (vph) | 3 | 11 | 0 | 0 | 47 | 9 | 38 | 1115 | 49 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | 5.6 | | | 5.6 | | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 0.95 | | | | |
| Frt | | 1.00 | | | 0.98 | | | 0.99 | | | | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | 1636 | | | 1618 | | | 3118 | | | | |
| Flt Permitted | | 0.97 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | 1601 | | | 1618 | | | 3118 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 3 | 11 | 0 | 0 | 47 | 9 | 38 | 1115 | 49 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 14 | 0 | 0 | 50 | 0 | 0 | 1199 | 0 | 0 | 0 | 0 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 29.4 | | | 29.4 | | | 59.4 | | | | |
| Effective Green, g (s) | | 29.4 | | | 29.4 | | | 59.4 | | | | |
| Actuated g/C Ratio | | 0.29 | | | 0.29 | | | 0.59 | | | | |
| Clearance Time (s) | | 5.6 | | | 5.6 | | | 5.6 | | | | |
| Lane Grp Cap (vph) | | 470 | | | 475 | | | 1852 | | | | |
| v/s Ratio Prot | | | | | c0.03 | | | | | | | |
| v/s Ratio Perm | | 0.01 | | | | | | 0.38 | | | | |
| v/c Ratio | | 0.03 | | | 0.10 | | | 0.65 | | | | |
| Uniform Delay, d1 | | 25.1 | | | 25.7 | | | 13.4 | | | | |
| Progression Factor | | 1.00 | | | 1.00 | | | 0.41 | | | | |
| Incremental Delay, d2 | | 0.1 | | | 0.4 | | | 1.4 | | | | |
| Delay (s) | | 25.3 | | | 26.2 | | | 6.9 | | | | |
| Level of Service | | C | | | C | | | A | | | | |
| Approach Delay (s) | | 25.3 | | | 26.2 | | | 6.9 | | | 0.0 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 7.9 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 57.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 72 | 190 | 0 | 0 | 497 | 189 | 126 | 869 | 24 | 0 | 0 | 0 |
| Future Volume (vph) | 72 | 190 | 0 | 0 | 497 | 189 | 126 | 869 | 24 | 0 | 0 | 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 | | | 4.0 | | | | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | | | 0.95 | | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 0.99 | | | 1.00 | | | | |
| Flpb, ped/bikes | 0.99 | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Frt | 1.00 | 1.00 | | | 0.96 | | | 1.00 | | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (prot) | 1470 | 2973 | | | 2808 | | | 2935 | | | | |
| Flt Permitted | 0.22 | 1.00 | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (perm) | 335 | 2973 | | | 2808 | | | 2935 | | | | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 79 | 209 | 0 | 0 | 546 | 208 | 138 | 955 | 26 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 79 | 209 | 0 | 0 | 754 | 0 | 0 | 1119 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 40 | | 24 | 24 | | 40 | 25 | | 24 | 24 | | 25 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | 26.0 | 26.0 | | | 26.0 | | | 43.0 | | | | |
| Effective Green, g (s) | 27.0 | 27.0 | | | 27.0 | | | 45.0 | | | | |
| Actuated g/C Ratio | 0.34 | 0.34 | | | 0.34 | | | 0.56 | | | | |
| Clearance Time (s) | 5.0 | 5.0 | | | 5.0 | | | 6.0 | | | | |
| Lane Grp Cap (vph) | 113 | 1003 | | | 947 | | | 1650 | | | | |
| v/s Ratio Prot | | 0.07 | | | c0.27 | | | | | | | |
| v/s Ratio Perm | 0.24 | | | | | | | 0.38 | | | | |
| v/c Ratio | 0.70 | 0.21 | | | 0.80 | | | 0.68 | | | | |
| Uniform Delay, d1 | 23.0 | 18.9 | | | 24.0 | | | 12.4 | | | | |
| Progression Factor | 0.68 | 0.65 | | | 0.34 | | | 1.24 | | | | |
| Incremental Delay, d2 | 30.2 | 0.5 | | | 5.9 | | | 1.8 | | | | |
| Delay (s) | 45.9 | 12.7 | | | 14.1 | | | 17.2 | | | | |
| Level of Service | D | B | | | B | | | B | | | | |
| Approach Delay (s) | | 21.8 | | | 14.1 | | | 17.2 | | | 0.0 | |
| Approach LOS | | C | | | B | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 16.7 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 73.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 20 | 55 | 0 | 0 | 32 | 10 | 35 | 1059 | 11 | 0 | 0 | 0 |
| Future Volume (vph) | 20 | 55 | 0 | 0 | 32 | 10 | 35 | 1059 | 11 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | 5.6 | | | 5.6 | | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 1.00 | | | | |
| Flpb, ped/bikes | | 0.99 | | | 1.00 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.97 | | | 1.00 | | | | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | 1622 | | | 1587 | | | 3128 | | | | |
| Flt Permitted | | 0.94 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | 1539 | | | 1587 | | | 3128 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 55 | 0 | 0 | 32 | 10 | 35 | 1059 | 11 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 75 | 0 | 0 | 35 | 0 | 0 | 1104 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 14 | | 17 | 17 | | 14 | 16 | | 6 | 6 | | 16 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 34.4 | | | 34.4 | | | 54.4 | | | | |
| Effective Green, g (s) | | 34.4 | | | 34.4 | | | 54.4 | | | | |
| Actuated g/C Ratio | | 0.34 | | | 0.34 | | | 0.54 | | | | |
| Clearance Time (s) | | 5.6 | | | 5.6 | | | 5.6 | | | | |
| Lane Grp Cap (vph) | | 529 | | | 545 | | | 1701 | | | | |
| v/s Ratio Prot | | | | | 0.02 | | | | | | | |
| v/s Ratio Perm | | c0.05 | | | | | | 0.35 | | | | |
| v/c Ratio | | 0.14 | | | 0.07 | | | 0.65 | | | | |
| Uniform Delay, d1 | | 22.6 | | | 22.0 | | | 16.1 | | | | |
| Progression Factor | | 1.46 | | | 1.00 | | | 0.30 | | | | |
| Incremental Delay, d2 | | 0.6 | | | 0.2 | | | 0.9 | | | | |
| Delay (s) | | 33.6 | | | 22.2 | | | 5.7 | | | | |
| Level of Service | | C | | | C | | | A | | | | |
| Approach Delay (s) | | 33.6 | | | 22.2 | | | 5.7 | | | 0.0 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 8.0 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 62.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 658 | 19 | 98 | 994 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 658 | 19 | 98 | 994 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | | | | 5.6 | | | 5.6 | | | | |
| Lane Util. Factor | | | | | 0.95 | | | 0.95 | | | | |
| Frpb, ped/bikes | | | | | 1.00 | | | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | | | 1.00 | | | | |
| Frt | | | | | 1.00 | | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 3126 | | | 3120 | | | | |
| Flt Permitted | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 3126 | | | 3120 | | | | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 693 | 20 | 103 | 1046 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 15 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 711 | 0 | 0 | 1134 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 17 | | 15 | 17 | | 15 | 21 | | 12 | 12 | | 21 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 42.4 | | | 46.4 | | | | |
| Effective Green, g (s) | | | | | 42.4 | | | 46.4 | | | | |
| Actuated g/C Ratio | | | | | 0.42 | | | 0.46 | | | | |
| Clearance Time (s) | | | | | 5.6 | | | 5.6 | | | | |
| Lane Grp Cap (vph) | | | | | 1325 | | | 1447 | | | | |
| v/s Ratio Prot | | | | | c0.23 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.36 | | | | |
| v/c Ratio | | | | | 0.54 | | | 0.78 | | | | |
| Uniform Delay, d1 | | | | | 21.5 | | | 22.6 | | | | |
| Progression Factor | | | | | 0.55 | | | 0.14 | | | | |
| Incremental Delay, d2 | | | | | 1.5 | | | 2.9 | | | | |
| Delay (s) | | | | | 13.3 | | | 6.0 | | | | |
| Level of Service | | | | | B | | | A | | | | |
| Approach Delay (s) | | 0.0 | | | 13.3 | | | 6.0 | | | 0.0 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 8.8 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 69.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 41 | 800 | 0 | 0 | 538 | 24 | 54 | 990 | 173 | 0 | 0 | 0 |
| Future Volume (vph) | 41 | 800 | 0 | 0 | 538 | 24 | 54 | 990 | 173 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 4.6 | | | 5.6 | | | 6.1 | | | | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.95 | | | | |
| Frt | | 1.00 | | | 0.99 | | | 0.98 | | | | |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | 3135 | | | 3123 | | | 3069 | | | | |
| Flt Permitted | | 0.83 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | 2616 | | | 3123 | | | 3069 | | | | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 45 | 879 | 0 | 0 | 591 | 26 | 59 | 1088 | 190 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 13 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 924 | 0 | 0 | 614 | 0 | 0 | 1324 | 0 | 0 | 0 | 0 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | D.P+P | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | 3 | 3 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 34.8 | | | 22.4 | | | 48.9 | | | | |
| Effective Green, g (s) | | 34.8 | | | 22.4 | | | 48.9 | | | | |
| Actuated g/C Ratio | | 0.35 | | | 0.22 | | | 0.49 | | | | |
| Clearance Time (s) | | | | | 5.6 | | | 6.1 | | | | |
| Lane Grp Cap (vph) | | 974 | | | 699 | | | 1500 | | | | |
| v/s Ratio Prot | | c0.12 | | | 0.20 | | | | | | | |
| v/s Ratio Perm | | c0.21 | | | | | | 0.43 | | | | |
| v/c Ratio | | 0.95 | | | 0.88 | | | 0.88 | | | | |
| Uniform Delay, d1 | | 31.7 | | | 37.5 | | | 23.0 | | | | |
| Progression Factor | | 0.76 | | | 0.54 | | | 0.67 | | | | |
| Incremental Delay, d2 | | 17.1 | | | 14.1 | | | 6.4 | | | | |
| Delay (s) | | 41.4 | | | 34.4 | | | 21.8 | | | | |
| Level of Service | | D | | | C | | | C | | | | |
| Approach Delay (s) | | 41.4 | | | 34.4 | | | 21.8 | | | 0.0 | |
| Approach LOS | | D | | | C | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 30.8 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 16.3 |
| Intersection Capacity Utilization | 97.9% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 105 | 58 | 0 | 0 | 31 | 10 | 26 | 1087 | 47 | 0 | 0 | 0 |
| Future Volume (vph) | 105 | 58 | 0 | 0 | 31 | 10 | 26 | 1087 | 47 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 6.1 | | | 6.1 | | | 5.6 | | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 1.00 | | | | |
| Flpb, ped/bikes | | 0.99 | | | 1.00 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.97 | | | 0.99 | | | | |
| Flt Protected | | 0.97 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | 1580 | | | 1586 | | | 3108 | | | | |
| Flt Permitted | | 0.78 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | 1273 | | | 1586 | | | 3108 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 105 | 58 | 0 | 0 | 31 | 10 | 26 | 1087 | 47 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 163 | 0 | 0 | 34 | 0 | 0 | 1157 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 13 | | 17 | 17 | | 13 | 18 | | 18 | 18 | | 18 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 28.9 | | | 28.9 | | | 59.4 | | | | |
| Effective Green, g (s) | | 28.9 | | | 28.9 | | | 59.4 | | | | |
| Actuated g/C Ratio | | 0.29 | | | 0.29 | | | 0.59 | | | | |
| Clearance Time (s) | | 6.1 | | | 6.1 | | | 5.6 | | | | |
| Lane Grp Cap (vph) | | 367 | | | 458 | | | 1846 | | | | |
| v/s Ratio Prot | | | | | 0.02 | | | | | | | |
| v/s Ratio Perm | | c0.13 | | | | | | 0.37 | | | | |
| v/c Ratio | | 0.44 | | | 0.07 | | | 0.63 | | | | |
| Uniform Delay, d1 | | 29.0 | | | 25.8 | | | 13.1 | | | | |
| Progression Factor | | 0.27 | | | 1.00 | | | 0.30 | | | | |
| Incremental Delay, d2 | | 3.6 | | | 0.3 | | | 1.4 | | | | |
| Delay (s) | | 11.4 | | | 26.1 | | | 5.3 | | | | |
| Level of Service | | B | | | C | | | A | | | | |
| Approach Delay (s) | | 11.4 | | | 26.1 | | | 5.3 | | | 0.0 | |
| Approach LOS | | B | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 6.6 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 11.7 |
| Intersection Capacity Utilization | 67.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 16 | 41 | 0 | 0 | 35 | 7 | 23 | 965 | 25 | 0 | 0 | 0 |
| Future Volume (vph) | 16 | 41 | 0 | 0 | 35 | 7 | 23 | 965 | 25 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | 5.6 | | | 5.6 | | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 1.00 | | | | |
| Flpb, ped/bikes | | 0.98 | | | 1.00 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.98 | | | 1.00 | | | | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | 1606 | | | 1598 | | | 3117 | | | | |
| Flt Permitted | | 0.93 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | 1522 | | | 1598 | | | 3117 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 16 | 41 | 0 | 0 | 35 | 7 | 23 | 965 | 25 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 57 | 0 | 0 | 37 | 0 | 0 | 1011 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 37 | | 48 | 48 | | 37 | 29 | | 21 | 21 | | 29 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 29.4 | | | 29.4 | | | 59.4 | | | | |
| Effective Green, g (s) | | 29.4 | | | 29.4 | | | 59.4 | | | | |
| Actuated g/C Ratio | | 0.29 | | | 0.29 | | | 0.59 | | | | |
| Clearance Time (s) | | 5.6 | | | 5.6 | | | 5.6 | | | | |
| Lane Grp Cap (vph) | | 447 | | | 469 | | | 1851 | | | | |
| v/s Ratio Prot | | | | | 0.02 | | | | | | | |
| v/s Ratio Perm | | c0.04 | | | | | | 0.32 | | | | |
| v/c Ratio | | 0.13 | | | 0.08 | | | 0.55 | | | | |
| Uniform Delay, d1 | | 25.9 | | | 25.5 | | | 12.2 | | | | |
| Progression Factor | | 0.88 | | | 1.00 | | | 0.05 | | | | |
| Incremental Delay, d2 | | 0.6 | | | 0.3 | | | 0.7 | | | | |
| Delay (s) | | 23.3 | | | 25.8 | | | 1.4 | | | | |
| Level of Service | | C | | | C | | | A | | | | |
| Approach Delay (s) | | 23.3 | | | 25.8 | | | 1.4 | | | 0.0 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 3.4 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 60.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 45 | 380 | 0 | 0 | 553 | 49 | 14 | 774 | 178 | 0 | 0 | 0 |
| Future Volume (vph) | 45 | 380 | 0 | 0 | 553 | 49 | 14 | 774 | 178 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 6.1 | | | 6.1 | | | 6.6 | | | | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 0.99 | | | | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.99 | | | 0.97 | | | | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | 3120 | | | 3086 | | | 3034 | | | | |
| Flt Permitted | | 0.82 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | 2564 | | | 3086 | | | 3034 | | | | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 48 | 409 | 0 | 0 | 595 | 53 | 15 | 832 | 191 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 17 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 457 | 0 | 0 | 642 | 0 | 0 | 1021 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 32 | | 102 | 102 | | 32 | 20 | | 21 | 21 | | 20 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 2 | | | 2 | | | 4 | | | | |
| Permitted Phases | 2 | | | | | | 4 | | | | | |
| Actuated Green, G (s) | | 46.9 | | | 46.9 | | | 50.4 | | | | |
| Effective Green, g (s) | | 46.9 | | | 46.9 | | | 50.4 | | | | |
| Actuated g/C Ratio | | 0.43 | | | 0.43 | | | 0.46 | | | | |
| Clearance Time (s) | | 6.1 | | | 6.1 | | | 6.6 | | | | |
| Lane Grp Cap (vph) | | 1093 | | | 1315 | | | 1390 | | | | |
| v/s Ratio Prot | | | | | c0.21 | | | | | | | |
| v/s Ratio Perm | | 0.18 | | | | | | 0.34 | | | | |
| v/c Ratio | | 0.42 | | | 0.49 | | | 0.73 | | | | |
| Uniform Delay, d1 | | 22.0 | | | 22.9 | | | 24.3 | | | | |
| Progression Factor | | 0.69 | | | 1.55 | | | 1.00 | | | | |
| Incremental Delay, d2 | | 1.1 | | | 0.1 | | | 3.5 | | | | |
| Delay (s) | | 16.3 | | | 35.7 | | | 27.8 | | | | |
| Level of Service | | B | | | D | | | C | | | | |
| Approach Delay (s) | | 16.3 | | | 35.7 | | | 27.8 | | | 0.0 | |
| Approach LOS | | B | | | D | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 27.7 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.7 |
| Intersection Capacity Utilization | 85.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | EBR2 | SBL2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 982 | 71 | 50 | 96 | 678 | 396 |
| Future Volume (vph) | 982 | 71 | 50 | 96 | 678 | 396 |
| Ideal Flow (vphpl) | 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 | | | *0.95 | *0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | | 1.00 | 1.00 |
| Flt Protected | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 4031 | 1144 | | | 3200 | 3200 |
| Flt Permitted | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | 4031 | 1144 | | | 2973 | 2973 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 1012 | 73 | 52 | 99 | 699 | 408 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 1019 | 118 | 0 | 0 | 574 | 632 |
| Confl. Peds. (#/hr) | | 46 | | 90 | | |
| Turn Type | NA | Prot | | Split | Split | NA |
| Protected Phases | 4 | 4 | | 2 | 2 | 2 |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 38.0 | 38.0 | | | 32.0 | 32.0 |
| Effective Green, g (s) | 39.0 | 39.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.49 | 0.49 | | | 0.41 | 0.41 |
| Clearance Time (s) | 5.0 | 5.0 | | | 5.0 | 5.0 |
| Lane Grp Cap (vph) | 1965 | 557 | | | 1320 | 1320 |
| v/s Ratio Prot | c0.25 | 0.10 | | | 0.18 | c0.20 |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.52 | 0.21 | | | 0.43 | 0.48 |
| Uniform Delay, d1 | 14.1 | 11.7 | | | 16.8 | 17.2 |
| Progression Factor | 0.48 | 0.52 | | | 0.30 | 0.30 |
| Incremental Delay, d2 | 0.6 | 0.6 | | | 1.0 | 1.2 |
| Delay (s) | 7.4 | 6.7 | | | 6.0 | 6.2 |
| Level of Service | A | A | | | A | A |
| Approach Delay (s) | 7.3 | | | | | 6.1 |
| Approach LOS | A | | | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 6.7 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 52.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 150 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 155 | 965 | 0 |
| Future Volume (vph) | 0 | 150 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 155 | 965 | 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 | | 0.95 | | | | | | | | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 0.99 | | | | | | | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | | | | | | 0.96 | 1.00 | |
| Frt | | 0.96 | | | | | | | | 1.00 | 1.00 | |
| Flt Protected | | 1.00 | | | | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 2824 | | | | | | | | 1429 | 4272 | |
| Flt Permitted | | 1.00 | | | | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 2824 | | | | | | | | 1429 | 4272 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 150 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 155 | 965 | 0 |
| RTOR Reduction (vph) | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 66 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 166 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 965 | 0 |
| Confl. Peds. (#/hr) | 24 | | 36 | 36 | | 24 | 42 | | 34 | 34 | | 42 |
| Turn Type | | NA | | | | | | | | Perm | NA | |
| Protected Phases | | 4 | | | | | | | | | 2 | |
| Permitted Phases | | | | | | | | | | 2 | | |
| Actuated Green, G (s) | | 27.0 | | | | | | | | 47.0 | 47.0 | |
| Effective Green, g (s) | | 26.0 | | | | | | | | 46.0 | 46.0 | |
| Actuated g/C Ratio | | 0.32 | | | | | | | | 0.58 | 0.58 | |
| Clearance Time (s) | | 3.0 | | | | | | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 917 | | | | | | | | 821 | 2456 | |
| v/s Ratio Prot | | c0.06 | | | | | | | | | c0.23 | |
| v/s Ratio Perm | | | | | | | | | | 0.06 | | |
| v/c Ratio | | 0.18 | | | | | | | | 0.11 | 0.39 | |
| Uniform Delay, d1 | | 19.4 | | | | | | | | 7.7 | 9.3 | |
| Progression Factor | | 0.35 | | | | | | | | 0.00 | 0.35 | |
| Incremental Delay, d2 | | 0.3 | | | | | | | | 0.2 | 0.4 | |
| Delay (s) | | 7.1 | | | | | | | | 0.3 | 3.7 | |
| Level of Service | | A | | | | | | | | A | A | |
| Approach Delay (s) | | 7.1 | | | 0.0 | | | 0.0 | | | 3.2 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 3.8 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.32 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 44.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 20 | 33 | 35 | 29 | 17 | 18 | 0 | 0 | 0 | 53 | 575 | 30 |
| Future Volume (vph) | 20 | 33 | 35 | 29 | 17 | 18 | 0 | 0 | 0 | 53 | 575 | 30 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 6.6 | | | 6.6 | | | | | | 5.6 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | | | | 0.95 | |
| Frpb, ped/bikes | | 0.97 | | | 0.96 | | | | | | 0.99 | |
| Flpb, ped/bikes | | 0.98 | | | 0.97 | | | | | | 0.98 | |
| Frt | | 0.95 | | | 0.96 | | | | | | 0.99 | |
| Flt Protected | | 0.99 | | | 0.98 | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1464 | | | 1457 | | | | | | 3038 | |
| Flt Permitted | | 0.93 | | | 0.86 | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1383 | | | 1277 | | | | | | 3038 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 33 | 35 | 29 | 17 | 18 | 0 | 0 | 0 | 53 | 575 | 30 |
| RTOR Reduction (vph) | 0 | 24 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 0 | 64 | 0 | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 655 | 0 |
| Confl. Peds. (#/hr) | 60 | | 54 | 54 | | 60 | 37 | | 78 | 78 | | 37 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | Perm | NA | | | | | Perm | NA | |
| Protected Phases | | 4 | | | 4 | | | | | | 2 | |
| Permitted Phases | 4 | | | 4 | | | | | | 2 | | |
| Actuated Green, G (s) | | 28.4 | | | 28.4 | | | | | | 59.4 | |
| Effective Green, g (s) | | 28.4 | | | 28.4 | | | | | | 59.4 | |
| Actuated g/C Ratio | | 0.28 | | | 0.28 | | | | | | 0.59 | |
| Clearance Time (s) | | 6.6 | | | 6.6 | | | | | | 5.6 | |
| Lane Grp Cap (vph) | | 392 | | | 362 | | | | | | 1804 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.05 | | | 0.04 | | | | | | 0.22 | |
| v/c Ratio | | 0.16 | | | 0.14 | | | | | | 0.36 | |
| Uniform Delay, d1 | | 26.9 | | | 26.7 | | | | | | 10.5 | |
| Progression Factor | | 1.00 | | | 1.44 | | | | | | 0.32 | |
| Incremental Delay, d2 | | 0.9 | | | 0.8 | | | | | | 0.5 | |
| Delay (s) | | 27.8 | | | 39.1 | | | | | | 3.9 | |
| Level of Service | | C | | | D | | | | | | A | |
| Approach Delay (s) | | 27.8 | | | 39.1 | | | 0.0 | | | 3.9 | |
| Approach LOS | | C | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 9.3 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.30 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 12.2 |
| Intersection Capacity Utilization | 57.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 92 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 688 | 0 |
| Future Volume (vph) | 0 | 92 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 688 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | | | | | | | 5.6 | |
| Lane Util. Factor | | 1.00 | | | | | | | | | 0.95 | |
| Frpb, ped/bikes | | 0.99 | | | | | | | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | | | | | | | 1.00 | |
| Frt | | 0.96 | | | | | | | | | 1.00 | |
| Flt Protected | | 1.00 | | | | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1575 | | | | | | | | | 3133 | |
| Flt Permitted | | 1.00 | | | | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1575 | | | | | | | | | 3133 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 92 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 688 | 0 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 0 | 118 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 702 | 0 |
| Confl. Peds. (#/hr) | 2 | | 4 | 4 | | 2 | 14 | | 15 | 15 | | 14 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | NA | | | | | | | | Perm | NA | |
| Protected Phases | | 4 | | | | | | | | | 2 | |
| Permitted Phases | | | | | | | | | | 2 | | |
| Actuated Green, G (s) | | 29.4 | | | | | | | | | 59.4 | |
| Effective Green, g (s) | | 29.4 | | | | | | | | | 59.4 | |
| Actuated g/C Ratio | | 0.29 | | | | | | | | | 0.59 | |
| Clearance Time (s) | | 5.6 | | | | | | | | | 5.6 | |
| Lane Grp Cap (vph) | | 463 | | | | | | | | | 1861 | |
| v/s Ratio Prot | | c0.07 | | | | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | | 0.22 | |
| v/c Ratio | | 0.25 | | | | | | | | | 0.38 | |
| Uniform Delay, d1 | | 26.9 | | | | | | | | | 10.6 | |
| Progression Factor | | 0.78 | | | | | | | | | 0.06 | |
| Incremental Delay, d2 | | 1.3 | | | | | | | | | 0.6 | |
| Delay (s) | | 22.3 | | | | | | | | | 1.2 | |
| Level of Service | | C | | | | | | | | | A | |
| Approach Delay (s) | | 22.3 | | | 0.0 | | | 0.0 | | | 1.2 | |
| Approach LOS | | C | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 4.6 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.34 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 52.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 55 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 888 | 18 |
| Future Volume (vph) | 0 | 55 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 888 | 18 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | | | | | | | 4.0 | |
| Lane Util. Factor | | 1.00 | | | | | | | | | 0.95 | |
| Frpb, ped/bikes | | 0.98 | | | | | | | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | | | | | | | 1.00 | |
| Frt | | 0.92 | | | | | | | | | 1.00 | |
| Flt Protected | | 1.00 | | | | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1411 | | | | | | | | | 2955 | |
| Flt Permitted | | 1.00 | | | | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1411 | | | | | | | | | 2955 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 55 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 888 | 18 |
| RTOR Reduction (vph) | 0 | 61 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 928 | 0 |
| Confl. Peds. (#/hr) | 11 | | 13 | 13 | | 11 | 21 | | 19 | 19 | | 21 |
| Turn Type | | NA | | | | | | | | Perm | NA | |
| Protected Phases | | 4 | | | | | | | | | 2 | |
| Permitted Phases | | | | | | | | | | 2 | | |
| Actuated Green, G (s) | | 27.0 | | | | | | | | | 47.0 | |
| Effective Green, g (s) | | 26.0 | | | | | | | | | 46.0 | |
| Actuated g/C Ratio | | 0.32 | | | | | | | | | 0.58 | |
| Clearance Time (s) | | 3.0 | | | | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 458 | | | | | | | | | 1699 | |
| v/s Ratio Prot | | c0.06 | | | | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | | 0.31 | |
| v/c Ratio | | 0.18 | | | | | | | | | 0.55 | |
| Uniform Delay, d1 | | 19.4 | | | | | | | | | 10.5 | |
| Progression Factor | | 0.92 | | | | | | | | | 0.20 | |
| Incremental Delay, d2 | | 0.9 | | | | | | | | | 1.1 | |
| Delay (s) | | 18.6 | | | | | | | | | 3.2 | |
| Level of Service | | B | | | | | | | | | A | |
| Approach Delay (s) | | 18.6 | | | 0.0 | | | 0.0 | | | 3.2 | |
| Approach LOS | | B | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 5.3 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 57.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 157 | 53 | 15 | 65 | 0 | 0 | 0 | 0 | 6 | 738 | 35 |
| Future Volume (vph) | 0 | 157 | 53 | 15 | 65 | 0 | 0 | 0 | 0 | 6 | 738 | 35 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 6.1 | | | 6.1 | | | | | | 5.6 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | | | | 0.95 | |
| Frpb, ped/bikes | | 0.99 | | | 1.00 | | | | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | | 1.00 | |
| Frt | | 0.97 | | | 1.00 | | | | | | 0.99 | |
| Flt Protected | | 1.00 | | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1580 | | | 1632 | | | | | | 3113 | |
| Flt Permitted | | 1.00 | | | 0.93 | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1580 | | | 1536 | | | | | | 3113 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 157 | 53 | 15 | 65 | 0 | 0 | 0 | 0 | 6 | 738 | 35 |
| RTOR Reduction (vph) | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 0 | 198 | 0 | 0 | 80 | 0 | 0 | 0 | 0 | 0 | 776 | 0 |
| Confl. Peds. (#/hr) | 10 | | 20 | 20 | | 10 | 12 | | 11 | 11 | | 12 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | NA | | Perm | NA | | | | | Perm | NA | |
| Protected Phases | | 4 | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | 2 | | |
| Actuated Green, G (s) | | 33.9 | | | 33.9 | | | | | | 54.4 | |
| Effective Green, g (s) | | 33.9 | | | 33.9 | | | | | | 54.4 | |
| Actuated g/C Ratio | | 0.34 | | | 0.34 | | | | | | 0.54 | |
| Clearance Time (s) | | 6.1 | | | 6.1 | | | | | | 5.6 | |
| Lane Grp Cap (vph) | | 535 | | | 520 | | | | | | 1693 | |
| v/s Ratio Prot | | c0.13 | | | | | | | | | | |
| v/s Ratio Perm | | | | | 0.05 | | | | | | 0.25 | |
| v/c Ratio | | 0.37 | | | 0.15 | | | | | | 0.46 | |
| Uniform Delay, d1 | | 25.0 | | | 23.0 | | | | | | 13.8 | |
| Progression Factor | | 1.25 | | | 0.76 | | | | | | 0.25 | |
| Incremental Delay, d2 | | 2.0 | | | 0.6 | | | | | | 0.9 | |
| Delay (s) | | 33.2 | | | 18.1 | | | | | | 4.4 | |
| Level of Service | | C | | | B | | | | | | A | |
| Approach Delay (s) | | 33.2 | | | 18.1 | | | 0.0 | | | 4.4 | |
| Approach LOS | | C | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 11.1 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 11.7 |
| Intersection Capacity Utilization | 56.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | WBL2 | WBT | SBT | SBR2 | NER2 |
|---|---|---|---|---|---|
| Lane Configurations | | | | | |
| Traffic Volume (vph) | 115 | 35 | 985 | 25 | 70 |
| Future Volume (vph) | 115 | 35 | 985 | 25 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.91 | | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | | 0.86 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 1.00 |
| Satd. Flow (prot) | 1486 | 1565 | 4256 | | 1353 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 1.00 |
| Satd. Flow (perm) | 1486 | 1565 | 4256 | | 1353 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 115 | 35 | 985 | 25 | 70 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 65 |
| Lane Group Flow (vph) | 115 | 35 | 1010 | 0 | 5 |
| Confl. Peds. (#/hr) | 35 | | | | 21 |
| Turn Type | Split | NA | NA | | Prot |
| Protected Phases | 4 | 4 | 2 | | 3 |
| Permitted Phases | | | | | |
| Actuated Green, G (s) | 21.0 | 21.0 | 41.0 | | 7.0 |
| Effective Green, g (s) | 20.0 | 20.0 | 42.0 | | 6.0 |
| Actuated g/C Ratio | 0.25 | 0.25 | 0.52 | | 0.08 |
| Clearance Time (s) | 3.0 | 3.0 | 5.0 | | 3.0 |
| Lane Grp Cap (vph) | 371 | 391 | 2234 | | 101 |
| v/s Ratio Prot | c0.08 | 0.02 | c0.24 | | c0.00 |
| v/s Ratio Perm | | | | | |
| v/c Ratio | 0.31 | 0.09 | 0.45 | | 0.05 |
| Uniform Delay, d1 | 24.4 | 23.0 | 11.8 | | 34.4 |
| Progression Factor | 1.00 | 0.98 | 0.17 | | 1.00 |
| Incremental Delay, d2 | 2.1 | 0.4 | 0.6 | | 1.0 |
| Delay (s) | 26.4 | 22.9 | 2.6 | | 35.3 |
| Level of Service | C | C | A | | D |
| Approach Delay (s) | | 25.6 | 2.6 | | |
| Approach LOS | | C | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 7.3 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.37 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 47.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 92 | 422 | 0 | 0 | 0 | 0 | 0 | 1088 | 125 |
| Future Volume (vph) | 0 | 0 | 0 | 92 | 422 | 0 | 0 | 0 | 0 | 0 | 1088 | 125 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | | | | | 4.0 | |
| Lane Util. Factor | | | | | 0.95 | | | | | | 0.91 | |
| Frpb, ped/bikes | | | | | 1.00 | | | | | | 0.99 | |
| Flpb, ped/bikes | | | | | 0.99 | | | | | | 1.00 | |
| Frt | | | | | 1.00 | | | | | | 0.98 | |
| Flt Protected | | | | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | | | 2922 | | | | | | 4173 | |
| Flt Permitted | | | | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | | | 2922 | | | | | | 4173 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 0 | 0 | 0 | 94 | 431 | 0 | 0 | 0 | 0 | 0 | 1110 | 128 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 525 | 0 | 0 | 0 | 0 | 0 | 1220 | 0 |
| Confl. Peds. (#/hr) | 53 | | 41 | 41 | | 53 | 56 | | 50 | 50 | | 56 |
| Turn Type | | | | Perm | NA | | | | | | NA | |
| Protected Phases | | | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | | | |
| Actuated Green, G (s) | | | | | 27.0 | | | | | | 47.0 | |
| Effective Green, g (s) | | | | | 26.0 | | | | | | 46.0 | |
| Actuated g/C Ratio | | | | | 0.32 | | | | | | 0.58 | |
| Clearance Time (s) | | | | | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 949 | | | | | | 2399 | |
| v/s Ratio Prot | | | | | | | | | | | c0.29 | |
| v/s Ratio Perm | | | | | 0.18 | | | | | | | |
| v/c Ratio | | | | | 0.55 | | | | | | 0.51 | |
| Uniform Delay, d1 | | | | | 22.2 | | | | | | 10.2 | |
| Progression Factor | | | | | 0.39 | | | | | | 0.12 | |
| Incremental Delay, d2 | | | | | 2.0 | | | | | | 0.7 | |
| Delay (s) | | | | | 10.5 | | | | | | 1.9 | |
| Level of Service | | | | | B | | | | | | A | |
| Approach Delay (s) | | 0.0 | | | 10.5 | | | 0.0 | | | 1.9 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 4.5 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 52.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 70 | 65 | 55 | 160 | 0 | 0 | 0 | 0 | 10 | 1000 | 130 |
| Future Volume (vph) | 0 | 70 | 65 | 55 | 160 | 0 | 0 | 0 | 0 | 10 | 1000 | 130 |
| 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 | | 1.00 | | | 1.00 | | | | | | 0.91 | |
| Frpb, ped/bikes | | 0.97 | | | 1.00 | | | | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 0.99 | | | | | | 1.00 | |
| Frt | | 0.94 | | | 1.00 | | | | | | 0.98 | |
| Flt Protected | | 1.00 | | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1421 | | | 1530 | | | | | | 4160 | |
| Flt Permitted | | 1.00 | | | 0.89 | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1421 | | | 1385 | | | | | | 4160 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 70 | 65 | 55 | 160 | 0 | 0 | 0 | 0 | 10 | 1000 | 130 |
| RTOR Reduction (vph) | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 |
| Lane Group Flow (vph) | 0 | 93 | 0 | 0 | 215 | 0 | 0 | 0 | 0 | 0 | 1120 | 0 |
| Confl. Peds. (#/hr) | 28 | | 36 | 36 | | 28 | 26 | | 38 | 38 | | 26 |
| Turn Type | | NA | | Perm | NA | | | | | Perm | NA | |
| Protected Phases | | 4 | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | 2 | | |
| Actuated Green, G (s) | | 20.0 | | | 20.0 | | | | | | 54.0 | |
| Effective Green, g (s) | | 19.0 | | | 19.0 | | | | | | 53.0 | |
| Actuated g/C Ratio | | 0.24 | | | 0.24 | | | | | | 0.66 | |
| Clearance Time (s) | | 3.0 | | | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 337 | | | 328 | | | | | | 2756 | |
| v/s Ratio Prot | | 0.07 | | | | | | | | | | |
| v/s Ratio Perm | | | | | c0.16 | | | | | | 0.27 | |
| v/c Ratio | | 0.28 | | | 0.66 | | | | | | 0.41 | |
| Uniform Delay, d1 | | 24.9 | | | 27.5 | | | | | | 6.2 | |
| Progression Factor | | 1.63 | | | 0.92 | | | | | | 0.15 | |
| Incremental Delay, d2 | | 1.8 | | | 9.0 | | | | | | 0.4 | |
| Delay (s) | | 42.3 | | | 34.2 | | | | | | 1.3 | |
| Level of Service | | D | | | C | | | | | | A | |
| Approach Delay (s) | | 42.3 | | | 34.2 | | | 0.0 | | | 1.3 | |
| Approach LOS | | D | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 9.7 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 67.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 80 | 40 | 22 | 55 | 0 | 0 | 0 | 0 | 35 | 905 | 75 |
| Future Volume (vph) | 0 | 80 | 40 | 22 | 55 | 0 | 0 | 0 | 0 | 35 | 905 | 75 |
| 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 | | 1.00 | | | 1.00 | | | | | | 0.91 | |
| Frpb, ped/bikes | | 0.98 | | | 1.00 | | | | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 0.99 | | | | | | 1.00 | |
| Frt | | 0.95 | | | 1.00 | | | | | | 0.99 | |
| Flt Protected | | 1.00 | | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1459 | | | 1521 | | | | | | 4169 | |
| Flt Permitted | | 1.00 | | | 0.92 | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1459 | | | 1414 | | | | | | 4169 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 80 | 40 | 22 | 55 | 0 | 0 | 0 | 0 | 35 | 905 | 75 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 0 | 97 | 0 | 0 | 77 | 0 | 0 | 0 | 0 | 0 | 1004 | 0 |
| Confl. Peds. (#/hr) | 33 | | 45 | 45 | | 33 | 50 | | 45 | 45 | | 50 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| Turn Type | | NA | | Perm | NA | | | | | Perm | NA | |
| Protected Phases | | 4 | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | 2 | | |
| Actuated Green, G (s) | | 20.0 | | | 20.0 | | | | | | 54.0 | |
| Effective Green, g (s) | | 19.0 | | | 19.0 | | | | | | 53.0 | |
| Actuated g/C Ratio | | 0.24 | | | 0.24 | | | | | | 0.66 | |
| Clearance Time (s) | | 3.0 | | | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 346 | | | 335 | | | | | | 2761 | |
| v/s Ratio Prot | | c0.07 | | | | | | | | | | |
| v/s Ratio Perm | | | | | 0.05 | | | | | | 0.24 | |
| v/c Ratio | | 0.28 | | | 0.23 | | | | | | 0.36 | |
| Uniform Delay, d1 | | 24.9 | | | 24.6 | | | | | | 6.0 | |
| Progression Factor | | 0.83 | | | 1.02 | | | | | | 0.13 | |
| Incremental Delay, d2 | | 1.9 | | | 1.5 | | | | | | 0.3 | |
| Delay (s) | | 22.5 | | | 26.6 | | | | | | 1.1 | |
| Level of Service | | C | | | C | | | | | | A | |
| Approach Delay (s) | | 22.5 | | | 26.6 | | | 0.0 | | | 1.1 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 4.9 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.34 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 46.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 101 | 341 | 0 | 0 | 0 | 0 | 0 | 895 | 68 |
| Future Volume (vph) | 0 | 0 | 0 | 101 | 341 | 0 | 0 | 0 | 0 | 0 | 895 | 68 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | | | | | 4.0 | |
| Lane Util. Factor | | | | | 0.91 | | | | | | 0.91 | |
| Frpb, ped/bikes | | | | | 1.00 | | | | | | 0.99 | |
| Flpb, ped/bikes | | | | | 0.98 | | | | | | 1.00 | |
| Frt | | | | | 1.00 | | | | | | 0.99 | |
| Flt Protected | | | | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | | | 4139 | | | | | | 4200 | |
| Flt Permitted | | | | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | | | 4139 | | | | | | 4200 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 0 | 0 | 0 | 111 | 375 | 0 | 0 | 0 | 0 | 0 | 984 | 75 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 445 | 0 | 0 | 0 | 0 | 0 | 1048 | 0 |
| Confl. Peds. (#/hr) | 61 | | 73 | 73 | | 61 | 64 | | 42 | 42 | | 64 |
| Turn Type | | | | Perm | NA | | | | | | NA | |
| Protected Phases | | | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | | | |
| Actuated Green, G (s) | | | | | 32.0 | | | | | | 40.0 | |
| Effective Green, g (s) | | | | | 31.0 | | | | | | 41.0 | |
| Actuated g/C Ratio | | | | | 0.39 | | | | | | 0.51 | |
| Clearance Time (s) | | | | | 3.0 | | | | | | 5.0 | |
| Lane Grp Cap (vph) | | | | | 1603 | | | | | | 2152 | |
| v/s Ratio Prot | | | | | | | | | | | c0.25 | |
| v/s Ratio Perm | | | | | 0.11 | | | | | | | |
| v/c Ratio | | | | | 0.28 | | | | | | 0.49 | |
| Uniform Delay, d1 | | | | | 16.8 | | | | | | 12.7 | |
| Progression Factor | | | | | 0.46 | | | | | | 0.70 | |
| Incremental Delay, d2 | | | | | 0.4 | | | | | | 0.8 | |
| Delay (s) | | | | | 8.1 | | | | | | 9.6 | |
| Level of Service | | | | | A | | | | | | A | |
| Approach Delay (s) | | 0.0 | | | 8.1 | | | 0.0 | | | 9.6 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 9.1 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 44.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 575 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 173 | 1007 | 0 |
| Future Volume (vph) | 0 | 575 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 173 | 1007 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | | | | | | | 4.0 | |
| Lane Util. Factor | | 0.91 | | | | | | | | | 0.91 | |
| Frpb, ped/bikes | | 0.99 | | | | | | | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | | | | | | | 0.99 | |
| Frt | | 0.98 | | | | | | | | | 1.00 | |
| Flt Protected | | 1.00 | | | | | | | | | 0.99 | |
| Satd. Flow (prot) | | 4150 | | | | | | | | | 4211 | |
| Flt Permitted | | 1.00 | | | | | | | | | 0.99 | |
| Satd. Flow (perm) | | 4150 | | | | | | | | | 4211 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 0 | 618 | 95 | 0 | 0 | 0 | 0 | 0 | 0 | 186 | 1083 | 0 |
| RTOR Reduction (vph) | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 0 |
| Lane Group Flow (vph) | 0 | 687 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1239 | 0 |
| Confl. Peds. (#/hr) | 42 | | 48 | 48 | | 42 | 39 | | 40 | 40 | | 39 |
| Bus Blockages (#/hr) | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turn Type | | NA | | | | | | | | Perm | NA | |
| Protected Phases | | 4 | | | | | | | | | 2 | |
| Permitted Phases | | | | | | | | | | 2 | | |
| Actuated Green, G (s) | | 32.0 | | | | | | | | | 42.0 | |
| Effective Green, g (s) | | 31.0 | | | | | | | | | 41.0 | |
| Actuated g/C Ratio | | 0.39 | | | | | | | | | 0.51 | |
| Clearance Time (s) | | 3.0 | | | | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 1608 | | | | | | | | | 2158 | |
| v/s Ratio Prot | | c0.17 | | | | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | | 0.29 | |
| v/c Ratio | | 0.43 | | | | | | | | | 0.57 | |
| Uniform Delay, d1 | | 18.0 | | | | | | | | | 13.5 | |
| Progression Factor | | 1.55 | | | | | | | | | 0.29 | |
| Incremental Delay, d2 | | 0.7 | | | | | | | | | 1.0 | |
| Delay (s) | | 28.6 | | | | | | | | | 4.9 | |
| Level of Service | | C | | | | | | | | | A | |
| Approach Delay (s) | | 28.6 | | | 0.0 | | | 0.0 | | | 4.9 | |
| Approach LOS | | C | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 13.4 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 80.0 | 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 | | | |

| Movement | EBT | EBR | WBL | WBT | SBL | SBT | SBR | SER |
|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | |
| Traffic Volume (vph) | 150 | 105 | 8 | 612 | 90 | 800 | 6 | 300 |
| Future Volume (vph) | 150 | 105 | 8 | 612 | 90 | 800 | 6 | 300 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 |
| Lane Util. Factor | 0.95 | 1.00 | | 0.95 | 1.00 | 0.91 | | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | 1.00 | | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.98 | 1.00 | | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 1.00 | | 0.86 |
| Flt Protected | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 | | 1.00 |
| Satd. Flow (prot) | 2973 | 1297 | | 2970 | 1454 | 4267 | | 1306 |
| Flt Permitted | 1.00 | 1.00 | | 0.95 | 0.95 | 1.00 | | 1.00 |
| Satd. Flow (perm) | 2973 | 1297 | | 2830 | 1454 | 4267 | | 1306 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 160 | 112 | 9 | 651 | 96 | 851 | 6 | 319 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 160 | 112 | 0 | 660 | 96 | 857 | 0 | 319 |
| Confl. Peds. (#/hr) | | 14 | 14 | | 28 | | | 30 |
| Turn Type | NA | Perm | Perm | NA | Perm | NA | | Perm |
| Protected Phases | 4 | | | 4 | | 2 | | |
| Permitted Phases | | 4 | 4 | | 2 | | | 2 |
| Actuated Green, G (s) | 37.0 | 37.0 | | 37.0 | 37.0 | 37.0 | | 37.0 |
| Effective Green, g (s) | 36.0 | 36.0 | | 36.0 | 36.0 | 36.0 | | 36.0 |
| Actuated g/C Ratio | 0.45 | 0.45 | | 0.45 | 0.45 | 0.45 | | 0.45 |
| Clearance Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | 1337 | 583 | | 1273 | 654 | 1920 | | 587 |
| v/s Ratio Prot | 0.05 | | | | | 0.20 | | |
| v/s Ratio Perm | | 0.09 | | c0.23 | 0.07 | | | c0.24 |
| v/c Ratio | 0.12 | 0.19 | | 0.52 | 0.15 | 0.45 | | 0.54 |
| Uniform Delay, d1 | 12.8 | 13.2 | | 15.8 | 13.0 | 15.1 | | 16.0 |
| Progression Factor | 0.98 | 1.02 | | 0.31 | 0.55 | 0.50 | | 1.00 |
| Incremental Delay, d2 | 0.2 | 0.7 | | 0.9 | 0.4 | 0.7 | | 3.6 |
| Delay (s) | 12.7 | 14.3 | | 5.8 | 7.5 | 8.2 | | 19.6 |
| Level of Service | B | B | | A | A | A | | B |
| Approach Delay (s) | 13.4 | | | 5.8 | | 8.1 | | |
| Approach LOS | B | | | A | | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 9.7 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 97.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 19 | 323 | 39 | 235 | 324 | 8 | 0 | 11 | 30 | 58 | 414 | 82 |
| Future Volume (vph) | 19 | 323 | 39 | 235 | 324 | 8 | 0 | 11 | 30 | 58 | 414 | 82 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | 6.6 | 6.6 | 6.6 | 4.6 | 4.6 | | | 6.6 | | | 6.6 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.68 | 1.00 | 1.00 | | | 0.76 | | | 0.98 | |
| Flpb, ped/bikes | 0.92 | 1.00 | 1.00 | 0.91 | 1.00 | | | 1.00 | | | 0.97 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.90 | | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | | | 0.99 | |
| Satd. Flow (prot) | 1449 | 3143 | 949 | 1422 | 1645 | | | 1132 | | | 2914 | |
| Flt Permitted | 0.55 | 1.00 | 1.00 | 0.52 | 1.00 | | | 1.00 | | | 0.91 | |
| Satd. Flow (perm) | 842 | 3143 | 949 | 774 | 1645 | | | 1132 | | | 2676 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 20 | 340 | 41 | 247 | 341 | 8 | 0 | 12 | 32 | 61 | 436 | 86 |
| RTOR Reduction (vph) | 0 | 0 | 29 | 0 | 1 | 0 | 0 | 19 | 0 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 20 | 340 | 12 | 247 | 348 | 0 | 0 | 25 | 0 | 0 | 570 | 0 |
| Confl. Peds. (#/hr) | 71 | | 372 | 372 | | 71 | 87 | | 403 | 403 | | 87 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | Perm | D.P+P | NA | | | NA | | Perm | NA | |
| Protected Phases | | 4 | | 3 | 3 4 | | | 2 | | | 2 | |
| Permitted Phases | 4 | | 4 | 4 | | | 2 | | | 2 | | |
| Actuated Green, G (s) | 33.4 | 33.4 | 33.4 | 47.8 | 52.4 | | | 44.4 | | | 44.4 | |
| Effective Green, g (s) | 33.4 | 33.4 | 33.4 | 47.8 | 52.4 | | | 44.4 | | | 44.4 | |
| Actuated g/C Ratio | 0.30 | 0.30 | 0.30 | 0.43 | 0.48 | | | 0.40 | | | 0.40 | |
| Clearance Time (s) | 6.6 | 6.6 | 6.6 | 4.6 | | | | 6.6 | | | 6.6 | |
| Lane Grp Cap (vph) | 255 | 954 | 288 | 421 | 783 | | | 456 | | | 1080 | |
| v/s Ratio Prot | | 0.11 | | c0.08 | 0.21 | | | 0.02 | | | | |
| v/s Ratio Perm | 0.02 | | 0.01 | c0.18 | | | | | | | c0.21 | |
| v/c Ratio | 0.08 | 0.36 | 0.04 | 0.59 | 0.44 | | | 0.05 | | | 0.53 | |
| Uniform Delay, d1 | 27.3 | 29.9 | 27.0 | 21.3 | 19.1 | | | 20.0 | | | 24.9 | |
| Progression Factor | 1.16 | 1.10 | 5.52 | 0.71 | 0.27 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.5 | 0.9 | 0.3 | 5.2 | 1.6 | | | 0.2 | | | 1.8 | |
| Delay (s) | 32.2 | 33.8 | 149.5 | 20.3 | 6.8 | | | 20.2 | | | 26.7 | |
| Level of Service | C | C | F | C | A | | | C | | | C | |
| Approach Delay (s) | | 45.6 | | | 12.4 | | | 20.2 | | | 26.7 | |
| Approach LOS | | D | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 25.9 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 17.8 |
| Intersection Capacity Utilization | 81.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 13 | 30 | 60 | 0 | 0 | 0 | 0 | 0 | 889 | 35 |
| Future Volume (vph) | 0 | 0 | 13 | 30 | 60 | 0 | 0 | 0 | 0 | 0 | 889 | 35 |
| 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 | | | 1.00 | 1.00 | 1.00 | | | | | | 0.95 | |
| Frpb, ped/bikes | | | 0.98 | 1.00 | 1.00 | | | | | | 1.00 | |
| Flpb, ped/bikes | | | 1.00 | 0.99 | 1.00 | | | | | | 1.00 | |
| Frt | | | 0.86 | 1.00 | 1.00 | | | | | | 0.99 | |
| Flt Protected | | | 1.00 | 0.95 | 1.00 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | 1321 | 1469 | 1565 | | | | | | 2953 | |
| Flt Permitted | | | 1.00 | 0.95 | 1.00 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | 1321 | 1469 | 1565 | | | | | | 2953 | |
| Peak-hour factor, PHF | 0.70 | 0.70 | 0.70 | 0.67 | 0.67 | 0.67 | 1.00 | 1.00 | 1.00 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 19 | 45 | 90 | 0 | 0 | 0 | 0 | 0 | 966 | 38 |
| RTOR Reduction (vph) | 0 | 0 | 13 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 6 | 15 | 90 | 0 | 0 | 0 | 0 | 0 | 1001 | 0 |
| Confl. Peds. (#/hr) | 35 | | 12 | 12 | | 35 | 6 | | 27 | 27 | | 6 |
| Turn Type | | | Perm | Perm | NA | | | | | | NA | |
| Protected Phases | | | | | 4 | | | | | | 2 | |
| Permitted Phases | | | 4 | 4 | | | | | | | | |
| Actuated Green, G (s) | | | 27.0 | 27.0 | 27.0 | | | | | | 47.0 | |
| Effective Green, g (s) | | | 26.0 | 26.0 | 26.0 | | | | | | 46.0 | |
| Actuated g/C Ratio | | | 0.32 | 0.32 | 0.32 | | | | | | 0.58 | |
| Clearance Time (s) | | | 3.0 | 3.0 | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | | 429 | 477 | 508 | | | | | | 1697 | |
| v/s Ratio Prot | | | | | c0.06 | | | | | | c0.34 | |
| v/s Ratio Perm | | | 0.00 | 0.01 | | | | | | | | |
| v/c Ratio | | | 0.01 | 0.03 | 0.18 | | | | | | 0.59 | |
| Uniform Delay, d1 | | | 18.3 | 18.4 | 19.3 | | | | | | 10.9 | |
| Progression Factor | | | 1.00 | 0.80 | 0.86 | | | | | | 1.00 | |
| Incremental Delay, d2 | | | 0.1 | 0.1 | 0.7 | | | | | | 1.5 | |
| Delay (s) | | | 18.4 | 14.8 | 17.4 | | | | | | 12.4 | |
| Level of Service | | | B | B | B | | | | | | B | |
| Approach Delay (s) | | 18.4 | | | 16.6 | | | 0.0 | | | 12.4 | |
| Approach LOS | | B | | | B | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 13.0 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 55.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 72 | 684 | 0 | 0 | 0 | 0 | 0 | 489 | 199 |
| Future Volume (vph) | 0 | 0 | 0 | 72 | 684 | 0 | 0 | 0 | 0 | 0 | 489 | 199 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | | | | 6.0 | | | | | | 6.0 | |
| Lane Util. Factor | | | | | 0.95 | | | | | | 0.95 | |
| Frpb, ped/bikes | | | | | 1.00 | | | | | | 0.98 | |
| Flpb, ped/bikes | | | | | 0.99 | | | | | | 1.00 | |
| Frt | | | | | 1.00 | | | | | | 0.96 | |
| Flt Protected | | | | | 1.00 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | | | 3108 | | | | | | 2958 | |
| Flt Permitted | | | | | 1.00 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | | | 3108 | | | | | | 2958 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 0 | 0 | 0 | 81 | 769 | 0 | 0 | 0 | 0 | 0 | 549 | 224 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 43 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 832 | 0 | 0 | 0 | 0 | 0 | 730 | 0 |
| Confl. Peds. (#/hr) | 54 | | 41 | 41 | | 54 | 28 | | 3 | 3 | | 28 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | | | Perm | NA | | | | | | NA | |
| Protected Phases | | | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | | | |
| Actuated Green, G (s) | | | | | 44.0 | | | | | | 44.0 | |
| Effective Green, g (s) | | | | | 44.0 | | | | | | 44.0 | |
| Actuated g/C Ratio | | | | | 0.44 | | | | | | 0.44 | |
| Clearance Time (s) | | | | | 6.0 | | | | | | 6.0 | |
| Lane Grp Cap (vph) | | | | | 1367 | | | | | | 1301 | |
| v/s Ratio Prot | | | | | | | | | | | c0.25 | |
| v/s Ratio Perm | | | | | 0.27 | | | | | | | |
| v/c Ratio | | | | | 0.61 | | | | | | 0.56 | |
| Uniform Delay, d1 | | | | | 21.4 | | | | | | 20.8 | |
| Progression Factor | | | | | 0.29 | | | | | | 0.59 | |
| Incremental Delay, d2 | | | | | 1.7 | | | | | | 1.7 | |
| Delay (s) | | | | | 8.0 | | | | | | 14.1 | |
| Level of Service | | | | | A | | | | | | B | |
| Approach Delay (s) | | 0.0 | | | 8.0 | | | 0.0 | | | 14.1 | |
| Approach LOS | | A | | | A | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 10.9 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 61.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 623 | 83 | 127 | 1185 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 623 | 83 | 127 | 1185 | 0 | 0 | 0 | 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 | | | | | 0.91 | | 1.00 | 0.91 | | | | |
| Frpb, ped/bikes | | | | | 0.98 | | 1.00 | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | | 0.82 | 1.00 | | | | |
| Frt | | | | | 0.98 | | 1.00 | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | 0.95 | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 4578 | | 1362 | 4746 | | | | |
| Flt Permitted | | | | | 1.00 | | 0.95 | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 4578 | | 1362 | 4746 | | | | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 670 | 89 | 137 | 1274 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 14 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 745 | 0 | 128 | 1274 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 131 | | 247 | 247 | | 131 | 146 | | 249 | 249 | | 146 |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 30.0 | | 62.0 | 62.0 | | | | |
| Effective Green, g (s) | | | | | 31.0 | | 61.0 | 61.0 | | | | |
| Actuated g/C Ratio | | | | | 0.31 | | 0.61 | 0.61 | | | | |
| Clearance Time (s) | | | | | 5.0 | | 3.0 | 3.0 | | | | |
| Lane Grp Cap (vph) | | | | | 1419 | | 830 | 2895 | | | | |
| v/s Ratio Prot | | | | | c0.16 | | | c0.27 | | | | |
| v/s Ratio Perm | | | | | | | 0.09 | | | | | |
| v/c Ratio | | | | | 0.52 | | 0.15 | 0.44 | | | | |
| Uniform Delay, d1 | | | | | 28.4 | | 8.4 | 10.4 | | | | |
| Progression Factor | | | | | 1.35 | | 0.72 | 0.71 | | | | |
| Incremental Delay, d2 | | | | | 0.4 | | 0.4 | 0.4 | | | | |
| Delay (s) | | | | | 38.8 | | 6.4 | 7.8 | | | | |
| Level of Service | | | | | D | | A | A | | | | |
| Approach Delay (s) | | 0.0 | | | 38.8 | | | 7.7 | | | 0.0 | |
| Approach LOS | | A | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 18.6 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 53.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 47 | 26 | 21 | 30 | 0 | 0 | 0 | 0 | 12 | 565 | 19 |
| Future Volume (vph) | 0 | 47 | 26 | 21 | 30 | 0 | 0 | 0 | 0 | 12 | 565 | 19 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | 5.6 | | | | | | 5.6 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | | | | 0.95 | |
| Frt | | 0.95 | | | 1.00 | | | | | | 1.00 | |
| Flt Protected | | 1.00 | | | 0.98 | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1574 | | | 1621 | | | | | | 3124 | |
| Flt Permitted | | 1.00 | | | 0.89 | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1574 | | | 1475 | | | | | | 3124 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 47 | 26 | 21 | 30 | 0 | 0 | 0 | 0 | 12 | 565 | 19 |
| RTOR Reduction (vph) | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 55 | 0 | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 594 | 0 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | NA | | Perm | NA | | | | | Perm | NA | |
| Protected Phases | | 4 | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | 2 | | |
| Actuated Green, G (s) | | 29.4 | | | 29.4 | | | | | | 59.4 | |
| Effective Green, g (s) | | 29.4 | | | 29.4 | | | | | | 59.4 | |
| Actuated g/C Ratio | | 0.29 | | | 0.29 | | | | | | 0.59 | |
| Clearance Time (s) | | 5.6 | | | 5.6 | | | | | | 5.6 | |
| Lane Grp Cap (vph) | | 462 | | | 433 | | | | | | 1855 | |
| v/s Ratio Prot | | c0.03 | | | | | | | | | | |
| v/s Ratio Perm | | | | | 0.03 | | | | | | 0.19 | |
| v/c Ratio | | 0.12 | | | 0.12 | | | | | | 0.32 | |
| Uniform Delay, d1 | | 25.8 | | | 25.8 | | | | | | 10.2 | |
| Progression Factor | | 0.77 | | | 1.06 | | | | | | 0.15 | |
| Incremental Delay, d2 | | 0.5 | | | 0.5 | | | | | | 0.4 | |
| Delay (s) | | 20.5 | | | 27.9 | | | | | | 1.9 | |
| Level of Service | | C | | | C | | | | | | A | |
| Approach Delay (s) | | 20.5 | | | 27.9 | | | 0.0 | | | 1.9 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 5.7 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.25 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 44.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 50 | 30 | 105 | 1278 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 50 | 30 | 105 | 1278 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | | | | 0.95 | | | 0.86 | | | | |
| Frpb, ped/bikes | | | | | 0.94 | | | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | | | 1.00 | | | | |
| Frt | | | | | 0.94 | | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 2649 | | | 5337 | | | | |
| Flt Permitted | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 2649 | | | 5337 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 0.80 | 0.80 | 0.87 | 0.87 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 62 | 38 | 121 | 1469 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 101 | 0 | 0 | 1577 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 97 | | 171 | 171 | | 97 | 43 | | 111 | 111 | | 43 |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 24.0 | | | 70.0 | | | | |
| Effective Green, g (s) | | | | | 23.0 | | | 69.0 | | | | |
| Actuated g/C Ratio | | | | | 0.23 | | | 0.69 | | | | |
| Clearance Time (s) | | | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | | | | 609 | | | 3682 | | | | |
| v/s Ratio Prot | | | | | c0.04 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.30 | | | | |
| v/c Ratio | | | | | 0.17 | | | 0.43 | | | | |
| Uniform Delay, d1 | | | | | 30.8 | | | 6.8 | | | | |
| Progression Factor | | | | | 1.17 | | | 0.18 | | | | |
| Incremental Delay, d2 | | | | | 0.6 | | | 0.2 | | | | |
| Delay (s) | | | | | 36.5 | | | 1.5 | | | | |
| Level of Service | | | | | D | | | A | | | | |
| Approach Delay (s) | | 0.0 | | | 36.5 | | | 1.5 | | | 0.0 | |
| Approach LOS | | A | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 3.6 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 48.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 95 | 85 | 0 | 0 | 0 | 0 | 0 | 1077 | 230 | 0 | 0 | 0 |
| Future Volume (vph) | 95 | 85 | 0 | 0 | 0 | 0 | 0 | 1077 | 230 | 0 | 0 | 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 | 1.00 | 0.95 | | | | | | 0.91 | | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | | | | 0.94 | | | | |
| Flpb, ped/bikes | 0.90 | 1.00 | | | | | | 1.00 | | | | |
| Frt | 1.00 | 1.00 | | | | | | 0.97 | | | | |
| Flt Protected | 0.95 | 1.00 | | | | | | 1.00 | | | | |
| Satd. Flow (prot) | 1342 | 2973 | | | | | | 3915 | | | | |
| Flt Permitted | 0.95 | 1.00 | | | | | | 1.00 | | | | |
| Satd. Flow (perm) | 1342 | 2973 | | | | | | 3915 | | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 0.98 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 103 | 92 | 0 | 0 | 0 | 0 | 0 | 1099 | 235 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 74 | 92 | 0 | 0 | 0 | 0 | 0 | 1334 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 104 | | 154 | 154 | | 104 | 157 | | 306 | 306 | | 157 |
| Turn Type | Perm | NA | | | | | | NA | | | | |
| Protected Phases | | 4 | | | | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | 34.0 | 34.0 | | | | | | 60.0 | | | | |
| Effective Green, g (s) | 33.0 | 33.0 | | | | | | 59.0 | | | | |
| Actuated g/C Ratio | 0.33 | 0.33 | | | | | | 0.59 | | | | |
| Clearance Time (s) | 3.0 | 3.0 | | | | | | 3.0 | | | | |
| Lane Grp Cap (vph) | 442 | 981 | | | | | | 2309 | | | | |
| v/s Ratio Prot | | 0.03 | | | | | | c0.34 | | | | |
| v/s Ratio Perm | c0.05 | | | | | | | | | | | |
| v/c Ratio | 0.17 | 0.09 | | | | | | 0.58 | | | | |
| Uniform Delay, d1 | 23.7 | 23.2 | | | | | | 12.8 | | | | |
| Progression Factor | 0.08 | 0.32 | | | | | | 0.80 | | | | |
| Incremental Delay, d2 | 0.8 | 0.2 | | | | | | 1.0 | | | | |
| Delay (s) | 2.7 | 7.5 | | | | | | 11.2 | | | | |
| Level of Service | A | A | | | | | | B | | | | |
| Approach Delay (s) | | 5.0 | | | 0.0 | | | 11.2 | | | 0.0 | |
| Approach LOS | | A | | | A | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 10.4 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 63.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 110 | 120 | 40 | 0 | 0 | 0 | 0 | 0 | 1490 | 40 |
| Future Volume (vph) | 0 | 0 | 110 | 120 | 40 | 0 | 0 | 0 | 0 | 0 | 1490 | 40 |
| 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 | | | 1.00 | | 0.95 | | | | | | 0.86 | |
| Frpb, ped/bikes | | | 1.00 | | 1.00 | | | | | | 0.99 | |
| Flpb, ped/bikes | | | 1.00 | | 0.79 | | | | | | 1.00 | |
| Frt | | | 0.86 | | 1.00 | | | | | | 1.00 | |
| Flt Protected | | | 1.00 | | 0.96 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | 1353 | | 2269 | | | | | | 5292 | |
| Flt Permitted | | | 1.00 | | 0.96 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | 1353 | | 2269 | | | | | | 5292 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 0.80 | 0.76 | 0.76 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | 0.91 |
| Adj. Flow (vph) | 0 | 0 | 138 | 158 | 53 | 0 | 0 | 0 | 0 | 0 | 1637 | 44 |
| RTOR Reduction (vph) | 0 | 0 | 10 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 128 | 0 | 199 | 0 | 0 | 0 | 0 | 0 | 1681 | 0 |
| Confl. Peds. (#/hr) | 32 | | 204 | 204 | | 32 | 224 | | 175 | 175 | | 224 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| Turn Type | | | Prot | Perm | NA | | | | | | NA | |
| Protected Phases | | | 4 | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | | | |
| Actuated Green, G (s) | | | 25.0 | | 25.0 | | | | | | 66.0 | |
| Effective Green, g (s) | | | 27.0 | | 27.0 | | | | | | 65.0 | |
| Actuated g/C Ratio | | | 0.27 | | 0.27 | | | | | | 0.65 | |
| Clearance Time (s) | | | 6.0 | | 6.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | | 365 | | 612 | | | | | | 3439 | |
| v/s Ratio Prot | | | c0.09 | | | | | | | | c0.32 | |
| v/s Ratio Perm | | | | | 0.09 | | | | | | | |
| v/c Ratio | | | 0.35 | | 0.32 | | | | | | 0.49 | |
| Uniform Delay, d1 | | | 29.4 | | 29.2 | | | | | | 9.0 | |
| Progression Factor | | | 1.14 | | 1.23 | | | | | | 0.23 | |
| Incremental Delay, d2 | | | 2.5 | | 0.4 | | | | | | 0.5 | |
| Delay (s) | | | 36.2 | | 36.3 | | | | | | 2.5 | |
| Level of Service | | | D | | D | | | | | | A | |
| Approach Delay (s) | | 36.2 | | | 36.3 | | | 0.0 | | | 2.5 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 8.3 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 71.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 170 | 673 | 0 | 0 | 0 | 0 | 0 | 1142 | 204 | 0 | 0 | 0 |
| Future Volume (vph) | 170 | 673 | 0 | 0 | 0 | 0 | 0 | 1142 | 204 | 0 | 0 | 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 | 1.00 | 0.95 | | | | | | 0.91 | | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | | | | 1.00 | | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | | | | 1.00 | | | | |
| Frt | 1.00 | 1.00 | | | | | | 0.98 | | | | |
| Flt Protected | 0.95 | 1.00 | | | | | | 1.00 | | | | |
| Satd. Flow (prot) | 1486 | 2973 | | | | | | 4800 | | | | |
| Flt Permitted | 0.95 | 1.00 | | | | | | 1.00 | | | | |
| Satd. Flow (perm) | 1486 | 2973 | | | | | | 4174 | | | | |
| 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) | 185 | 732 | 0 | 0 | 0 | 0 | 0 | 1241 | 222 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 185 | 732 | 0 | 0 | 0 | 0 | 0 | 1463 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | | | 6 | 6 | | | | | | | | |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | | | | NA | | | | |
| Protected Phases | | 4 | | | | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | 32.0 | 32.0 | | | | | | 62.0 | | | | |
| Effective Green, g (s) | 31.0 | 31.0 | | | | | | 61.0 | | | | |
| Actuated g/C Ratio | 0.31 | 0.31 | | | | | | 0.61 | | | | |
| Clearance Time (s) | 3.0 | 3.0 | | | | | | 3.0 | | | | |
| Lane Grp Cap (vph) | 460 | 921 | | | | | | 2928 | | | | |
| v/s Ratio Prot | | c0.25 | | | | | | c0.30 | | | | |
| v/s Ratio Perm | 0.12 | | | | | | | | | | | |
| v/c Ratio | 0.40 | 0.79 | | | | | | 0.50 | | | | |
| Uniform Delay, d1 | 27.2 | 31.6 | | | | | | 10.9 | | | | |
| Progression Factor | 1.16 | 1.06 | | | | | | 1.37 | | | | |
| Incremental Delay, d2 | 1.7 | 4.7 | | | | | | 0.6 | | | | |
| Delay (s) | 33.4 | 38.3 | | | | | | 15.5 | | | | |
| Level of Service | C | D | | | | | | B | | | | |
| Approach Delay (s) | | 37.3 | | | 0.0 | | | 15.5 | | | 0.0 | |
| Approach LOS | | D | | | A | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 23.9 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 56.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 189 | 58 | 0 | 0 | 400 | 35 | 123 | 1060 | 27 | 0 | 0 | 0 |
| Future Volume (vph) | 189 | 58 | 0 | 0 | 400 | 35 | 123 | 1060 | 27 | 0 | 0 | 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 | | 1.00 | | | 0.95 | | | 0.91 | | | | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.99 | | | 1.00 | | | | |
| Flt Protected | | 0.96 | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (prot) | | 1500 | | | 2925 | | | 4196 | | | | |
| Flt Permitted | | 0.38 | | | 1.00 | | | 0.99 | | | | |
| Satd. Flow (perm) | | 585 | | | 2925 | | | 4196 | | | | |
| 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) | 197 | 60 | 0 | 0 | 417 | 36 | 128 | 1104 | 28 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 257 | 0 | 0 | 446 | 0 | 0 | 1258 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 27 | | 55 | 55 | | 27 | 27 | | 66 | 66 | | 27 |
| Turn Type | Prot | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | 3 | 3 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 38.0 | | | 28.0 | | | 53.0 | | | | |
| Effective Green, g (s) | | 36.0 | | | 27.0 | | | 52.0 | | | | |
| Actuated g/C Ratio | | 0.36 | | | 0.27 | | | 0.52 | | | | |
| Clearance Time (s) | | | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 292 | | | 789 | | | 2181 | | | | |
| v/s Ratio Prot | | c0.08 | | | 0.15 | | | | | | | |
| v/s Ratio Perm | | c0.24 | | | | | | 0.30 | | | | |
| v/c Ratio | | 0.88 | | | 0.57 | | | 0.58 | | | | |
| Uniform Delay, d1 | | 30.0 | | | 31.4 | | | 16.5 | | | | |
| Progression Factor | | 1.28 | | | 0.69 | | | 0.35 | | | | |
| Incremental Delay, d2 | | 27.8 | | | 2.8 | | | 1.0 | | | | |
| Delay (s) | | 66.3 | | | 24.6 | | | 6.8 | | | | |
| Level of Service | | E | | | C | | | A | | | | |
| Approach Delay (s) | | 66.3 | | | 24.6 | | | 6.8 | | | 0.0 | |
| Approach LOS | | E | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 18.6 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 70.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 77 | 68 | 0 | 0 | 0 | 0 | 0 | 837 | 19 |
| Future Volume (vph) | 0 | 0 | 0 | 77 | 68 | 0 | 0 | 0 | 0 | 0 | 837 | 19 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | | | | 5.6 | | | | | | 5.6 | |
| Lane Util. Factor | | | | | 0.95 | | | | | | 0.95 | |
| Frpb, ped/bikes | | | | | 1.00 | | | | | | 1.00 | |
| Flpb, ped/bikes | | | | | 0.99 | | | | | | 1.00 | |
| Frt | | | | | 1.00 | | | | | | 1.00 | |
| Flt Protected | | | | | 0.97 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | | | 3045 | | | | | | 3129 | |
| Flt Permitted | | | | | 0.97 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | | | 3045 | | | | | | 3129 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 77 | 68 | 0 | 0 | 0 | 0 | 0 | 837 | 19 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 54 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 91 | 0 | 0 | 0 | 0 | 0 | 854 | 0 |
| Confl. Peds. (#/hr) | 2 | | 6 | 6 | | 2 | 20 | | 17 | 17 | | 20 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | | | Perm | NA | | | | | | NA | |
| Protected Phases | | | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | | | |
| Actuated Green, G (s) | | | | | 29.4 | | | | | | 59.4 | |
| Effective Green, g (s) | | | | | 29.4 | | | | | | 59.4 | |
| Actuated g/C Ratio | | | | | 0.29 | | | | | | 0.59 | |
| Clearance Time (s) | | | | | 5.6 | | | | | | 5.6 | |
| Lane Grp Cap (vph) | | | | | 895 | | | | | | 1858 | |
| v/s Ratio Prot | | | | | | | | | | | c0.27 | |
| v/s Ratio Perm | | | | | 0.03 | | | | | | | |
| v/c Ratio | | | | | 0.10 | | | | | | 0.46 | |
| Uniform Delay, d1 | | | | | 25.7 | | | | | | 11.3 | |
| Progression Factor | | | | | 0.75 | | | | | | 0.36 | |
| Incremental Delay, d2 | | | | | 0.2 | | | | | | 0.8 | |
| Delay (s) | | | | | 19.5 | | | | | | 4.9 | |
| Level of Service | | | | | B | | | | | | A | |
| Approach Delay (s) | | 0.0 | | | 19.5 | | | 0.0 | | | 4.9 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 7.0 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.34 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 51.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 2543 | 91 | 99 | 1272 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 2543 | 91 | 99 | 1272 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | | | | 0.81 | | | 0.86 | | | | |
| Frt | | | | | 0.99 | | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 6304 | | | 5363 | | | | |
| Flt Permitted | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 6304 | | | 5363 | | | | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 2795 | 100 | 109 | 1398 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 2895 | 0 | 0 | 1507 | 0 | 0 | 0 | 0 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 57.0 | | | 37.0 | | | | |
| Effective Green, g (s) | | | | | 56.0 | | | 36.0 | | | | |
| Actuated g/C Ratio | | | | | 0.56 | | | 0.36 | | | | |
| Clearance Time (s) | | | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | | | | 3530 | | | 1930 | | | | |
| v/s Ratio Prot | | | | | c0.46 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.28 | | | | |
| v/c Ratio | | | | | 0.82 | | | 0.78 | | | | |
| Uniform Delay, d1 | | | | | 17.9 | | | 28.5 | | | | |
| Progression Factor | | | | | 0.45 | | | 0.66 | | | | |
| Incremental Delay, d2 | | | | | 1.6 | | | 1.8 | | | | |
| Delay (s) | | | | | 9.7 | | | 20.7 | | | | |
| Level of Service | | | | | A | | | C | | | | |
| Approach Delay (s) | | 0.0 | | | 9.7 | | | 20.7 | | | 0.0 | |
| Approach LOS | | A | | | A | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 13.5 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 62.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 65 | 55 | 60 | 1100 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 65 | 55 | 60 | 1100 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | | | | 0.95 | | | 0.91 | | | | |
| Frpb, ped/bikes | | | | | 0.99 | | | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | | | 1.00 | | | | |
| Frt | | | | | 0.93 | | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 2747 | | | 4260 | | | | |
| Flt Permitted | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 2747 | | | 4260 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 0.71 | 0.71 | 0.71 | 0.82 | 0.82 | 0.82 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 92 | 77 | 73 | 1341 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 40 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 129 | 0 | 0 | 1407 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 24 | 24 | | 5 | 2 | | 46 | 46 | | 2 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 22.0 | | | 52.0 | | | | |
| Effective Green, g (s) | | | | | 21.0 | | | 51.0 | | | | |
| Actuated g/C Ratio | | | | | 0.26 | | | 0.64 | | | | |
| Clearance Time (s) | | | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | | | | 721 | | | 2715 | | | | |
| v/s Ratio Prot | | | | | c0.05 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.33 | | | | |
| v/c Ratio | | | | | 0.18 | | | 0.52 | | | | |
| Uniform Delay, d1 | | | | | 22.8 | | | 7.8 | | | | |
| Progression Factor | | | | | 0.90 | | | 0.32 | | | | |
| Incremental Delay, d2 | | | | | 0.5 | | | 0.6 | | | | |
| Delay (s) | | | | | 21.0 | | | 3.1 | | | | |
| Level of Service | | | | | C | | | A | | | | |
| Approach Delay (s) | | 0.0 | | | 21.0 | | | 3.1 | | | 0.0 | |
| Approach LOS | | A | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 5.0 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 55.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 18 | 39 | 0 | 0 | 0 | 0 | 0 | 678 | 38 |
| Future Volume (vph) | 0 | 0 | 0 | 18 | 39 | 0 | 0 | 0 | 0 | 0 | 678 | 38 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | | | | 5.6 | | | | | | 5.6 | |
| Lane Util. Factor | | | | | 1.00 | | | | | | 0.95 | |
| Frt | | | | | 1.00 | | | | | | 0.99 | |
| Flt Protected | | | | | 0.98 | | | | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1628 | | | | | | 3118 | |
| Flt Permitted | | | | | 0.98 | | | | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1628 | | | | | | 3118 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 18 | 39 | 0 | 0 | 0 | 0 | 0 | 678 | 38 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 712 | 0 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | | | Perm | NA | | | | | | NA | |
| Protected Phases | | | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | | | |
| Actuated Green, G (s) | | | | | 29.4 | | | | | | 59.4 | |
| Effective Green, g (s) | | | | | 29.4 | | | | | | 59.4 | |
| Actuated g/C Ratio | | | | | 0.29 | | | | | | 0.59 | |
| Clearance Time (s) | | | | | 5.6 | | | | | | 5.6 | |
| Lane Grp Cap (vph) | | | | | 478 | | | | | | 1852 | |
| v/s Ratio Prot | | | | | | | | | | | c0.23 | |
| v/s Ratio Perm | | | | | 0.02 | | | | | | | |
| v/c Ratio | | | | | 0.08 | | | | | | 0.38 | |
| Uniform Delay, d1 | | | | | 25.5 | | | | | | 10.7 | |
| Progression Factor | | | | | 0.86 | | | | | | 0.27 | |
| Incremental Delay, d2 | | | | | 0.3 | | | | | | 0.5 | |
| Delay (s) | | | | | 22.1 | | | | | | 3.4 | |
| Level of Service | | | | | C | | | | | | A | |
| Approach Delay (s) | | 0.0 | | | 22.1 | | | 0.0 | | | 3.4 | |
| Approach LOS | | A | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 4.8 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.28 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 35.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 804 | 62 | 91 | 501 | 0 | 0 | 0 | 0 | 37 | 550 | 61 |
| Future Volume (vph) | 0 | 804 | 62 | 91 | 501 | 0 | 0 | 0 | 0 | 37 | 550 | 61 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 6.1 | | | 6.1 | | | | | | 6.1 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | | 1.00 | |
| Frt | | 0.99 | | | 1.00 | | | | | | 0.99 | |
| Flt Protected | | 1.00 | | | 0.99 | | | | | | 1.00 | |
| Satd. Flow (prot) | | 3098 | | | 3115 | | | | | | 3064 | |
| Flt Permitted | | 1.00 | | | 0.65 | | | | | | 1.00 | |
| Satd. Flow (perm) | | 3098 | | | 2033 | | | | | | 3064 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 0 | 820 | 63 | 93 | 511 | 0 | 0 | 0 | 0 | 38 | 561 | 62 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 0 | 877 | 0 | 0 | 604 | 0 | 0 | 0 | 0 | 0 | 653 | 0 |
| Confl. Peds. (#/hr) | 31 | | 25 | 25 | | 31 | 55 | | 11 | 11 | | 55 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | NA | | Perm | NA | | | | | Perm | NA | |
| Protected Phases | | 4 | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | 2 | | |
| Actuated Green, G (s) | | 51.9 | | | 51.9 | | | | | | 35.9 | |
| Effective Green, g (s) | | 51.9 | | | 51.9 | | | | | | 35.9 | |
| Actuated g/C Ratio | | 0.52 | | | 0.52 | | | | | | 0.36 | |
| Clearance Time (s) | | 6.1 | | | 6.1 | | | | | | 6.1 | |
| Lane Grp Cap (vph) | | 1607 | | | 1055 | | | | | | 1099 | |
| v/s Ratio Prot | | 0.28 | | | | | | | | | | |
| v/s Ratio Perm | | | | | c0.30 | | | | | | 0.21 | |
| v/c Ratio | | 0.55 | | | 0.57 | | | | | | 0.59 | |
| Uniform Delay, d1 | | 16.1 | | | 16.5 | | | | | | 26.1 | |
| Progression Factor | | 0.96 | | | 0.52 | | | | | | 0.95 | |
| Incremental Delay, d2 | | 0.9 | | | 1.0 | | | | | | 2.3 | |
| Delay (s) | | 16.3 | | | 9.5 | | | | | | 27.2 | |
| Level of Service | | B | | | A | | | | | | C | |
| Approach Delay (s) | | 16.3 | | | 9.5 | | | 0.0 | | | 27.2 | |
| Approach LOS | | B | | | A | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 17.7 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 12.2 |
| Intersection Capacity Utilization | 86.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 1385 | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 79 | 301 | 0 |
| Future Volume (vph) | 0 | 1385 | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 79 | 301 | 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 | | 0.91 | | | | | | | | 1.00 | 0.95 | |
| Frpb, ped/bikes | | 1.00 | | | | | | | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | | | | | | 1.00 | 1.00 | |
| Frt | | 0.99 | | | | | | | | 1.00 | 1.00 | |
| Flt Protected | | 1.00 | | | | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 4248 | | | | | | | | 1486 | 2973 | |
| Flt Permitted | | 1.00 | | | | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 4248 | | | | | | | | 1486 | 2973 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 0 | 1522 | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 331 | 0 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 1576 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 331 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 41 | | 1 | 1 | | 41 |
| Turn Type | | NA | | | | | | | | Prot | NA | |
| Protected Phases | | 2 | | | | | | | | 1 | 1 4 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | 57.0 | | | | | | | | 10.0 | 37.0 | |
| Effective Green, g (s) | | 56.0 | | | | | | | | 9.0 | 36.0 | |
| Actuated g/C Ratio | | 0.56 | | | | | | | | 0.09 | 0.36 | |
| Clearance Time (s) | | 3.0 | | | | | | | | 3.0 | | |
| Lane Grp Cap (vph) | | 2378 | | | | | | | | 133 | 1070 | |
| v/s Ratio Prot | | c0.37 | | | | | | | | 0.01 | c0.11 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | 0.66 | | | | | | | | 0.06 | 0.31 | |
| Uniform Delay, d1 | | 15.4 | | | | | | | | 41.6 | 23.0 | |
| Progression Factor | | 0.23 | | | | | | | | 2.17 | 0.92 | |
| Incremental Delay, d2 | | 0.5 | | | | | | | | 0.7 | 0.6 | |
| Delay (s) | | 4.0 | | | | | | | | 90.9 | 21.9 | |
| Level of Service | | A | | | | | | | | F | C | |
| Approach Delay (s) | | 4.0 | | | 0.0 | | | 0.0 | | | 36.3 | |
| Approach LOS | | A | | | A | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 10.7 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 59.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 10 | 10 | 0 | 0 | 0 | 94 | 0 | 1325 | 19 | 0 | 0 | 0 |
| Future Volume (vph) | 10 | 10 | 0 | 0 | 0 | 94 | 0 | 1325 | 19 | 0 | 0 | 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 | | 1.00 | | | | 1.00 | | 0.91 | | | | |
| Frt | | 1.00 | | | | 0.86 | | 1.00 | | | | |
| Flt Protected | | 0.98 | | | | 1.00 | | 1.00 | | | | |
| Satd. Flow (prot) | | 1527 | | | | 1353 | | 4263 | | | | |
| Flt Permitted | | 0.98 | | | | 1.00 | | 1.00 | | | | |
| Satd. Flow (perm) | | 1527 | | | | 1353 | | 4263 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 0.78 | 1.00 | 0.78 | 1.00 | 0.99 | 0.99 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 10 | 0 | 0 | 0 | 121 | 0 | 1338 | 19 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 0 | 81 | 0 | 2 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 12 | 0 | 0 | 0 | 40 | 0 | 1355 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | | Perm | | NA | | | | |
| Protected Phases | | 4 | | | | | | 2 | | | | |
| Permitted Phases | 4 | | | | | 4 | | | | | | |
| Actuated Green, G (s) | | 19.0 | | | | 19.0 | | 75.0 | | | | |
| Effective Green, g (s) | | 18.0 | | | | 18.0 | | 74.0 | | | | |
| Actuated g/C Ratio | | 0.18 | | | | 0.18 | | 0.74 | | | | |
| Clearance Time (s) | | 3.0 | | | | 3.0 | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 274 | | | | 243 | | 3154 | | | | |
| v/s Ratio Prot | | | | | | | | c0.32 | | | | |
| v/s Ratio Perm | | 0.01 | | | | c0.03 | | | | | | |
| v/c Ratio | | 0.04 | | | | 0.16 | | 0.43 | | | | |
| Uniform Delay, d1 | | 33.9 | | | | 34.6 | | 5.0 | | | | |
| Progression Factor | | 1.00 | | | | 1.00 | | 0.17 | | | | |
| Incremental Delay, d2 | | 0.3 | | | | 1.4 | | 0.3 | | | | |
| Delay (s) | | 34.2 | | | | 36.1 | | 1.2 | | | | |
| Level of Service | | C | | | | D | | A | | | | |
| Approach Delay (s) | | 34.2 | | | 36.1 | | | 1.2 | | | 0.0 | |
| Approach LOS | | C | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 4.4 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.38 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 51.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 96 | 833 | 0 | 0 | 0 | 0 | 0 | 996 | 93 | 0 | 0 | 0 |
| Future Volume (vph) | 96 | 833 | 0 | 0 | 0 | 0 | 0 | 996 | 93 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | | | | 5.6 | | | | |
| Lane Util. Factor | | 0.95 | | | | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | | | | 1.00 | | | | |
| Flpb, ped/bikes | | 1.00 | | | | | | 1.00 | | | | |
| Frt | | 1.00 | | | | | | 0.99 | | | | |
| Flt Protected | | 0.99 | | | | | | 1.00 | | | | |
| Satd. Flow (prot) | | 3123 | | | | | | 3091 | | | | |
| Flt Permitted | | 0.99 | | | | | | 1.00 | | | | |
| Satd. Flow (perm) | | 3123 | | | | | | 3091 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 96 | 833 | 0 | 0 | 0 | 0 | 0 | 996 | 93 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 913 | 0 | 0 | 0 | 0 | 0 | 1082 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 7 | | 15 | 15 | | 7 | 12 | | 20 | 20 | | 12 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | | | | | NA | | | | |
| Protected Phases | | 4 | | | | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | | 44.4 | | | | | | 44.4 | | | | |
| Effective Green, g (s) | | 44.4 | | | | | | 44.4 | | | | |
| Actuated g/C Ratio | | 0.44 | | | | | | 0.44 | | | | |
| Clearance Time (s) | | 5.6 | | | | | | 5.6 | | | | |
| Lane Grp Cap (vph) | | 1386 | | | | | | 1372 | | | | |
| v/s Ratio Prot | | | | | | | | c0.35 | | | | |
| v/s Ratio Perm | | 0.29 | | | | | | | | | | |
| v/c Ratio | | 0.66 | | | | | | 0.79 | | | | |
| Uniform Delay, d1 | | 21.9 | | | | | | 23.8 | | | | |
| Progression Factor | | 0.62 | | | | | | 0.19 | | | | |
| Incremental Delay, d2 | | 2.0 | | | | | | 3.6 | | | | |
| Delay (s) | | 15.5 | | | | | | 8.1 | | | | |
| Level of Service | | B | | | | | | A | | | | |
| Approach Delay (s) | | 15.5 | | | 0.0 | | | 8.1 | | | 0.0 | |
| Approach LOS | | B | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 11.5 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 77.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 880 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 552 | 0 |
| Future Volume (vph) | 0 | 880 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 552 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | | | | | | | 5.6 | |
| Lane Util. Factor | | 0.95 | | | | | | | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | | | | | | | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | | | | | | | 1.00 | |
| Frt | | 0.99 | | | | | | | | | 1.00 | |
| Flt Protected | | 1.00 | | | | | | | | | 1.00 | |
| Satd. Flow (prot) | | 3116 | | | | | | | | | 3128 | |
| Flt Permitted | | 1.00 | | | | | | | | | 1.00 | |
| Satd. Flow (perm) | | 3116 | | | | | | | | | 3128 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 880 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 552 | 0 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 |
| Lane Group Flow (vph) | 0 | 920 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 564 | 0 |
| Confl. Peds. (#/hr) | 7 | | 8 | 8 | | 7 | 19 | | 29 | 29 | | 19 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | NA | | | | | | | | Perm | NA | |
| Protected Phases | | 4 | | | | | | | | | 2 | |
| Permitted Phases | | | | | | | | | | 2 | | |
| Actuated Green, G (s) | | 47.4 | | | | | | | | | 41.4 | |
| Effective Green, g (s) | | 47.4 | | | | | | | | | 41.4 | |
| Actuated g/C Ratio | | 0.47 | | | | | | | | | 0.41 | |
| Clearance Time (s) | | 5.6 | | | | | | | | | 5.6 | |
| Lane Grp Cap (vph) | | 1476 | | | | | | | | | 1294 | |
| v/s Ratio Prot | | c0.30 | | | | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | | 0.18 | |
| v/c Ratio | | 0.62 | | | | | | | | | 0.44 | |
| Uniform Delay, d1 | | 19.6 | | | | | | | | | 20.9 | |
| Progression Factor | | 0.20 | | | | | | | | | 0.42 | |
| Incremental Delay, d2 | | 1.4 | | | | | | | | | 0.9 | |
| Delay (s) | | 5.4 | | | | | | | | | 9.6 | |
| Level of Service | | A | | | | | | | | | A | |
| Approach Delay (s) | | 5.4 | | | 0.0 | | | 0.0 | | | 9.6 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 7.0 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 60.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 419 | 0 | 0 | 0 | 0 | 751 |
| Future Volume (vph) | 419 | 0 | 0 | 0 | 0 | 751 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | | | 4.0 |
| Lane Util. Factor | 0.97 | | | | | 0.91 |
| Frt | 1.00 | | | | | 1.00 |
| Flt Protected | 0.95 | | | | | 1.00 |
| Satd. Flow (prot) | 2884 | | | | | 4272 |
| Flt Permitted | 0.95 | | | | | 1.00 |
| Satd. Flow (perm) | 2884 | | | | | 4272 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 419 | 0 | 0 | 0 | 0 | 751 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 419 | 0 | 0 | 0 | 0 | 751 |
| Turn Type | Prot | | | | | NA |
| Protected Phases | 4 | | | | | 2 |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 32.0 | | | | | 62.0 |
| Effective Green, g (s) | 31.0 | | | | | 61.0 |
| Actuated g/C Ratio | 0.31 | | | | | 0.61 |
| Clearance Time (s) | 3.0 | | | | | 3.0 |
| Lane Grp Cap (vph) | 894 | | | | | 2605 |
| v/s Ratio Prot | c0.15 | | | | | c0.18 |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.47 | | | | | 0.29 |
| Uniform Delay, d1 | 27.9 | | | | | 9.2 |
| Progression Factor | 0.57 | | | | | 1.00 |
| Incremental Delay, d2 | 1.4 | | | | | 0.3 |
| Delay (s) | 17.4 | | | | | 9.5 |
| Level of Service | B | | | | | A |
| Approach Delay (s) | 17.4 | | 0.0 | | | 9.5 |
| Approach LOS | B | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 12.3 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 83.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 159 | 27 | 188 | 291 | 0 | 0 | 0 | 0 | 45 | 1023 | 102 |
| Future Volume (vph) | 0 | 159 | 27 | 188 | 291 | 0 | 0 | 0 | 0 | 45 | 1023 | 102 |
| 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 | | 1.00 | | | 0.95 | | | | | | 0.91 | |
| Frpb, ped/bikes | | 0.99 | | | 1.00 | | | | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 0.99 | | | | | | 0.99 | |
| Frt | | 0.98 | | | 1.00 | | | | | | 0.99 | |
| Flt Protected | | 1.00 | | | 0.98 | | | | | | 1.00 | |
| Satd. Flow (prot) | | 1521 | | | 2878 | | | | | | 4170 | |
| Flt Permitted | | 1.00 | | | 0.70 | | | | | | 1.00 | |
| Satd. Flow (perm) | | 1521 | | | 2045 | | | | | | 4170 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 0 | 179 | 30 | 211 | 327 | 0 | 0 | 0 | 0 | 51 | 1149 | 115 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 203 | 0 | 0 | 538 | 0 | 0 | 0 | 0 | 0 | 1315 | 0 |
| Confl. Peds. (#/hr) | 51 | | 40 | 40 | | 51 | 6 | | 88 | 88 | | 6 |
| Turn Type | | NA | | Perm | NA | | | | | Perm | NA | |
| Protected Phases | | 4 | | | 4 | | | | | | 2 | |
| Permitted Phases | | | | 4 | | | | | | 2 | | |
| Actuated Green, G (s) | | 32.0 | | | 32.0 | | | | | | 62.0 | |
| Effective Green, g (s) | | 31.0 | | | 31.0 | | | | | | 61.0 | |
| Actuated g/C Ratio | | 0.31 | | | 0.31 | | | | | | 0.61 | |
| Clearance Time (s) | | 3.0 | | | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 471 | | | 633 | | | | | | 2543 | |
| v/s Ratio Prot | | 0.13 | | | | | | | | | | |
| v/s Ratio Perm | | | | | c0.26 | | | | | | 0.32 | |
| v/c Ratio | | 0.43 | | | 0.85 | | | | | | 0.52 | |
| Uniform Delay, d1 | | 27.5 | | | 32.3 | | | | | | 11.1 | |
| Progression Factor | | 0.47 | | | 0.98 | | | | | | 0.88 | |
| Incremental Delay, d2 | | 2.6 | | | 11.4 | | | | | | 0.7 | |
| Delay (s) | | 15.5 | | | 43.2 | | | | | | 10.5 | |
| Level of Service | | B | | | D | | | | | | B | |
| Approach Delay (s) | | 15.5 | | | 43.2 | | | 0.0 | | | 10.5 | |
| Approach LOS | | B | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 19.5 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 27 | 13 | 36 | 1204 | 4 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 27 | 13 | 36 | 1204 | 4 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | | | | 5.6 | | | 5.6 | | | | |
| Lane Util. Factor | | | | | 1.00 | | | 0.95 | | | | |
| Frpb, ped/bikes | | | | | 0.99 | | | 1.00 | | | | |
| Flpb, ped/bikes | | | | | 1.00 | | | 1.00 | | | | |
| Frt | | | | | 0.96 | | | 1.00 | | | | |
| Flt Protected | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | | | | 1565 | | | 3134 | | | | |
| Flt Permitted | | | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | | | | 1565 | | | 3134 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 27 | 13 | 36 | 1204 | 4 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 1242 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 12 | | 8 | 8 | | 12 | 10 | | 3 | 3 | | 10 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | | | | NA | | Perm | NA | | | | |
| Protected Phases | | | | | 4 | | | 2 | | | | |
| Permitted Phases | | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | | | | 29.4 | | | 59.4 | | | | |
| Effective Green, g (s) | | | | | 29.4 | | | 59.4 | | | | |
| Actuated g/C Ratio | | | | | 0.29 | | | 0.59 | | | | |
| Clearance Time (s) | | | | | 5.6 | | | 5.6 | | | | |
| Lane Grp Cap (vph) | | | | | 460 | | | 1861 | | | | |
| v/s Ratio Prot | | | | | c0.02 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.40 | | | | |
| v/c Ratio | | | | | 0.07 | | | 0.67 | | | | |
| Uniform Delay, d1 | | | | | 25.4 | | | 13.7 | | | | |
| Progression Factor | | | | | 1.00 | | | 0.20 | | | | |
| Incremental Delay, d2 | | | | | 0.3 | | | 1.6 | | | | |
| Delay (s) | | | | | 25.7 | | | 4.3 | | | | |
| Level of Service | | | | | C | | | A | | | | |
| Approach Delay (s) | | 0.0 | | | 25.7 | | | 4.3 | | | 0.0 | |
| Approach LOS | | A | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 5.0 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 67.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 80 | 50 | 0 | 0 | 28 | 17 | 47 | 937 | 36 | 0 | 0 | 0 |
| Future Volume (vph) | 80 | 50 | 0 | 0 | 28 | 17 | 47 | 937 | 36 | 0 | 0 | 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 | 4.0 | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 0.95 | 1.00 | | | |
| Frpb, ped/bikes | | 1.00 | | | 0.98 | | | 1.00 | 0.97 | | | |
| Flpb, ped/bikes | | 0.98 | | | 1.00 | | | 1.00 | 1.00 | | | |
| Frt | | 1.00 | | | 0.95 | | | 1.00 | 0.85 | | | |
| Flt Protected | | 0.97 | | | 1.00 | | | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | | 1484 | | | 1457 | | | 2961 | 1232 | | | |
| Flt Permitted | | 0.81 | | | 1.00 | | | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | | 1240 | | | 1457 | | | 2961 | 1232 | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 50 | 0 | 0 | 28 | 17 | 47 | 937 | 36 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 13 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 130 | 0 | 0 | 32 | 0 | 0 | 984 | 23 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 32 | | 26 | 26 | | 32 | 19 | | 8 | 8 | | 19 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | NA | | Perm | NA | Perm | | | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Actuated Green, G (s) | | 22.0 | | | 22.0 | | | 52.0 | 52.0 | | | |
| Effective Green, g (s) | | 21.0 | | | 21.0 | | | 51.0 | 51.0 | | | |
| Actuated g/C Ratio | | 0.26 | | | 0.26 | | | 0.64 | 0.64 | | | |
| Clearance Time (s) | | 3.0 | | | 3.0 | | | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | | 325 | | | 382 | | | 1887 | 785 | | | |
| v/s Ratio Prot | | | | | 0.02 | | | | | | | |
| v/s Ratio Perm | | c0.10 | | | | | | 0.33 | 0.02 | | | |
| v/c Ratio | | 0.40 | | | 0.08 | | | 0.52 | 0.03 | | | |
| Uniform Delay, d1 | | 24.3 | | | 22.3 | | | 7.9 | 5.4 | | | |
| Progression Factor | | 1.01 | | | 0.87 | | | 0.16 | 0.00 | | | |
| Incremental Delay, d2 | | 3.5 | | | 0.4 | | | 0.9 | 0.1 | | | |
| Delay (s) | | 28.2 | | | 19.8 | | | 2.1 | 0.1 | | | |
| Level of Service | | C | | | B | | | A | A | | | |
| Approach Delay (s) | | 28.2 | | | 19.8 | | | 2.1 | | | 0.0 | |
| Approach LOS | | C | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 5.6 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 57.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 19 | 100 | 0 | 0 | 29 | 11 | 21 | 936 | 31 | 0 | 0 | 0 |
| Future Volume (vph) | 19 | 100 | 0 | 0 | 29 | 11 | 21 | 936 | 31 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | 5.6 | | | 4.6 | | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 1.00 | | | | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.96 | | | 1.00 | | | | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (prot) | | 1635 | | | 1576 | | | 3120 | | | | |
| Flt Permitted | | 0.96 | | | 1.00 | | | 1.00 | | | | |
| Satd. Flow (perm) | | 1580 | | | 1576 | | | 3120 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 19 | 100 | 0 | 0 | 29 | 11 | 21 | 936 | 31 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 119 | 0 | 0 | 32 | 0 | 0 | 986 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 16 | | 31 | 31 | | 16 | 11 | | 4 | 4 | | 11 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | | | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | | 2 | | | | | |
| Actuated Green, G (s) | | 29.4 | | | 29.4 | | | 60.4 | | | | |
| Effective Green, g (s) | | 29.4 | | | 29.4 | | | 60.4 | | | | |
| Actuated g/C Ratio | | 0.29 | | | 0.29 | | | 0.60 | | | | |
| Clearance Time (s) | | 5.6 | | | 5.6 | | | 4.6 | | | | |
| Lane Grp Cap (vph) | | 464 | | | 463 | | | 1884 | | | | |
| v/s Ratio Prot | | | | | 0.02 | | | | | | | |
| v/s Ratio Perm | | c0.08 | | | | | | 0.32 | | | | |
| v/c Ratio | | 0.26 | | | 0.07 | | | 0.52 | | | | |
| Uniform Delay, d1 | | 27.0 | | | 25.4 | | | 11.5 | | | | |
| Progression Factor | | 0.92 | | | 1.00 | | | 0.04 | | | | |
| Incremental Delay, d2 | | 1.3 | | | 0.3 | | | 0.9 | | | | |
| Delay (s) | | 26.2 | | | 25.7 | | | 1.3 | | | | |
| Level of Service | | C | | | C | | | A | | | | |
| Approach Delay (s) | | 26.2 | | | 25.7 | | | 1.3 | | | 0.0 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 4.7 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 10.2 |
| Intersection Capacity Utilization | 59.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

Description: As provided 1651 - Intersection Timing Sheets use 1702 split 6

c Critical Lane Group

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 868 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 868 | 0 | 0 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | | | 5.6 | | |
| Lane Util. Factor | | | | 0.95 | | |
| Frpb, ped/bikes | | | | 1.00 | | |
| Flpb, ped/bikes | | | | 1.00 | | |
| Frt | | | | 1.00 | | |
| Flt Protected | | | | 1.00 | | |
| Satd. Flow (prot) | | | | 3143 | | |
| Flt Permitted | | | | 1.00 | | |
| Satd. Flow (perm) | | | | 3143 | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 868 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 868 | 0 | 0 |
| Confl. Peds. (#/hr) | 34 | 8 | 14 | | | 14 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Prot | | | NA | | |
| Protected Phases | 4 | | | 2 | | |
| Permitted Phases | | | 2 | | | |
| Actuated Green, G (s) | | | | 63.4 | | |
| Effective Green, g (s) | | | | 63.4 | | |
| Actuated g/C Ratio | | | | 0.58 | | |
| Clearance Time (s) | | | | 5.6 | | |
| Lane Grp Cap (vph) | | | | 1811 | | |
| v/s Ratio Prot | | | | c0.28 | | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | | | | 0.48 | | |
| Uniform Delay, d1 | | | | 13.6 | | |
| Progression Factor | | | | 0.20 | | |
| Incremental Delay, d2 | | | | 0.6 | | |
| Delay (s) | | | | 3.4 | | |
| Level of Service | | | | A | | |
| Approach Delay (s) | 0.0 | | | 3.4 | 0.0 | |
| Approach LOS | A | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 3.4 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.31 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 51.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 15 | 57 | 5 | 15 | 30 | 5 | 10 | 16 | 12 | 25 | 638 | 25 |
| Future Volume (vph) | 15 | 57 | 5 | 15 | 30 | 5 | 10 | 16 | 12 | 25 | 638 | 25 |
| Ideal Flow (vphpl) | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 | 1654 |
| Lane Width | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Total Lost time (s) | | 5.6 | | | 5.6 | | | 5.6 | | | 5.6 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 0.95 | |
| Frt | | 0.99 | | | 0.99 | | | 0.96 | | | 0.99 | |
| Flt Protected | | 0.99 | | | 0.99 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | | 1593 | | | 1578 | | | 1532 | | | 3059 | |
| Flt Permitted | | 0.95 | | | 0.92 | | | 0.85 | | | 0.95 | |
| Satd. Flow (perm) | | 1527 | | | 1472 | | | 1320 | | | 2896 | |
| 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) | 16 | 62 | 5 | 16 | 33 | 5 | 11 | 17 | 13 | 27 | 693 | 27 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 4 | 0 | 0 | 5 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 0 | 81 | 0 | 0 | 50 | 0 | 0 | 36 | 0 | 0 | 744 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 4 | | | 2 | | | 2 | |
| Permitted Phases | 4 | | | 4 | | | 2 | | | 2 | | |
| Actuated Green, G (s) | | 25.4 | | | 25.4 | | | 63.4 | | | 63.4 | |
| Effective Green, g (s) | | 25.4 | | | 25.4 | | | 63.4 | | | 63.4 | |
| Actuated g/C Ratio | | 0.25 | | | 0.25 | | | 0.63 | | | 0.63 | |
| Clearance Time (s) | | 5.6 | | | 5.6 | | | 5.6 | | | 5.6 | |
| Lane Grp Cap (vph) | | 387 | | | 373 | | | 836 | | | 1836 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.05 | | | 0.03 | | | 0.03 | | | c0.26 | |
| v/c Ratio | | 0.21 | | | 0.13 | | | 0.04 | | | 0.41 | |
| Uniform Delay, d1 | | 29.4 | | | 28.8 | | | 6.9 | | | 9.0 | |
| Progression Factor | | 1.00 | | | 1.12 | | | 2.44 | | | 1.00 | |
| Incremental Delay, d2 | | 1.2 | | | 0.7 | | | 0.1 | | | 0.7 | |
| Delay (s) | | 30.6 | | | 32.9 | | | 16.9 | | | 9.7 | |
| Level of Service | | C | | | C | | | B | | | A | |
| Approach Delay (s) | | 30.6 | | | 32.9 | | | 16.9 | | | 9.7 | |
| Approach LOS | | C | | | C | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 13.2 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 11.2 |
| Intersection Capacity Utilization | 37.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

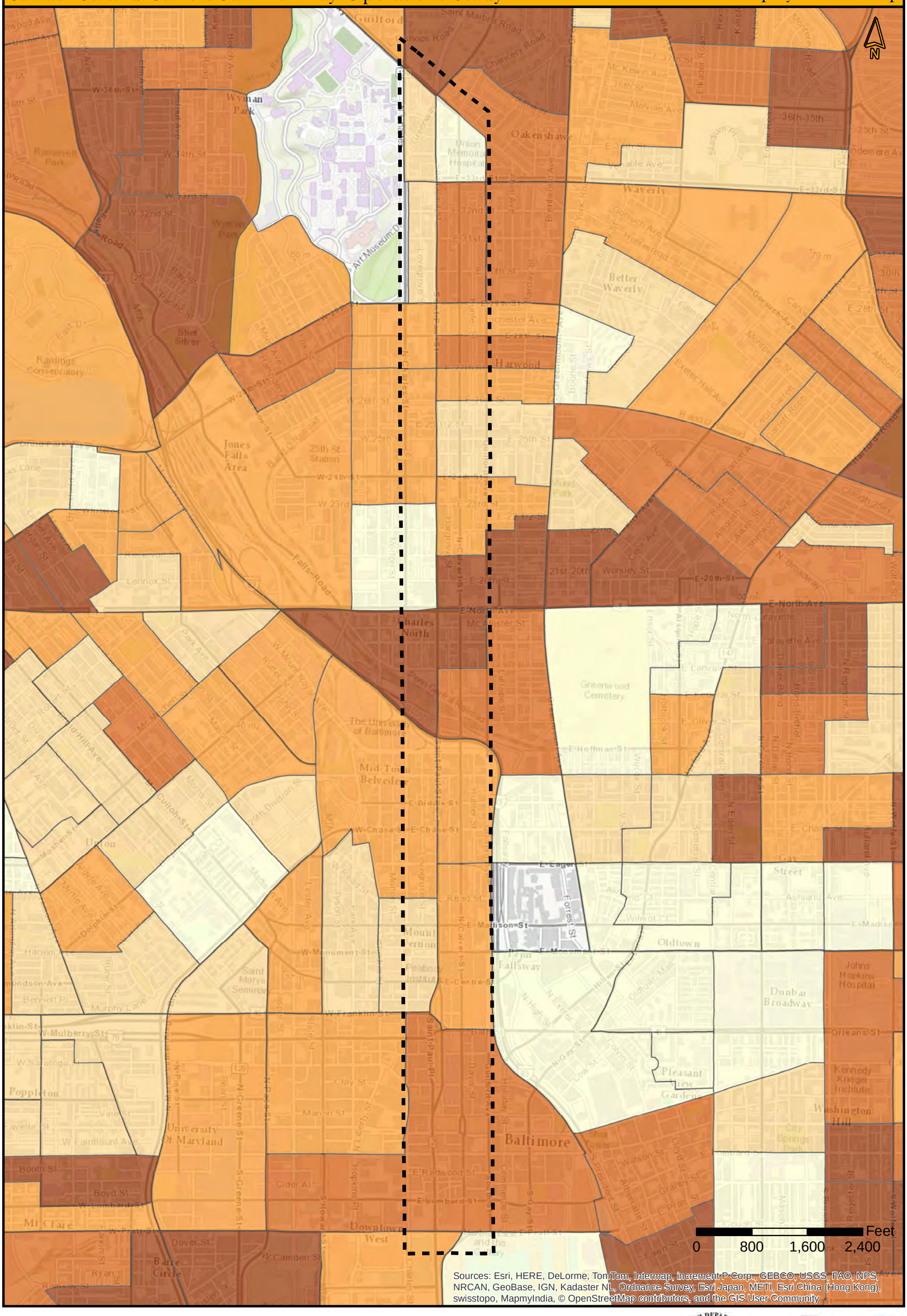
c Critical Lane Group

# APPENDIX C

# NEIGHBORHOOD DEMOGRAPHIC DATA

# St Paul St. and Calvert St. Two-Way Operations Study

## Automobile Ownership by Block Group




Auto Ownership per Household (vehicles / households)

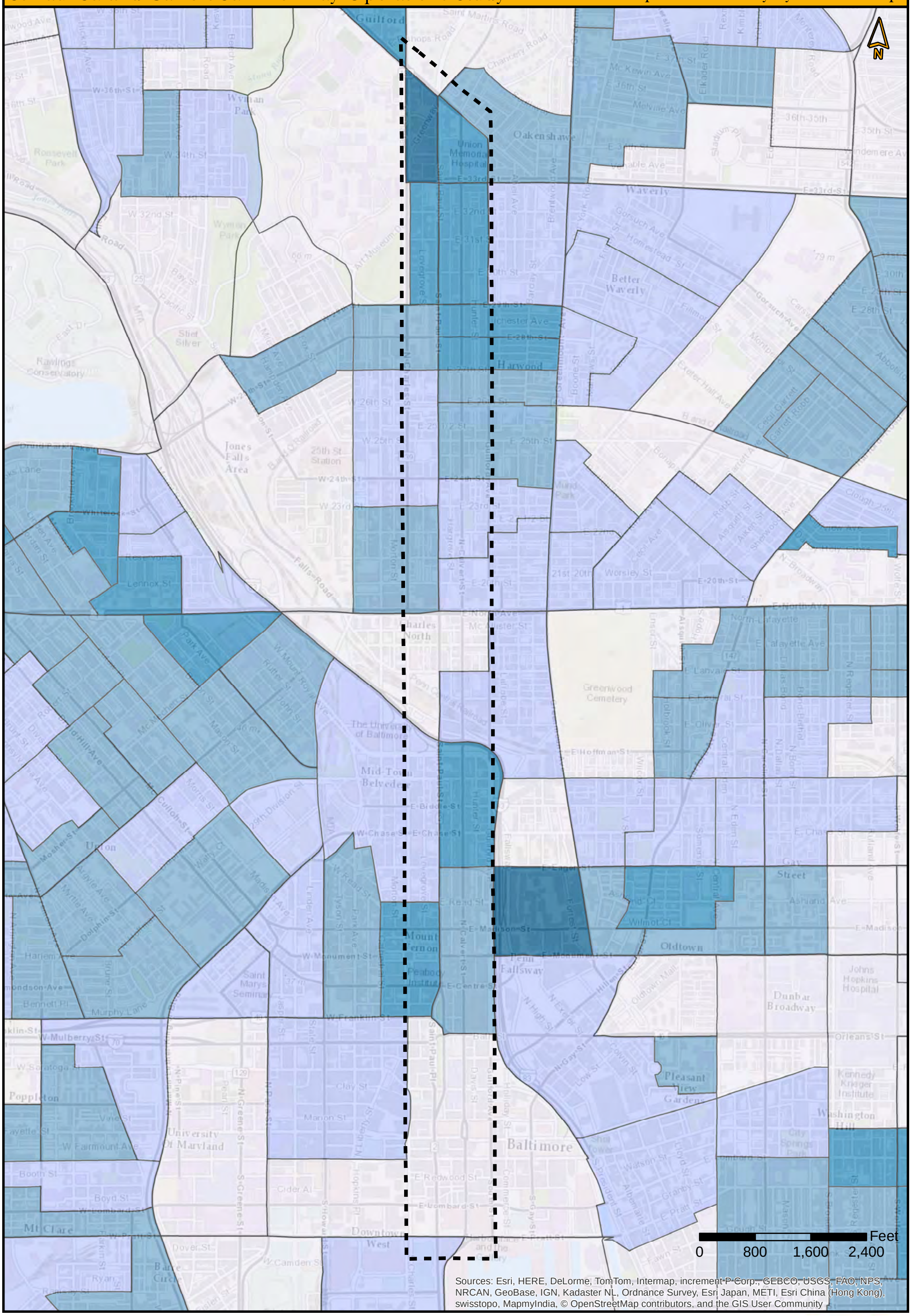
- 0 - 0.50
- 0.51 - 0.8
- 0.81 - 1.2
- 1.21 - 1.6
- 1.6+
- Study Area

Source: 2010 EPA Smart Location Database.

Sabra, Wang & Associates, Inc.

# St Paul St. and Calvert St. Two-Way Operations Study

## Population Density by Block Group




Population Density (population / acres)

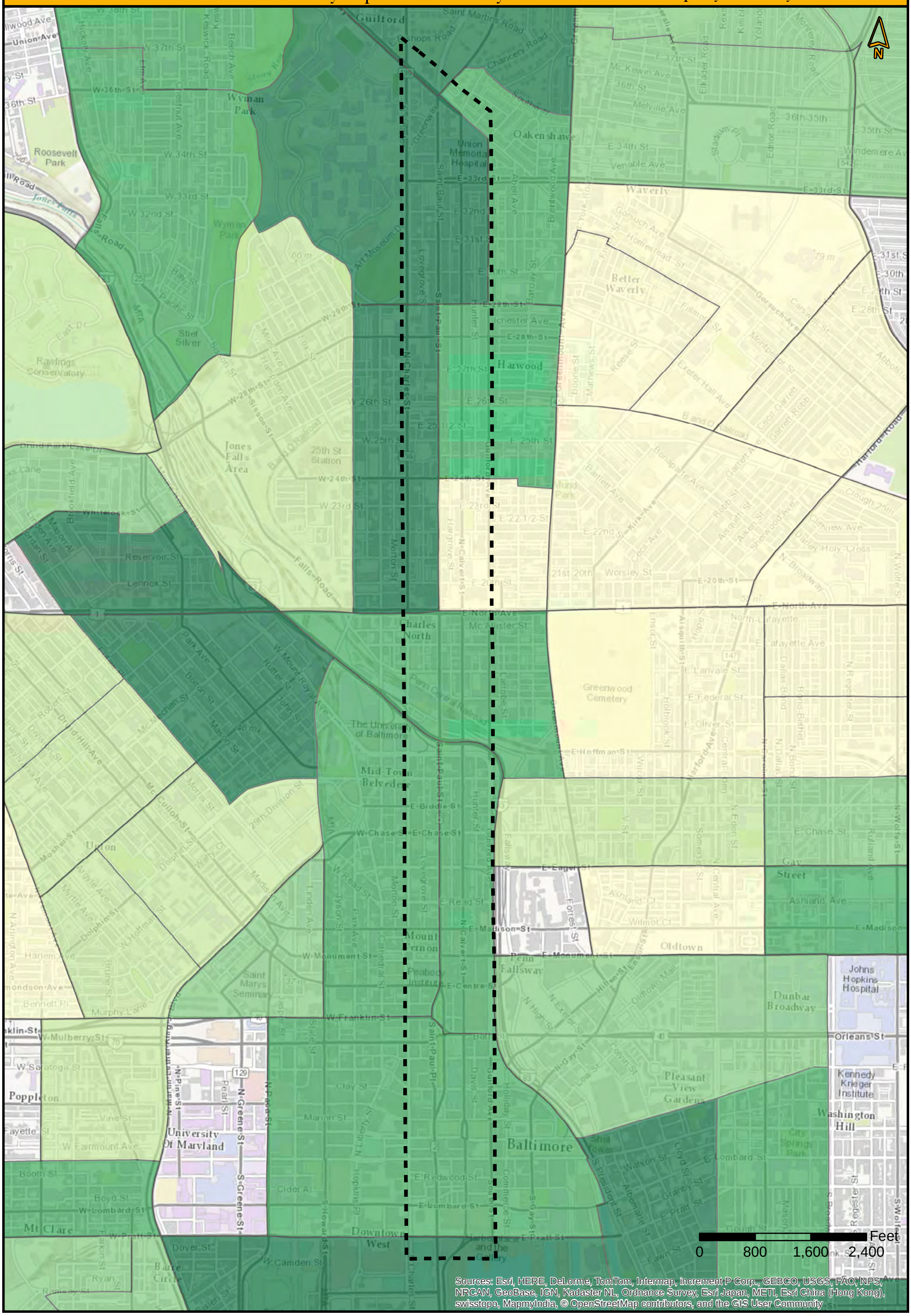
0.5 - 15 | 16 - 25 | 26 - 40 | 41 - 80 | 80+ | Study Area

Source: 2010 EPA Smart Location Database.

Sabra, Wang & Associates, Inc.

# St Paul St. and Calvert St. Two-Way Operations Study

## Property Value by Census Tract




Median Property Value

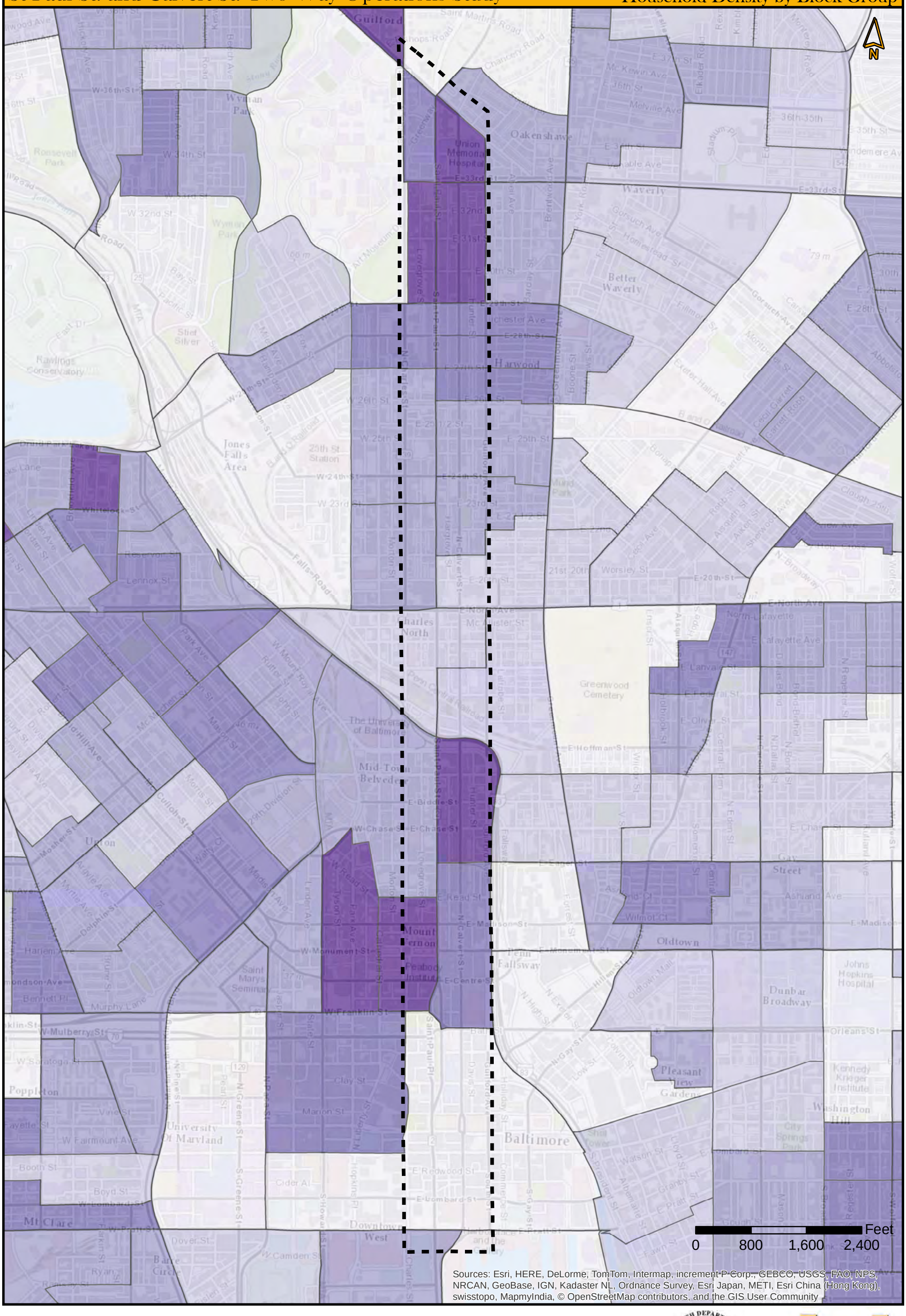
- $57,600 - $100,000
- $100,001 - $150,000
- $150,001 - $200,000
- $200,001 - $275,000
- $275,000+
- Study Area

Source: U.S. Census Bureau, 2008-2012 American Community Survey (http://factfinder2.census.gov)

Sabra, Wang & Associates, Inc.

# St Paul St. and Calvert St. Two-Way Operations Study

## Household Density by Block Group




Household Density (households / acres)

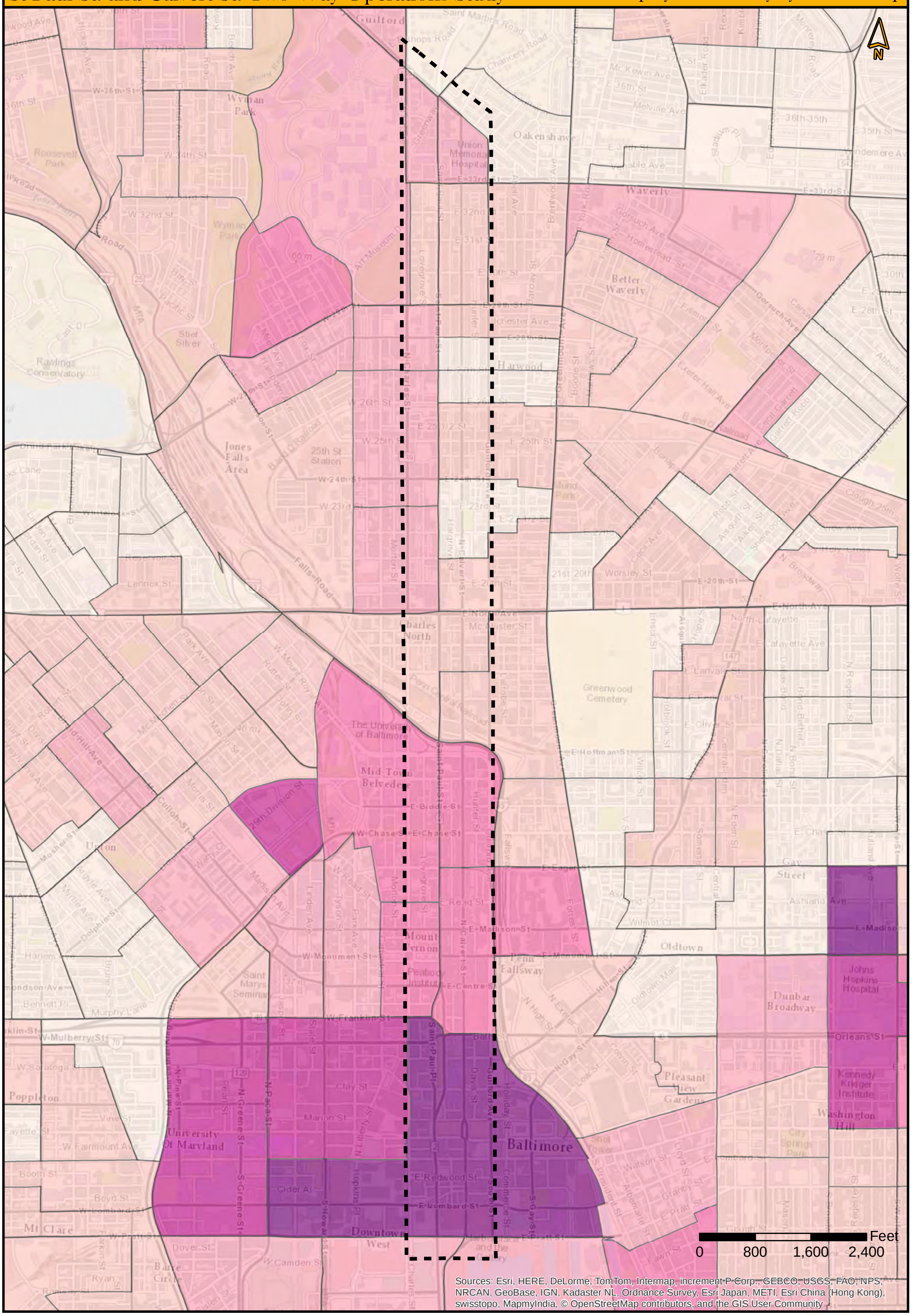
- 0 - 4.7
- 4.8 - 9.3
- 9.4 - 14.9
- 15.0 - 24.7
- 24.7+
- Study Area

Source: 2010 EPA Smart Location Database.

Sabra, Wang & Associates, Inc.

# St Paul St. and Calvert St. Two-Way Operations Study

## Employment Density by Block Group




Employment Density (employment / acres)

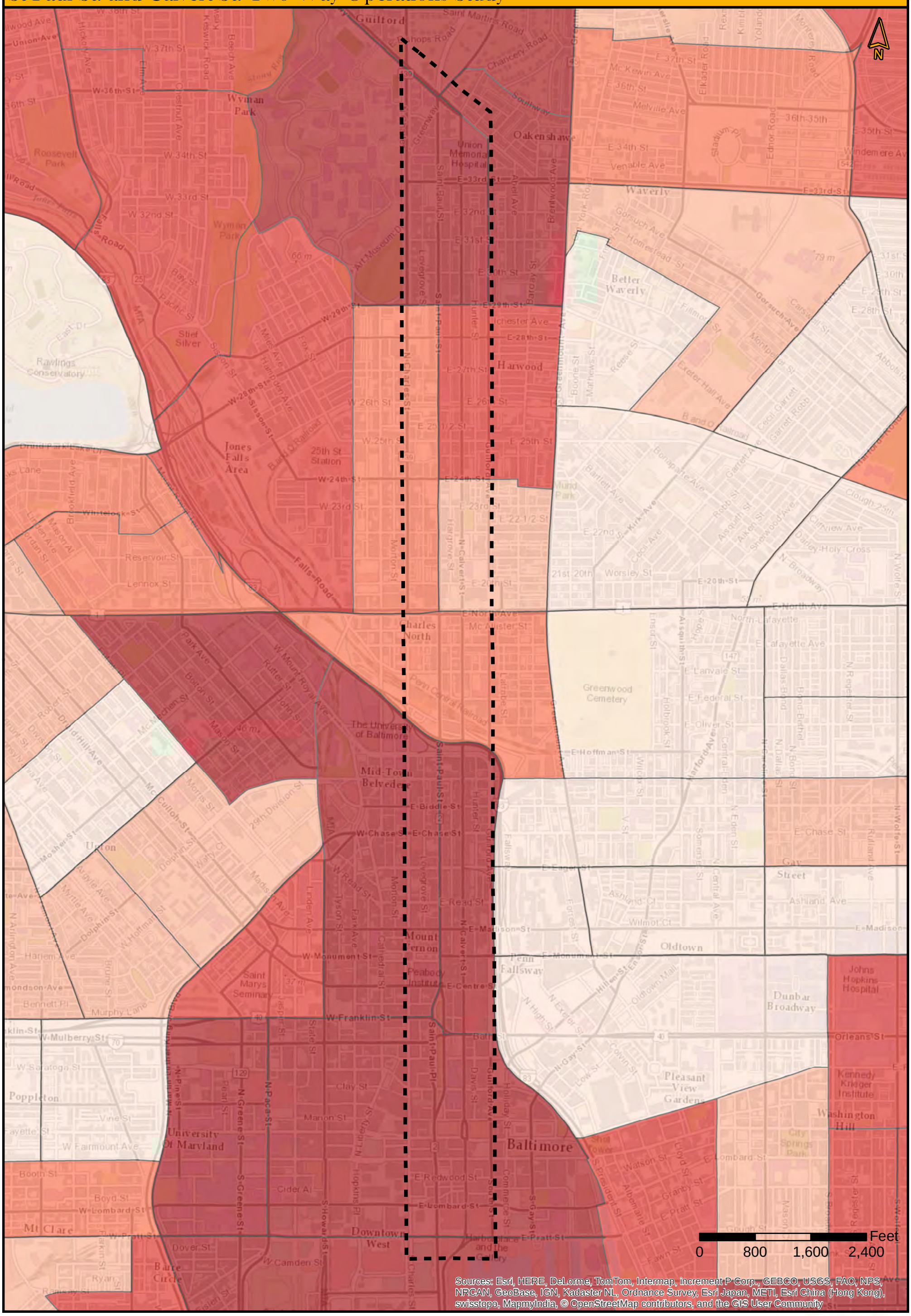
- 0 - 2.0
- 2.1 - 14.2
- 14.21 - 31.2
- 31.3 - 81.2
- 81.3 - 171.6
- 171.7+
- Study Area

Source: 2010 EPA Smart Location Database.

Sabra, Wang & Associates, Inc.

# St Paul St. and Calvert St. Two-Way Operations Study

## College Degree Attainment by Census Tract




Percent College Graduate (college educated / total population)

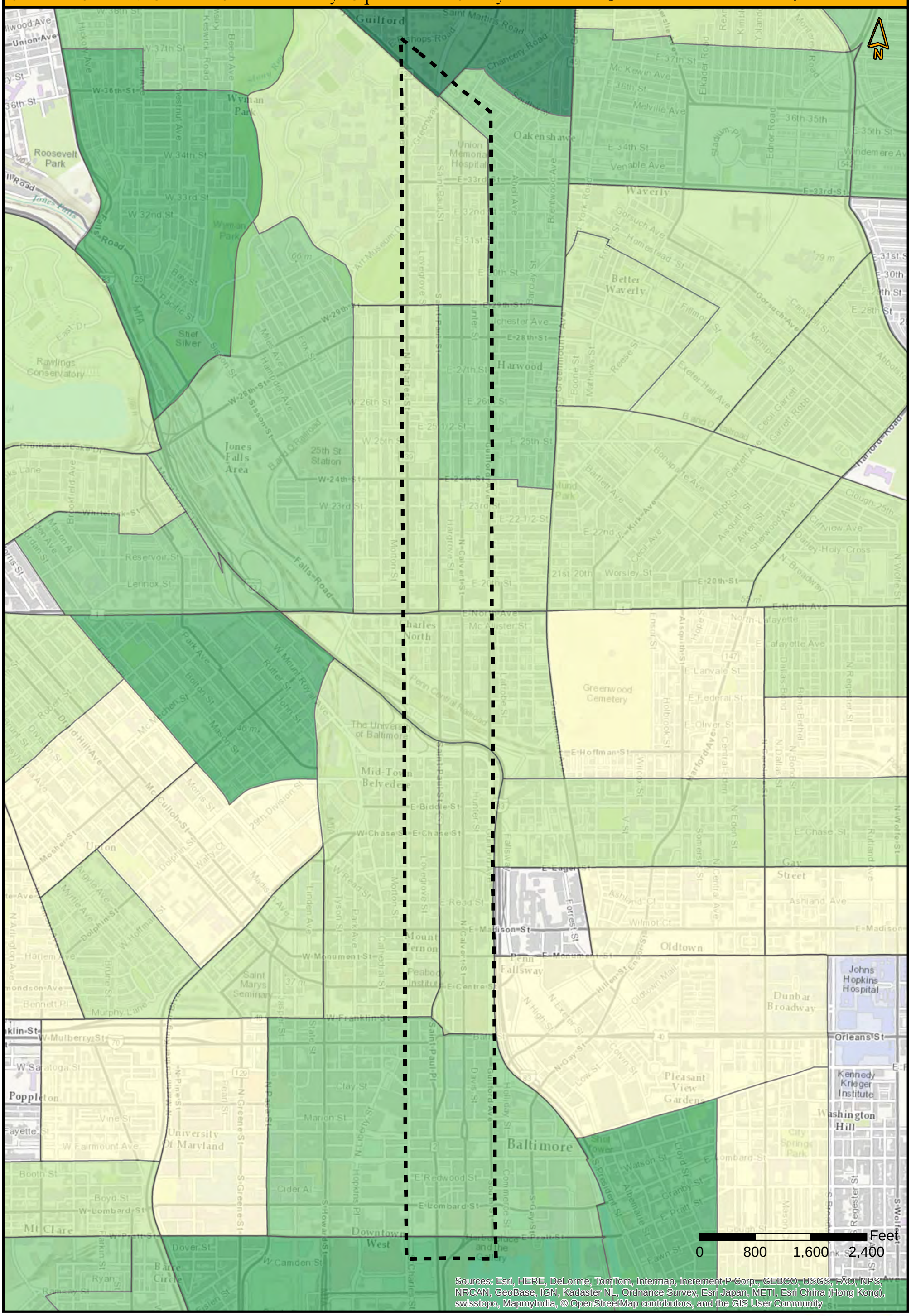
- 0.01 - 0.14
- 0.14 - 0.25
- 0.26 - 0.4
- 0.41 - 0.6
- 0.6+
- Study Area

Note: Includes Associates, Bachelor, Master, and Doctorate degrees.
Source: Source: U.S. Census Bureau, 2008-2012 American Community Survey (http://factfinder2.census.gov).

Sabra, Wang & Associates, Inc.

# St Paul St. and Calvert St. Two-Way Operations Study

## Average Household Income by Census Tract




### Average Household Income

- $17,936 - $30,000
- $30,001 - $50,000
- $50,001 - $75,000
- $75,001 - $100,000
- $100,000+
- Study Area

Source: U.S. Census Bureau, 2008-2012 American Community Survey (http://factfinder2.census.gov)

Sabra, Wang & Associates, Inc.

# APPENDIX D

# PUBLIC OPINION SURVEY AND RESULTS

# St. Paul & Calvert Streets
# Public Opinion Survey

INTRODUCTION:

The City of Baltimore is interested in your opinion, as a resident or business/property owner. How would you prefer traffic on St. Paul and Calvert Streets to operate? These two streets are currently one-way. The City is investigating the potential impacts of converting the current traffic pattern from one-way to two-way, between Fayette Street and University Parkway. Both traffic patterns have benefits and disadvantages, when affecting traffic operations and other aspects of livability. The City would like to understand your opinions in connection with driving, walking, biking, and using public transportation. This survey will also address your concerns and thoughts regarding safety, crime, noise, and other related issues. Additional information regarding this study may be obtained through the following website: http://archive.baltimorecity.gov/Government/AgenciesDepartments/Transportation/Planning.aspx.

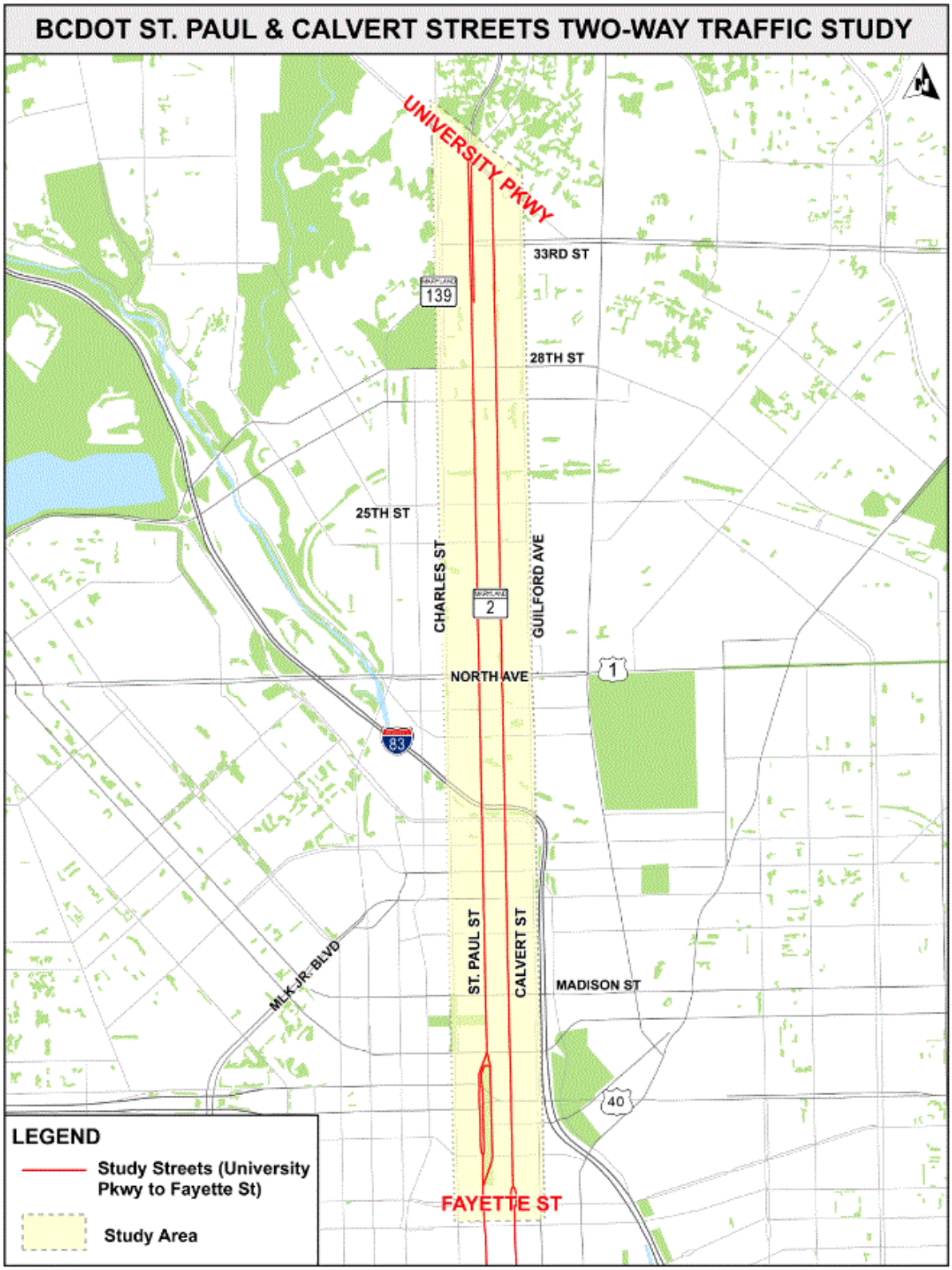
DIRECTIONS:

Please have only one person over the age of 18 per household or business complete this survey. Please base your answers on what affects the study corridor shown in the map. The study corridor for the survey, shown in the map below, is defined by St. Paul and Calvert Streets between Fayette Street and University Parkway. This survey has a total of 21 questions and it should take you 10-12 minutes to complete. Survey deadline is December 31, 2014.

NOTE:

Data collected during this survey will not be knowingly redistributed to outside parties. Your responses will remain anonymous and will not be shared. Baltimore City Department of Transportation is not responsible for typographic and cartographic errors. Additional information and answers can be obtained at: http://archive.baltimorecity.gov/Government/AgenciesDepartments/Transportation/Planning.aspx.

Please call 443-984-4092 with any questions.


BCDOT ST. PAUL & CALVERT STREETS TWO-WAY TRAFFIC STUDY
UNIVERSITY PKWY
33RD ST
28TH ST
25TH ST
CHARLES ST
GUILFORD AVE
NORTH AVE
ST. PAUL ST
CALVERT ST
MADISON ST
MLK JR BLVD
FAYETTE ST
139
2
1
83
40
LEGEND
Study Streets (University Pkwy to Fayette St)
Study Area

**Questions:**

1. How many times per week do you travel any part of the St. Paul/Calvert Street study corridor by each of the following methods of travel? Select one option per method of travel.

| | | | | | |
|---|---|---|---|---|---|
| Personal Vehicle (Car): | 0 | 1-2 | 3-4 | 5+ | *times per week* |
| Foot (Walking): | 0 | 1-2 | 3-4 | 5+ | *times per week* |
| Bicycle: | 0 | 1-2 | 3-4 | 5+ | *times per week* |
| Public Transit (*e.g. bus, Circulator*): | 0 | 1-2 | 3-4 | 5+ | *times per week* |
| Private shuttle/bus service *(e.g. JHU, UM)*: | 0 | 1-2 | 3-4 | 5+ | *times per week* |

2. On average, how many hours do you use on-street parking in the study corridor?

| | | | | |
|---|---|---|---|---|
| 0 | 1-2 | 3-4 | 5+ | *hours per day from 7AM to 7PM* |
| 0 | 1-2 | 3+ | Overnight | *hours per day from 7PM to 7AM* |

3. Rank the following statements based on your preferred primary use of St. Paul and Calvert Streets with '1' being the most preferred and '3' being the least preferred. Enter 1,2, or 3 for each of the options below.

*Traffic flow and operations along the St. Paul/Calvert Street study corridor should primarily support:*

_____ Fast and Efficient commuter flow to and from downtown for all users

_____ Livable, safe, and community-oriented neighborhood

_____ Retail and commercial uses including parking, loading, and delivery ability



4. Based on your experience how concerned are you about each of the following along St. Paul and Calvert Streets? Select one option under each statement.

| | | | | | |
|---|---|---|---|---|---|
| Pedestrian Safety | *Extremely Concerned* | *Very Concerned* | *Moderately Concerned* | *Slightly Concerned* | *Not at all Concerned* |
| Bicycle Safety | *Extremely Concerned* | *Very Concerned* | *Moderately Concerned* | *Slightly Concerned* | *Not at all Concerned* |
| Traffic Safety | *Extremely Concerned* | *Very Concerned* | *Moderately Concerned* | *Slightly Concerned* | *Not at all Concerned* |
| Crime | *Extremely Concerned* | *Very Concerned* | *Moderately Concerned* | *Slightly Concerned* | *Not at all Concerned* |
| Noise Level | *Extremely Concerned* | *Very Concerned* | *Moderately Concerned* | *Slightly Concerned* | *Not at all Concerned* |
| Air quality | *Extremely Concerned* | *Very Concerned* | *Moderately Concerned* | *Slightly Concerned* | *Not at all Concerned* |
| Public Transit Safety | *Extremely Concerned* | *Very Concerned* | *Moderately Concerned* | *Slightly Concerned* | *Not at all Concerned* |

5. What is your current level of satisfaction with each of the following along the St. Paul/Calvert Street study corridor? Select one option under each statement.

| | | | | | |
|---|---|---|---|---|---|
| Availability of on-street parking | *Highly Satisfied* | *Satisfied* | *Indifferent/ Neutral* | *Unsatisfied* | *Highly Unsatisfied* |
| Efficiency of bus operations and service including location of bus stops (MTA, Charm City Circulator, Shuttle) | *Highly Satisfied* | *Satisfied* | *Indifferent/ Neutral* | *Unsatisfied* | *Highly Unsatisfied* |
| Bicycle access and infrastructure | *Highly Satisfied* | *Satisfied* | *Indifferent/ Neutral* | *Unsatisfied* | *Highly Unsatisfied* |
| Pedestrian infrastructure (sidewalks, crosswalks, and pedestrian signals) | *Highly Satisfied* | *Satisfied* | *Indifferent/ Neutral* | *Unsatisfied* | *Highly Unsatisfied* |
| Traffic Flow | *Highly Satisfied* | *Satisfied* | *Indifferent/ Neutral* | *Unsatisfied* | *Highly Unsatisfied* |
| Quality of life and livability of the community | *Highly Satisfied* | *Satisfied* | *Indifferent/ Neutral* | *Unsatisfied* | *Highly Unsatisfied* |

6. Do you believe converting to two-way traffic along the St. Paul/Calvert Street study corridor would positively affect, not affect, or negatively affect the following? Select one option under each statement.

| | | | |
|---|---|---|---|
| Visibility of and access to local business | *Positively Affect* | *Not Affect* | *Negatively Affect* |
| Traffic flow | *Positively Affect* | *Not Affect* | *Negatively Affect* |
| Property values and future development | *Positively Affect* | *Not Affect* | *Negatively Affect* |
| Public safety and crime | *Positively Affect* | *Not Affect* | *Negatively Affect* |
| Air Quality | *Positively Affect* | *Not Affect* | *Negatively Affect* |
| Livability of the community | *Positively Affect* | *Not Affect* | *Negatively Affect* |
| Traffic Safety | *Positively Affect* | *Not Affect* | *Negatively Affect* |
| Bicycle access | *Positively Affect* | *Not Affect* | *Negatively Affect* |
| Noise Levels | *Positively Affect* | *Not Affect* | *Negatively Affect* |

7. Would you support the conversion to two-way traffic with the following conditions?(Select one option next to each statement)

| | | | | | |
|---|---|---|---|---|---|
| If it negatively affected bicycle access along corridor | Yes, strongly support | Yes, support | I'm indifferent/ neutral | No, Oppose | No, Strongly oppose |
| If it caused on-street parking to be converted to vehicle travel lanes | Yes, strongly support | Yes, support | I'm indifferent/ neutral | No, Oppose | No, Strongly oppose |
| If it created more pedestrian friendly environments | Yes, strongly support | Yes, support | I'm indifferent/ neutral | No, Oppose | No, Strongly oppose |
| If it improved accessibility to your business or residence for drivers and pedestrians | Yes, strongly support | Yes, support | I'm indifferent/ neutral | No, Oppose | No, Strongly oppose |
| If it negatively impacted bus services along St. Paul and Calvert Streets | Yes, strongly support | Yes, support | I'm indifferent/ neutral | No, Oppose | No, Strongly oppose |
| If it did not alleviate rush hour congestion | Yes, strongly support | Yes, support | I'm indifferent/ neutral | No, Oppose | No, Strongly oppose |
| If it increased vehicle travel times during peak hours | Yes, strongly support | Yes, support | I'm indifferent/ neutral | No, Oppose | No, Strongly oppose |
| If it resulted in improved public safety and reduced crime & violence | Yes, strongly support | Yes, support | I'm indifferent/ neutral | No, Oppose | No, Strongly oppose |



8. Would you be more or less likely to walk/bike along the St. Paul and Calvert Street study corridor under two-way traffic?
   - More likely
   - Less likely
   - Indifferent/neutral
9. Do you support the conversion of St. Paul and Calvert Streets to two-way traffic between Fayette Street and University Parkway?
   - Yes, strongly support
   - Yes, support
   - I'm indifferent/neutral
   - No, oppose
   - No, strongly oppose
   - Not sure at this time

10. Within which of the following zip codes and cross streets is this residence/business located? Select one.
    - 21218
    - 21202
    - Other: Please indicate zip code_____

11. Please share the closest intersection to your address (ie Calvert and North Avenue):_____

12. Is this address a residence or a business?
    - Residence
    - Business
    - Both residence and business

13. Is this residence or business located on St. Paul or Calvert St?
    - St. Paul
    - Calvert
    - Neither

14. Do you rent or own your home/business?
    - I rent this location
    - I own this location

15. How long have you lived on/owned a business or property along the St. Paul/Calvert Street study corridor?
    - 0-2 years
    - 2-5 years
    - 5-10 years
    - More than 10 years

16. How many automobiles, vans, pickups, are kept at this address?
    - NONE
    - 1
    - 2
    - 3 or more

17. What is your age?
    - 18 – 24 years
    - 25 - 34 years
    - 35 - 44 years
    - 45 - 54 years
    - 55 - 64 years

- 65 years or older
- Decline to answer

18. What is your gender?
    - Female
    - Male
    - Other
    - Decline to answer

19. Are you of Hispanic, Latino, or Spanish Origin?
    - No
    - Yes
    - Decline to answer

20. How would you describe your race? Select all that apply.
    - American Indian/Alaska Native
    - Asian
    - Black/African-American
    - White
    - Native Hawaiian or other Pacific Islander
    - Other
    - Decline to answer

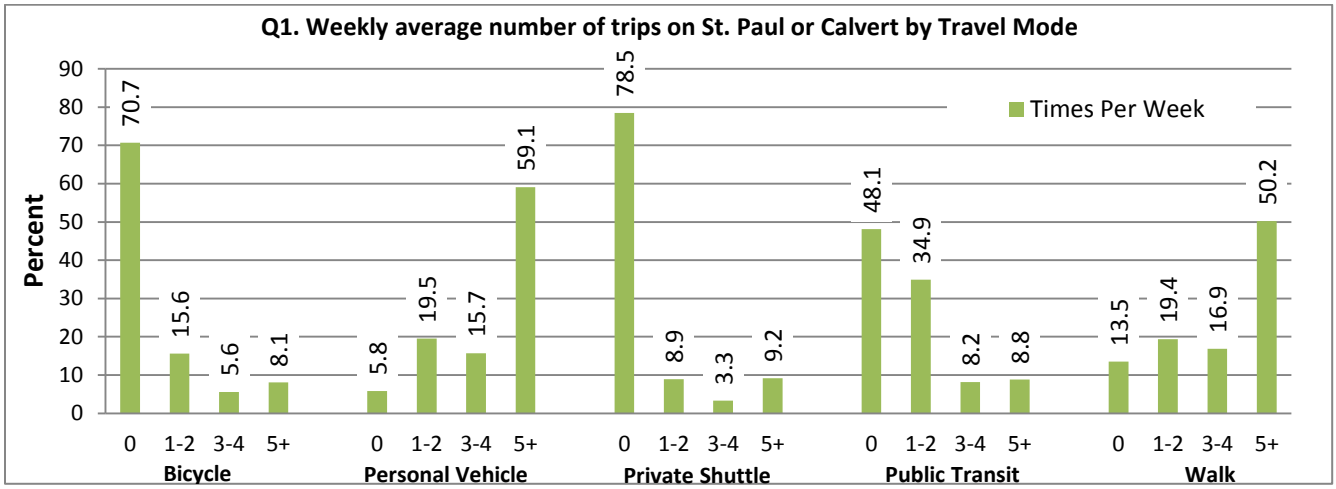
21. What is the highest level of education you have completed?
    - Less than high school
    - High school diploma or equivalent
    - Some college, no degree
    - Associate's degree
    - Bachelor's degree
    - Graduate or other professional degree
    - Decline to answer

22. How would you describe your household?
    - Single person
    - 2 or more persons, none under the age of 18
    - 2 or more persons, including ____ (indicate number) under the of age 18
    - Decline to answer/not applicable

## Public Opinion Survey 2014 Results

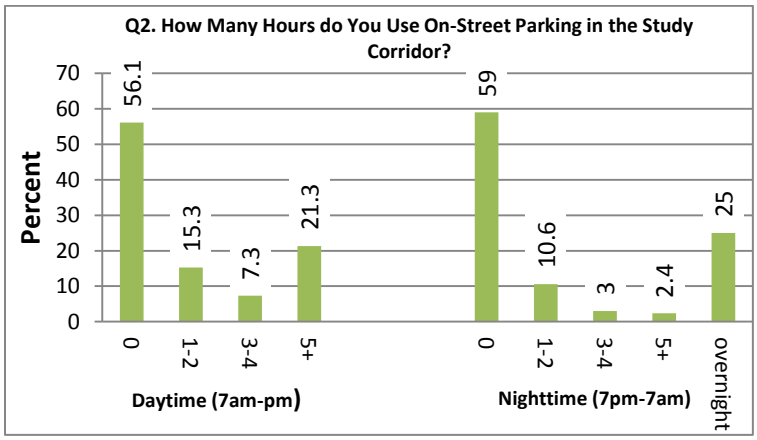
**Total number of respondents: 1,446**

### Q1. How many times per week do you travel any part of the study corridor by each of the following methods of travel?




Missing responses by mode: Bicycle (391), Personal Vehicle (43), Private Shuttle (394) Public Transit (325)

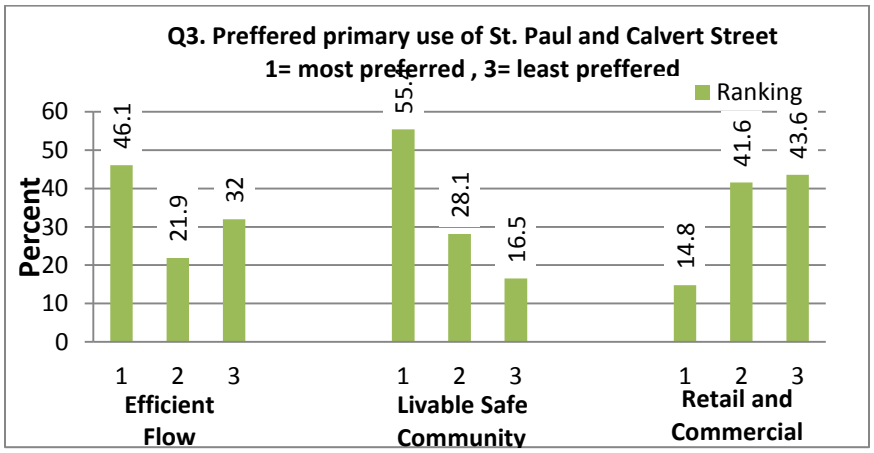
### Q2. On average, How Many Hours do You Use On-Street Parking in the Study Corridor?




Missing responses by time of day: Daytime (53), Nighttime (138)

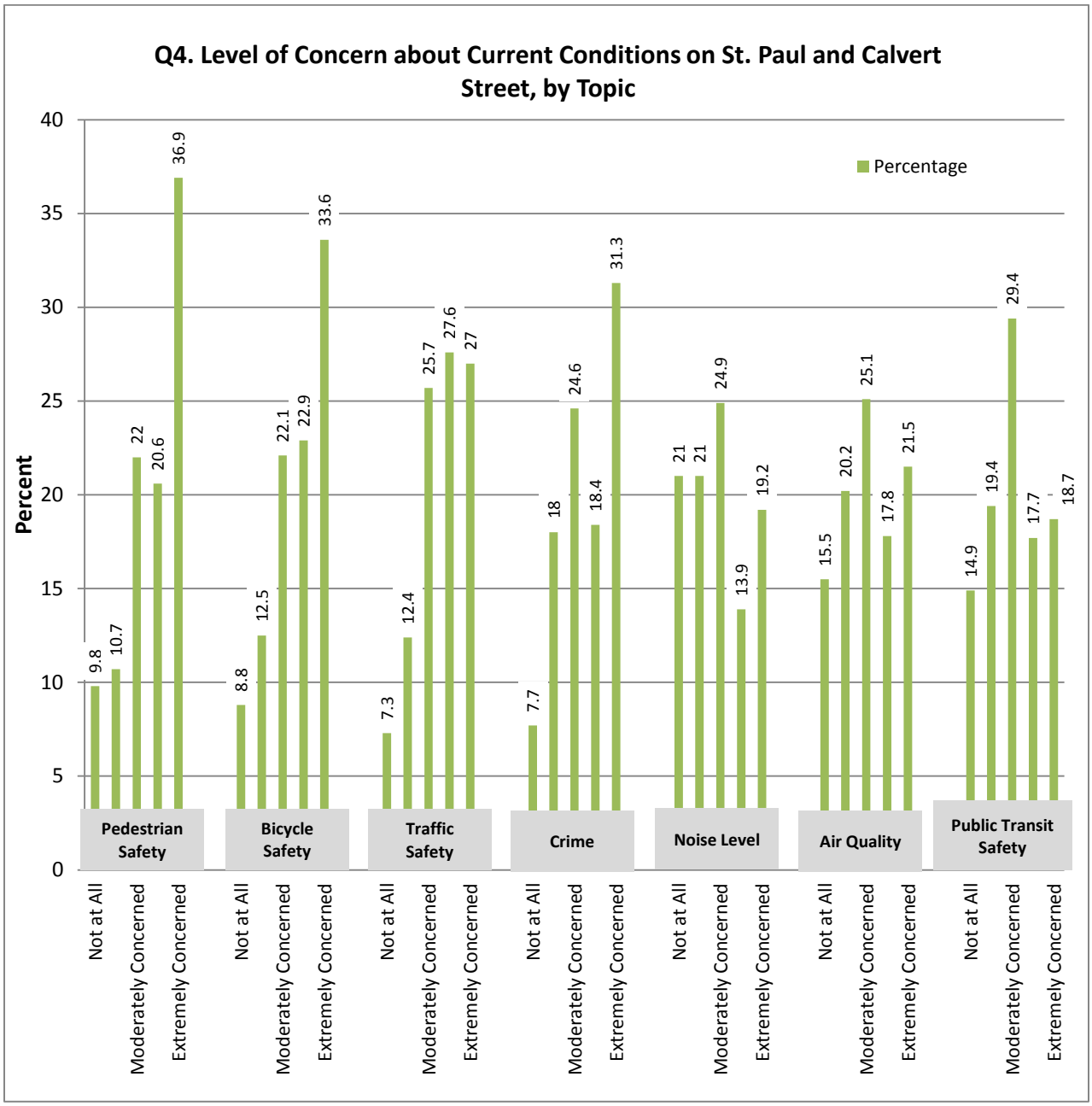
**Q3. Rank the following statements based on your preferred primary use of St. Paul and Calvert Streets with 1 being the most preferred and 3 being the least preferred.**

**1= most preferred , 3= least preferred**




Missing responses by use: Efficient Flow (20), Livable Community (23), Retail (30)

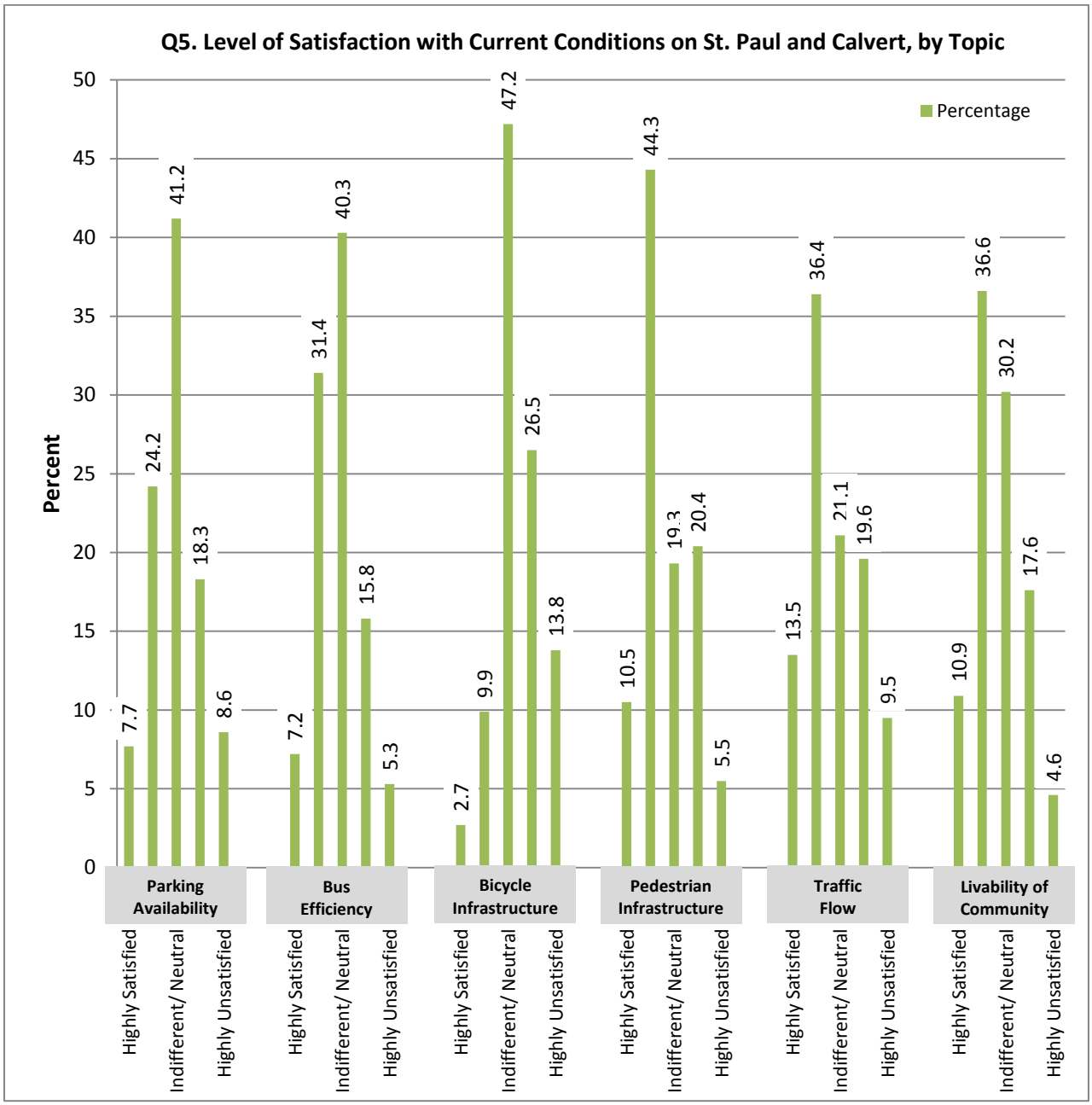
## Q4. Based on your experience how concerned are you about each of the following along the study corridor?




Missing responses by topic: Air Quality (21), Bike Safety (19), Crime (26),

Noise level (26), Pedestrian Safety (13), Public Transit (26), Traffic Safety (23)

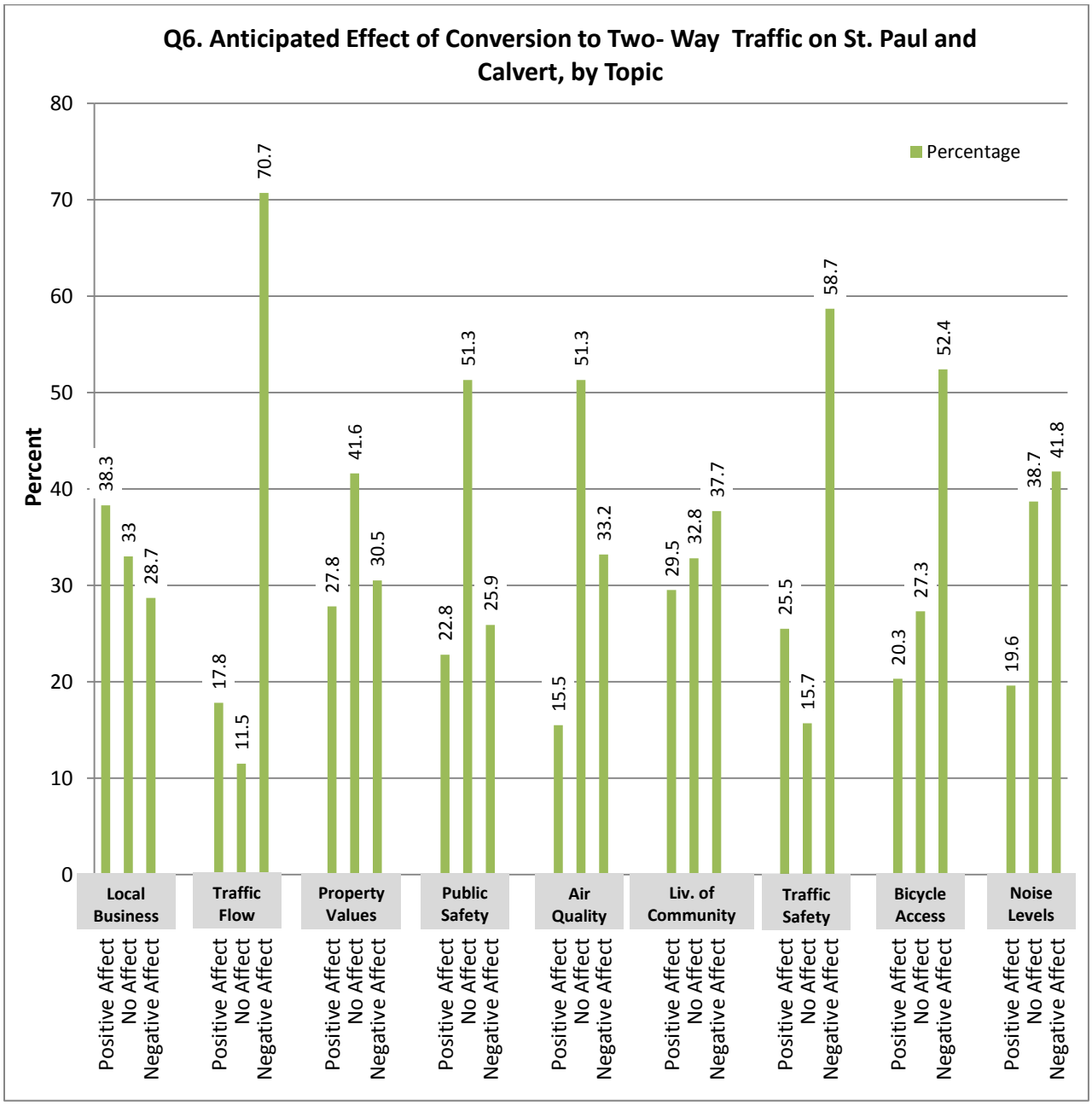
## Q5. What is your current level of satisfaction with each of the following along the study corridor?




Missing responses by topic: Bicycle Infrastructure (25), Livability of Community (23),

Parking Availability (22), Pedestrian Infrastructure (22), Traffic Flow (26)

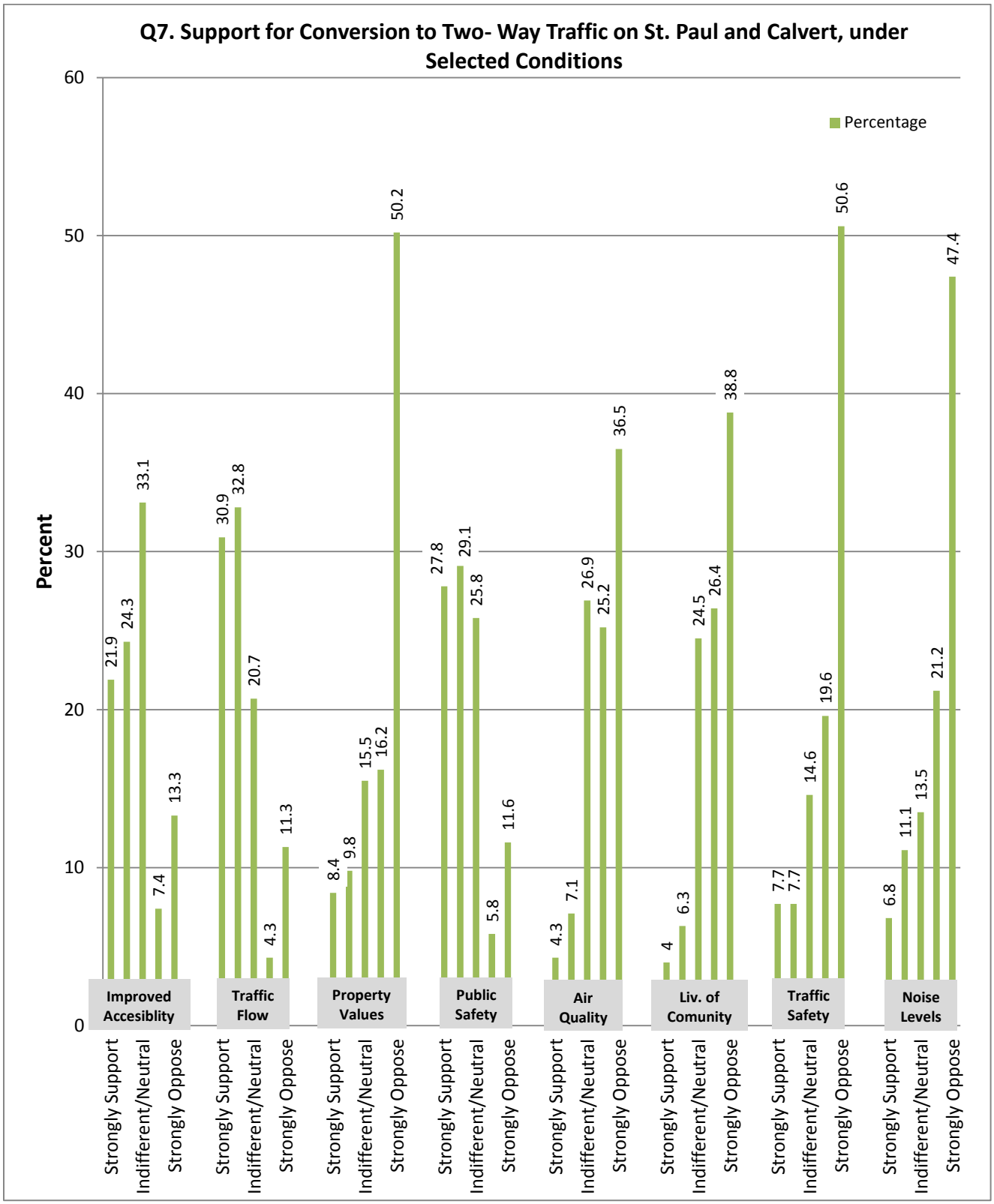
**Q6. Do you believe converting to two way traffic along the study corridor study corridor would positively affect, not affect, or negatively affect the following?**



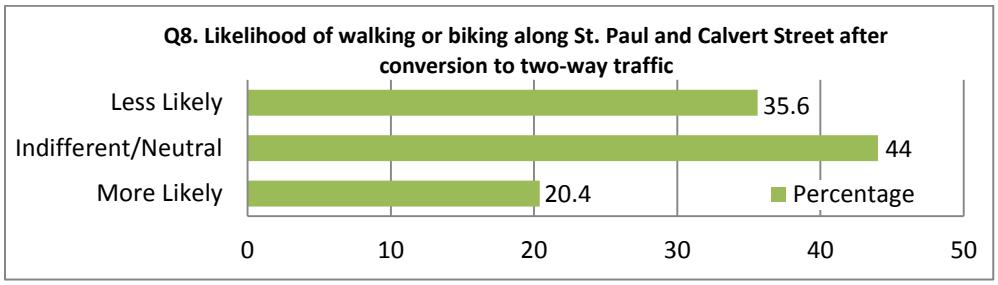

Missing responses by topic: Air Quality (31), Bicycle Access (34), Livability of Community (31),

Local Businesses (27), Noise Levels (31), Property Values (31), Public Safety (28), Traffic Flow (22), Traffic Safety (23)

**Q7. Would you support the conversion to two way traffic flow with the following conditions?**

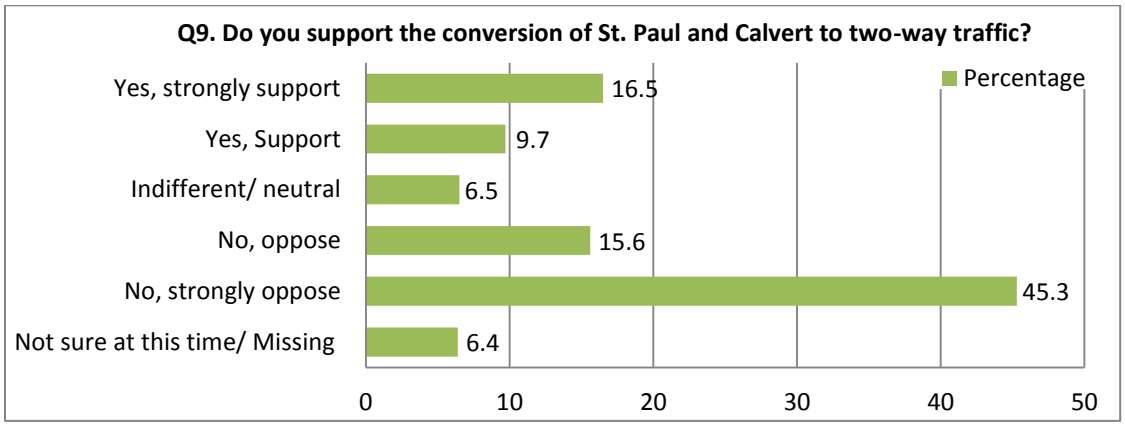


## Q8. Would you be more or less likely to walk/bike along the study corridor under two way traffic?

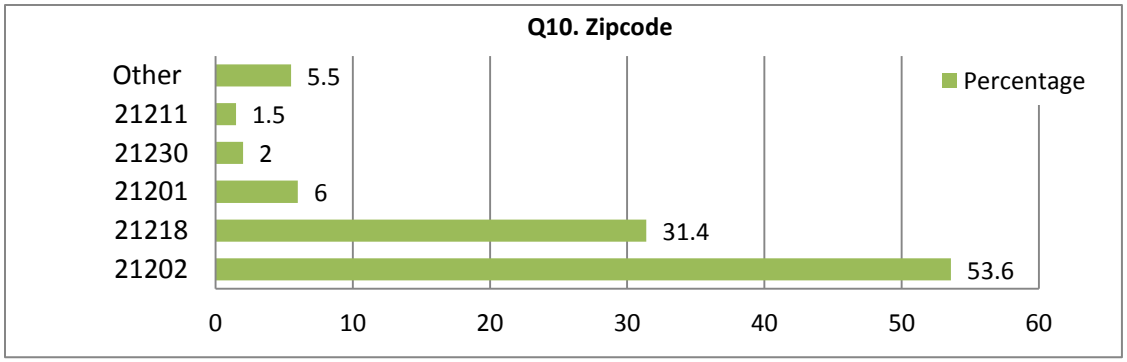



Note: Missing 13 responses.

## Q9. Do you support the conversion of St. Paul and Calvert to two-way traffic?

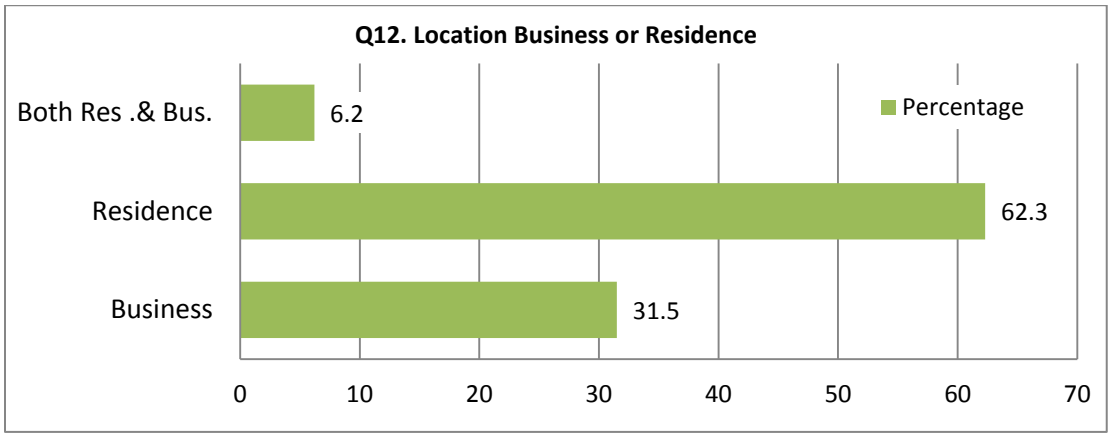



## Q10. Within which of the following zip codes and cross streets is this residence/business located?



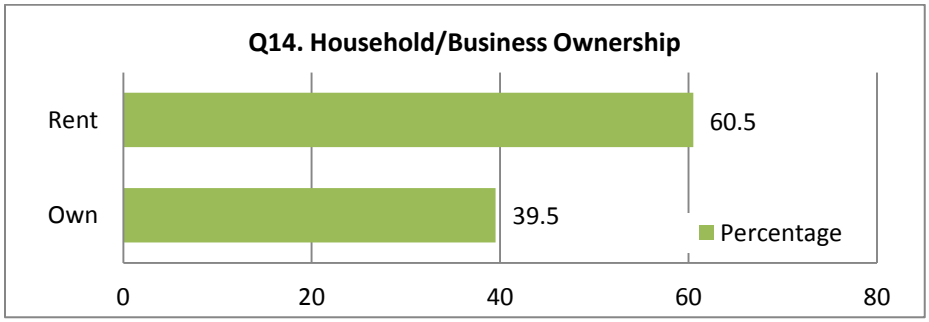

## [Q11. Please share the closest intersection to your address (Fill in blank)]

## Q12. Is this address a residence or business?



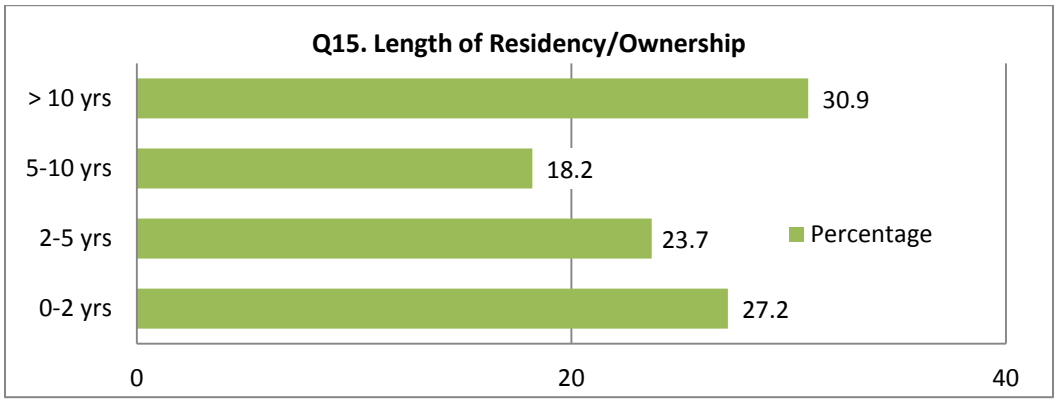

## [Q13. Is this residence or business located on St. Paul or Calvert Street?]

## Q14. Do you rent or own your home/business?



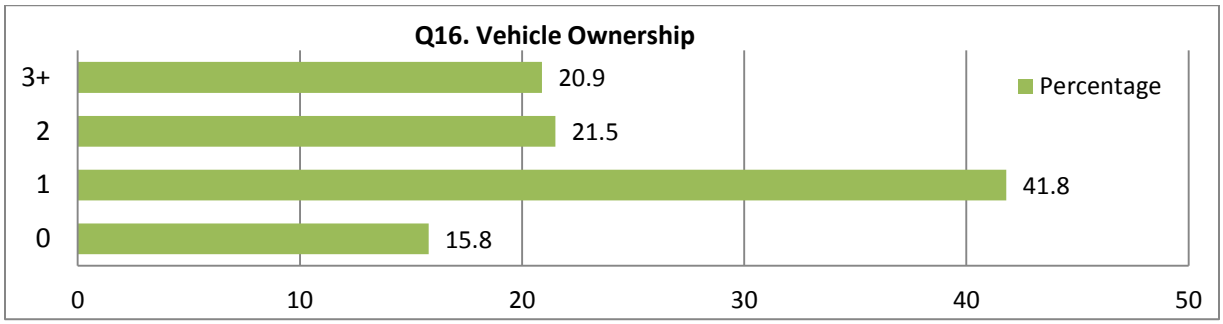

Note: 52 respondents did not report whether location is residence or business.

## Q15. How long have you lived on/owned a business or property along the study corridor?

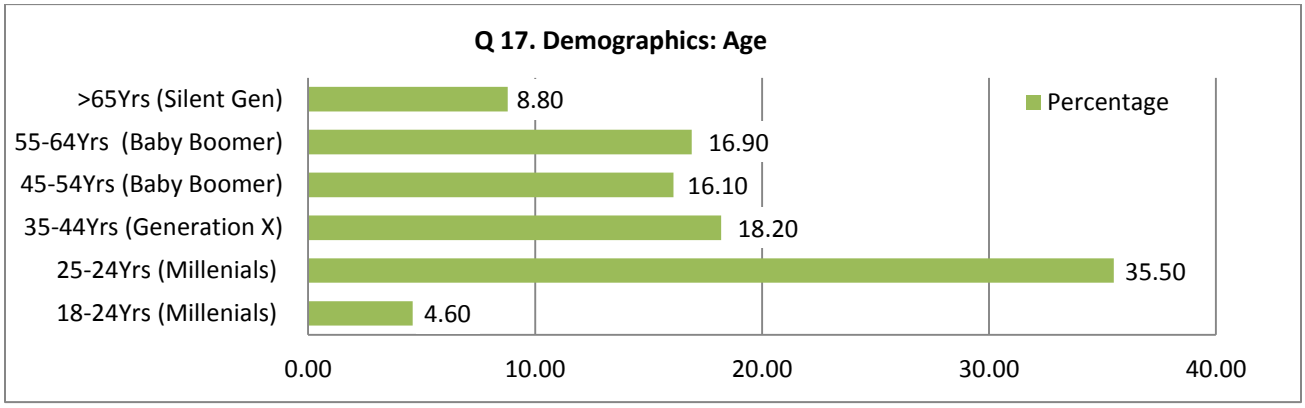



Note: 141 respondents did not report length of residency/ownership.

## Q16. How many automobiles, vans, and/or pickups are kept at this address?

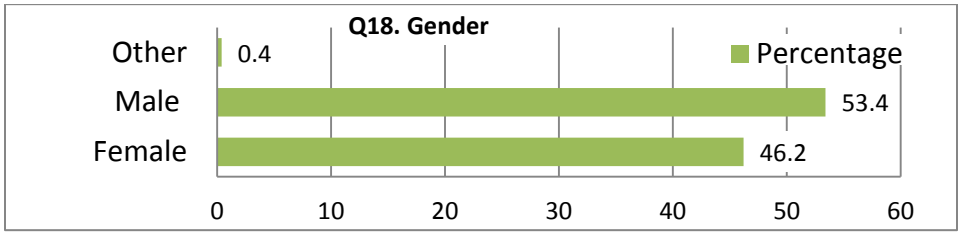



## Q 17. What is your age?

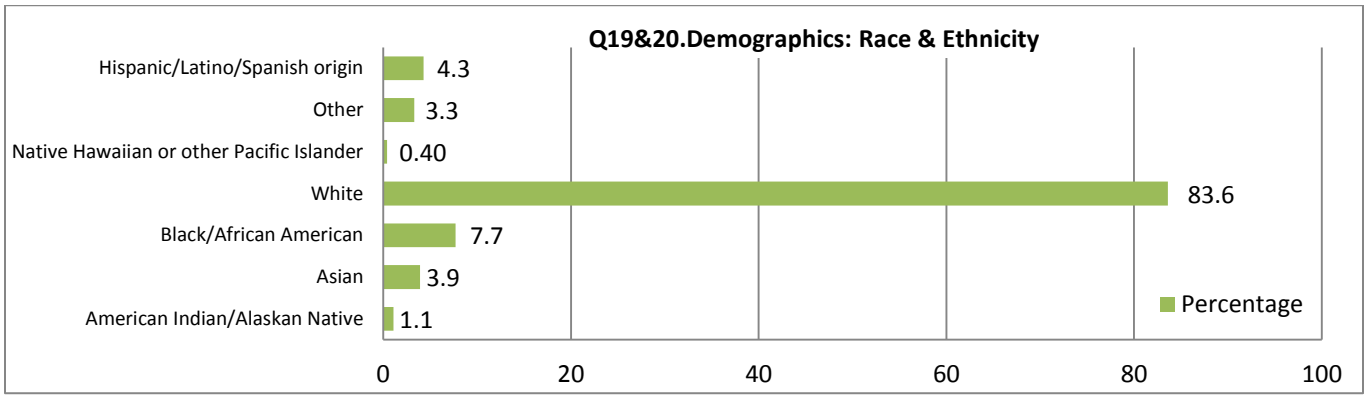



Note: 87 respondents did not provide their age.

## Q18. What is your gender?

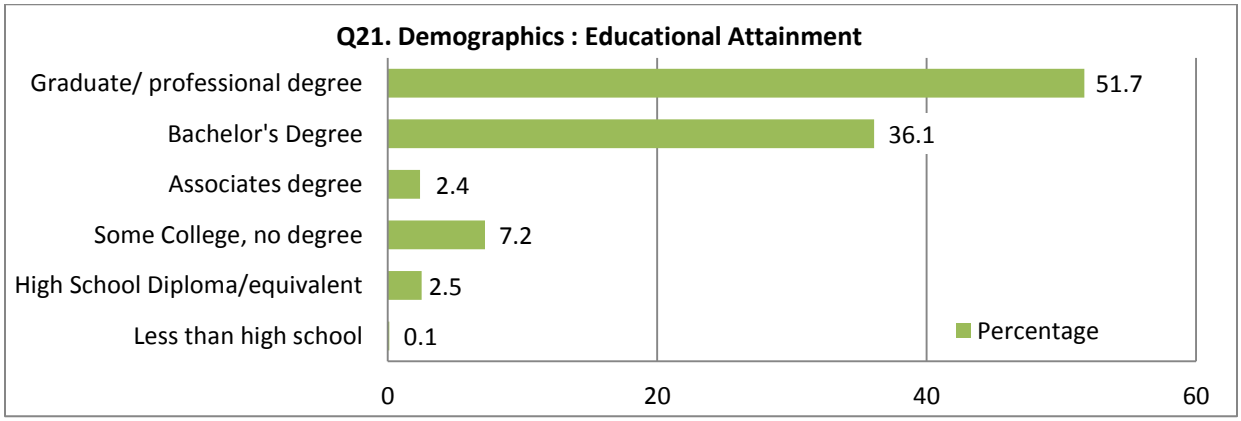


## Q19&20. How would you describe your race?



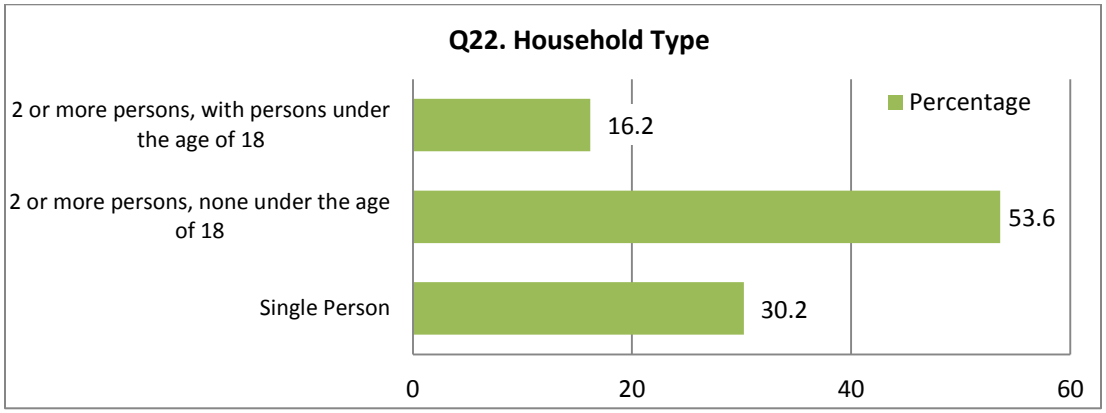

Note: Includes 29 respondents whom reported multiple races. 314 respondents did not provide race; 313 did not provide origin.

## Q21.What is the highest level of education you have completed?




Note: 124 respondents did not provide their educational attainment.

## Q22. How would you describe your household?




Note: 215 respondents did not provide their household type.

# APPENDIX E

# PROJECT NEWSLETTERS

# St. Paul and Calvert

# Two-Way Conversion Study

**October, 2014 Newsletter**

City of Baltimore Department of Transportation, Transportation Planning Division

**Calendar**

Public Meeting Scheduled

**October 28, 2014**

Saints Philip and James Catholic Church,

2801 N. Charles Street.
Baltimore, MD 21218

6PM to 7PM

**October 29, 2014**

417 E. Fayette Street, 3rd Floor Conference Room

5:30 PM to 7PM

**In this Newsletter**



## Study Overview

In response to community requests, the Baltimore City Department of Transportation (DOT) is conducting a study of the St. Paul Street and Calvert Street Corridor from University Parkway to Fayette Street. The study will investigate the impact of converting both streets from one-way traffic flow to two-way traffic flow. Specific impacts to all modes of travel as well as public health and livability within the corridors will be investigated.

This newsletter has been created to better inform you (citizens; stakeholders; business owners; residents; commuters) about the study scope, study area, project team, project schedule and opportunities for public input.

Evaluating the corridor will include:

1) Defining a vision for the public right-of-way
2) Developing optimal street cross-sections
3) Creating context-sensitive physical and operational strategies

Your input is greatly appreciated to help develop recommendations that support mobility, livability and safety throughout the corridor.

## Study Work Plan

Planning and designing for multi-modal transportation is no small task. It involves extensive data collection, analysis, and creativity. We are just beginning to gather information about:

- Pedestrians
- Bicycles
- Transit Service
- Bus Stops
- Parking Regulations
- Vehicle Traffic
  - Volumes
  - Speeds
  - Signal Timing
- Traffic Safety
- Trucks
  - Deliveries/Loading
- Signage
- Public Space
- Property Access

The study will incorporate the following major tasks:

**1) Existing Conditions**

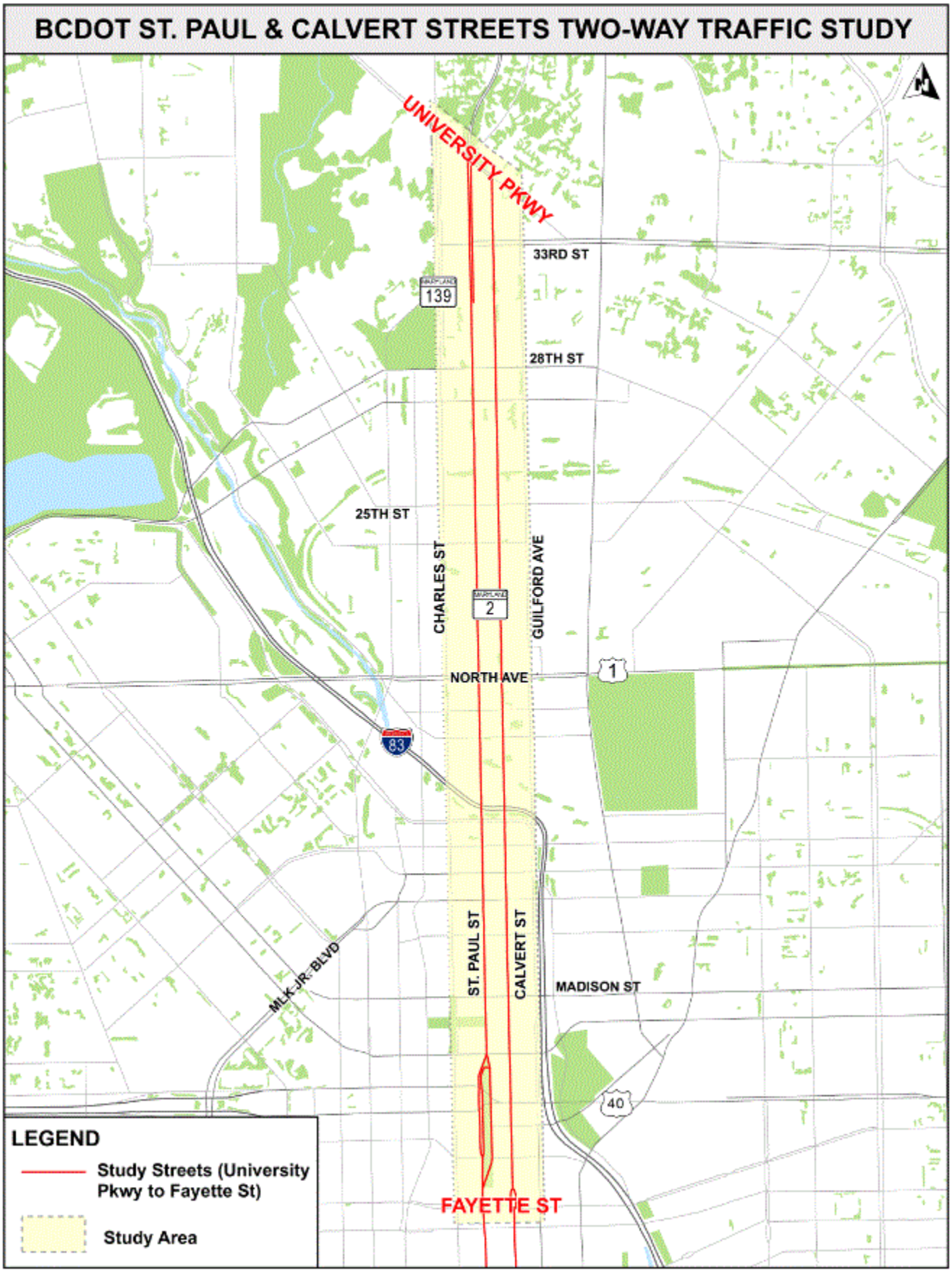
The documentation of existing conditions will include multi-modal traffic volumes, an analysis of traffic operations and transit service and gaps and barriers in the pedestrian and bicycle infrastructure.

The existing conditions will also review historical traffic crash reports, identify vehicle traffic origins and destinations (e.g. local versus commuter) review Neighborhood Master Plans for previous recommendations and perform national research to identify best practices in urban corridor public realm design and traffic operations.

**2) Two-way Operations**

This phase of the study will develop and evaluate alternative cross-sections to provide two-way traffic flow, carefully documenting impacts to traffic diversions, congestion, parking, traffic safety, parking, pedestrian and bicycle travel, transit travel, and public health.

# Study Area Map



**PROJECT SCHEDULE**

**2014**

MAY-AUGUST

Existing Conditions Documentation & Project Mapping

AUGUST
Steering Committee Meeting

SEPTEMBER
Literature and Plan Review
Traffic Model Development
Traffic Safety Analysis

OCTOBER
Community Meetings

NOVEMBER
Steering Committee Meeting

Public Opinion Survey

**2015**
JANUARY
Alternative Cross Sections

FEBRUARY
Steering Committee Meeting

MARCH
Traffic Data Collection

APRIL
Alternatives Analysis

MAY
Steering Committee Meeting

JUNE
Impacts and Mitigation

JULY
Presentation & Technical Report

# Study Work Plan (Continued)

3) **Stakeholder Engagement**

The study will include periodic meeting with a core stakeholder group as well as public open houses to provide direct input and open communication. The project will also include a public opinion survey and a technical report and presentation with conceptual renderings and final recommendations.

Extensive project mapping including peak hour and daily traffic data, transit routes and ridership, and neighborhood demographics will be produced and shared.

# Project Team

**Baltimore City Department of Transportation**

- Valorie LaCour – Chief, Transportation Planning
- Gladys Hurwitz, City Planner, Project Manager
- Frank Murphy, Senior Advisor
- Serena Liu, Traffic Operations
- Robert Fergusson, Traffic Operations
- Manmohan Singh, Traffic Operations
- Jeffrey Fleming, Community Liaison
- Grishae Blackette, Community Liaison
- Nikia Mack Community Liaison

**Baltimore City Department of Planning**

- Alex Hoffman, Area Planner
- Heather Martin , Area Planner

**Consultants**

- Sabra, Wang & Associates, Inc.
- Vision Engineering
- Williams Associates
- PELA Design

**Baltimore City Health Department**

- Katey Mote, Health Impact Assessment Coordinator

**Department of Transportation**
417 East Fayette Street,
Room 747
Baltimore, MD 21202

**Phone**
(443) 984-4092

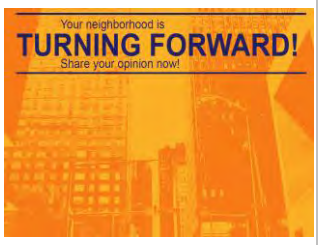
**E-mail**
Stephanie.Yanovitz@
baltimorecity.gov

*To help **grow Baltimore by 10,000 families in 10 years**, we provide a safe and sustainable multi-modal transportation system.*

# Residents, Business and Property Owners - Take the Survey!

***The City is asking all*** RESIDENTS, BUSINESS OWNERS,& PROPERTY OWNERS *to complete a brief public opinion survey. The City would like to understand your opinions about driving, walking, biking, and using public transportation along these streets, as well as your thoughts about safety, public* health, noise, and other related issues.

Postcards with a website link to the survey will be mailed




# Project Schedule

Stay tuned for a project website. Please refer to page 1 for upcoming public meeting schedule.

**THANK YOU!**

**BALTIMORE CITY DEPARTMENT OF TRANSPORTATION**
417 EAST FAYETTE STREET, ROOM 747
BALTIMORE, MD 21202

# St. Paul St. and Calvert St. Two-Way Conversion Study

**February, 2015**
Volume 1, Issue 2

City of Baltimore Department of Transportation, Transportation Planning Division

**In this Newsletter**



**2015 CALENDAR**

**JANUARY**
Steering Committee Meeting

**FEBRUARY**
Community Meetings
2/17: 6:00-7:30PM, 2801 N Charles St.
2/19: 6:00-8:00 PM, 1600 Guilford Ave.
2/26: 5:30-7:00 PM, 3rd FL, 417 E. Fayette Street.

**March- May**
Two Way Operations Assessment
Steering Committee Meeting

**June- September**
Existing Conditions Analysis & Two Way Operations Assessment Continued
Steering Committee Meeting

**October- December**
Develop Presentation of Findings & Technical Report

**Department of Transportation**
417 East Fayette Street, Room 747
Baltimore, MD 21202

**Phone**
(443) 984-4092

**E-mail**
Gladys.Hurwitz@BaltimoreCity.gov

*To help **grow Baltimore by 10,000 families in 10 years**, we provide a safe and sustainable multi-modal transportation system.*

## Study Overview

The Baltimore City Department of Transportation (DOT) is continuing the study of the St. Paul Street and Calvert Street Corridor from University Parkway to Fayette Street. The study is currently investigating the impact of converting both streets from one-way traffic flow to two-way traffic flow.

Specific impacts to all modes of travel as well as livability within the corridors are being investigated.

This newsletter has been created to better inform you (citizens; stakeholders; business owners; residents; commuters) about the study progress, study area, project team, project schedule and opportunities for public input.

Creating a more balanced north-south transportation network between downtown and Johns Hopkins includes:

1) Defining a vision for the public right-of-way
2) Developing optimal street cross-sections
3) Implementing context-sensitive physical and operational strategies

Your continued input and support is greatly appreciated to help develop recommendations that support mobility, livability and safety throughout the corridor.

## Project Team

**Baltimore City Department of Transportation (DOT)**

- Frank Murphy – Senior Advisor
- Valorie LaCour – Chief, Transportation Planning
- Gladys Hurwitz – Transportation Planning, City Planner II, Project Manager
- Serena Liu – Traffic Division, Engineer II
- Robert Ferguson – Traffic Division, Superintendent
- Manmohan Singh – TEC, Supervisor

**Baltimore City Department of Planning (DOP)**

- Alex Hoffman – DOP Area Planner
- Heather Martin – DOP Area Planner

**Community Liaisons**

- Jeffrey Fleming
- Grishae Blackette
- Nikia Mack

**Baltimore City Health Department**

- Katey Mote, Health Impact Assessment Coordinator
- Anna Perry
- Krycia Cowling

**Consultants**

- Sabra, Wang & Associates
- Vision Engineering
- Williams Associates
- PELA Design

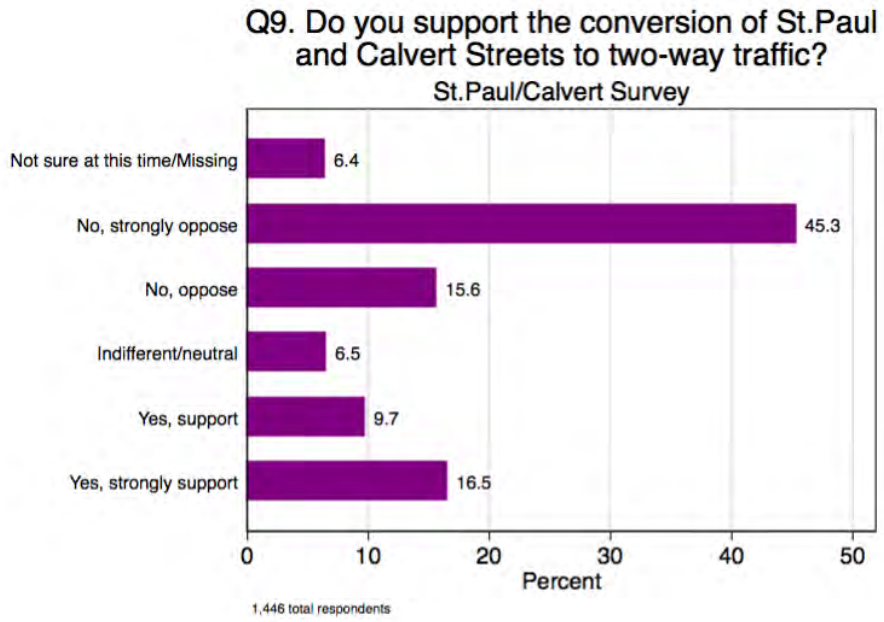
# Survey Findings

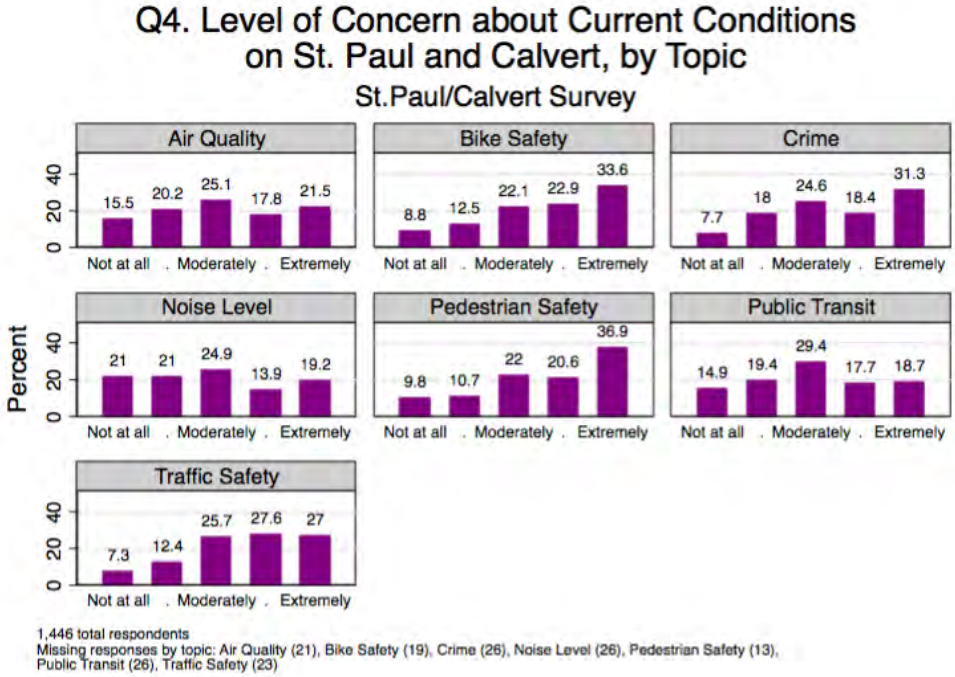
***The City asked***

RESIDENTS,
BUSINESS OWNERS,
&
PROPERTY OWNERS

***to complete a public opinion survey. The City wanted to understand your opinions about driving, walking, biking, and using public transportation along St. Paul Street and Calvert Street, as well as your thoughts about safety, crime, noise, and other related issues.***

Approximately 5,895 survey postcards were mailed and we received 1,446 responses. We will be sharing survey results during the community meetings that will be held in February.



As part of the study scope we have reviewed previous transportation studies to help us become familiar with recommendations for circulation, parking, and bicycle improvements. The case studies include various cities throughout the United States that have undergone a two way conversion. Please keep in mind that many of these examples are of varying street/block lengths none of which match the length of our study corridor (3.1 miles in length).

Preliminary analyses of findings show that the primary argument for one-way streets is the ability to synchronize signals along a corridor allowing for an efficient through for vehicles and to allow for minimal stopping from the outskirts of a city to the core downtown. Other advocates of two-way streets cite that higher vehicle speeds do not promote a pedestrian friendly environment and do not breed a community-oriented neighborhood.

These case studies are still undergoing further evaluation. Stay tuned for further analysis of our findings in the final report.

# Case Studies

**Case Studies – Example of cities that have recently undergone a two-way conversion**

| STREET | ADT* | YEAR CONVERTED TO TWO-WAY | PRIMARY REASON FOR CONVERSION | RESULTS |
|---|---|---|---|---|
| Kings Street – Charleston, SC | 11,500 (1994) | 1994 | Commercial and economic benefit of downtown Charleston | • Frequency and quality of business increased post conversion<br>• Conversion induced a positive change in commercial property values |
| Brook & First Street - Louisville, KY | 8,900 (Brook 2009); 7,700 (Brook 2013); 3,650 (First 2009); 5,700 (First 2013) | 2011 *Converted to a single lane in each direction with bike lane* | Downtown Revitalization with a focus to establish more desirable residential neighborhoods | Pre- vs. post- conversion analysis revealed:<br>• 23% drop in crime<br>• Brook St: 36% reduction in collisions<br>• First St: 60% reduction in collisions<br>• Brook St: 39% increase in property values |
| North & Main Street – Old Town Fairfax, VA | 17,000 (2005); 12,000 (Main 2013); 22,000 (North 2013) | 2006 | Downtown Revitalization including a pedestrian-friendly downtown | • Speeds increased post conversion by 2-4 MPH<br>• Daily traffic volumes decreased<br>• Conversion spurred redevelopment that also increased parking four fold |
| Second Avenue – Midtown of Detroit, MI | N/A | 2014 *Four lanes to one in each direction, a center turn lanes, and buffed bicycle lane in each direction* | Traffic calming to create a broader walkable urban district and revitalized a deteriorated corridor | Anecdotal:<br>• Reduce confusion to visitors<br>• Feels more like a slower paced residential street<br>• Encourages more bike riding<br>• Negatively impacted parking and access to a restaurant |
| Vine Street – Cincinnati, OH | N/A | 1975 *Converted to one-way;* 1999 *Converted to two-way* | To stimulate and support increased business activity; *40% of the businesses on Vine St closed after the 1975 conversion to one-way* | • Post-1999, traffic volumes decreased by 28%<br>• Average crashes per year were 212 prior to 1975, 102 from 1975-1999, and 164 post 1999<br>• Post-1999, travel time as doubled from 2 minutes to 4.5 minutes<br>• Post 1999, average speed decreased from 18 to 12 mph |

ADT*- Average Daily Traffic. Total volume of vehicle traffic of a highway or road for a year divided by 365 days.

# Taking a Closer Look: Reconsidering the Public Space by Developing Alternative Roadway Sections

The Community Meeting in February will include a session that will take a closer look at roadway sections along the study corridor. A typical roadway section includes the following elements:

## Typical Elements Legend:



5'
Bike lane

7'
Buffered Bike Lane

10'
Sharrow Bike Lane

2'
Pedestrian Lighting

2'
Street Lighting

4-6'
Planting Median

____(2-12')
Striped Median

5'
Raised Median
Pedestrian Refuge

# St. Paul St. and Calvert St. Two-Way Conversion Study

**May, 2015**
Volume 1, Issue 2

City of Baltimore Department of Transportation, Transportation Planning Division

## In this Newsletter



**2015 CALENDAR**

**JANUARY**
Steering Committee Meeting

**FEBRUARY**
Community Meetings
2/17: Rescheduled because of snow.
2/19: 6:00-8:00 PM, 1600 Guilford Ave.
2/26: Rescheduled because of snow

**March- May**
Two Way Operations Assessment
Steering Committee Meeting
**Community Meetings:**
5/12: 6:00 – 8:00 PM, 417 E. Fayette Street 3rd Floor
5/14: 5:30 -7:30 PM, 2801 N. Charles Street
5/19: 6:00-8:00 PM, 1600 Guilford Ave.

**June- September**
Existing Conditions Analysis & Two Way Operations Assessment Continued
Steering Committee Meeting

**October- December**
Develop Presentation of Findings & Technical Report

**Department of Transportation**
417 East Fayette Street, Room 747
Baltimore, MD 21202
(443) 984-4092

**E-mail:**
Gladys.Hurwitz@BaltimoreCity.gov

***Share Your Comments by following this link:***
**https://www.surveymonkey.com/s/DOTComments**

*To help **grow Baltimore by 10,000 families in 10 years**, we provide a safe and sustainable multi-modal transportation system.*

## Study Overview

The Baltimore City Department of Transportation (DOT) is continuing the study of the St. Paul Street and Calvert Street Corridor from University Parkway to Fayette Street. The study is currently investigating the impact of converting both streets from one-way traffic flow to two-way traffic flow.

Specific impacts to all modes of travel as well as livability within the corridors are being investigated.

This newsletter has been created to better inform you (citizens; stakeholders; business owners; residents; commuters) about the study progress, study area, project team, project schedule and opportunities for public input.

Creating a more balanced north-south transportation network between downtown and Johns Hopkins includes:

1) Defining a vision for the public right-of-way
2) Developing optimal street cross-sections
3) Implementing context-sensitive physical and operational strategies

Your continued input and support is greatly appreciated to help develop recommendations that support mobility, livability and safety throughout the corridor.

## Project Team

**Baltimore City Department of Transportation (DOT)**

- Frank Murphy – Senior Advisor
- Valorie LaCour – Chief, Transportation Planning
- Gladys Hurwitz – Transportation Planning, City Planner II, Project Manager
- Serena Liu – Traffic Division, Engineer II
- Robert Ferguson – Traffic Division, Superintendent
- Manmohan Singh – TEC, Supervisor

**Baltimore City Department of Planning (DOP)**

- Alex Hoffman – DOP Area Planner
- Heather Martin – DOP Area Planner

**Community Liaisons**

- Jeffrey Fleming
- Grishae Blackette
- Nikia Mack

**Baltimore City Health Department**

- Katey Mote, Health Impact Assessment Coordinator
- Anna Perry
- Krycia Cowling

**Consultants**

- Sabra, Wang & Associates
- Vision Engineering
- Williams Associates
- PELA Design

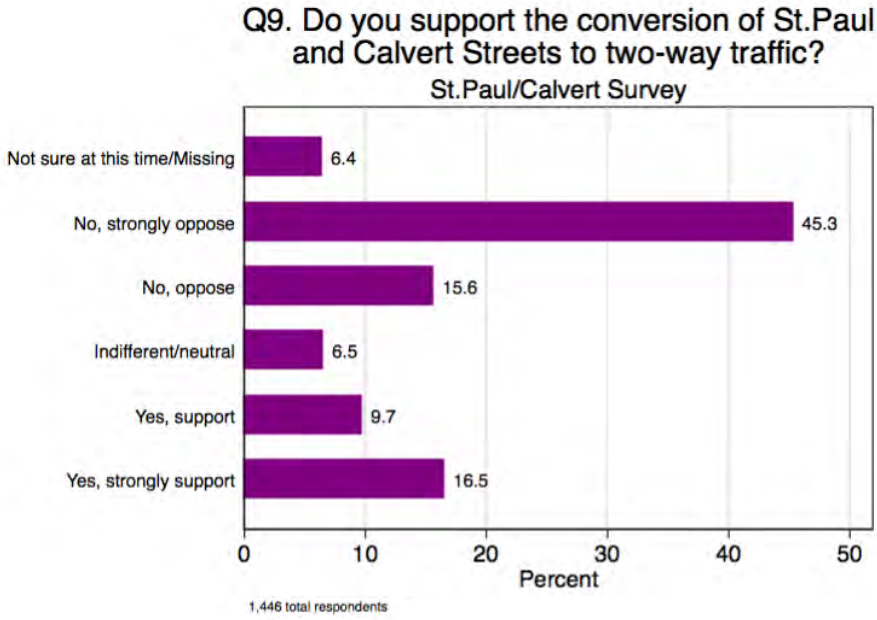
# Survey Results

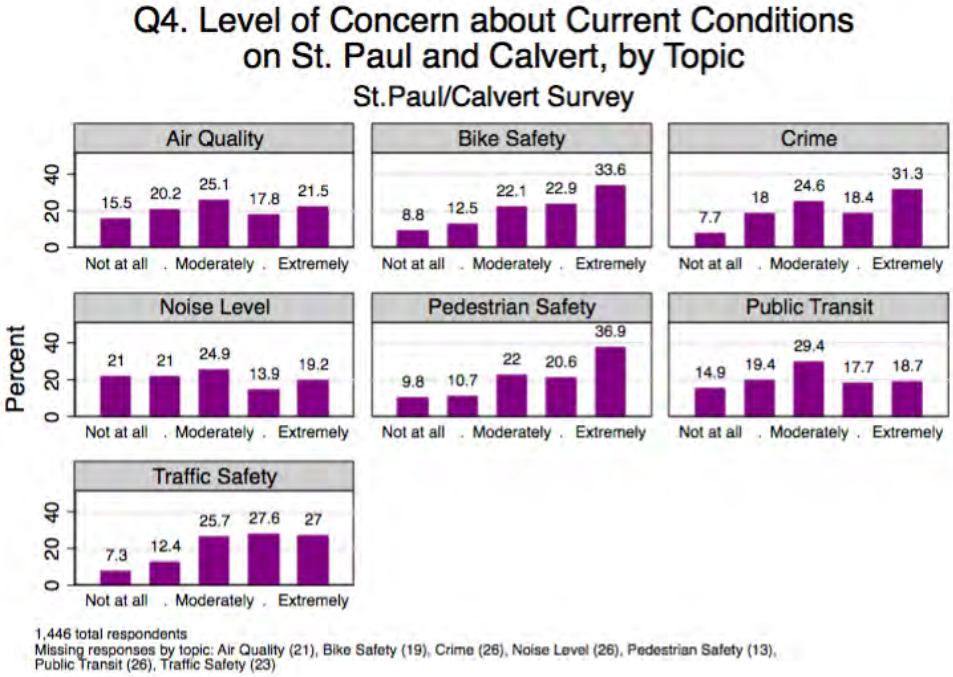
***The City asked***

RESIDENTS,
BUSINESS OWNERS,
&
PROPERTY OWNERS

to complete a public opinion survey. The City wanted to understand your opinions about driving, walking, biking, and using public transportation along St. Paul Street and Calvert Street, as well as your thoughts about safety, crime, noise, and other related issues.

Approximately 5,895 survey postcards were mailed and we received 1,446 responses. We will be sharing survey results during the community meetings that will be held in May.



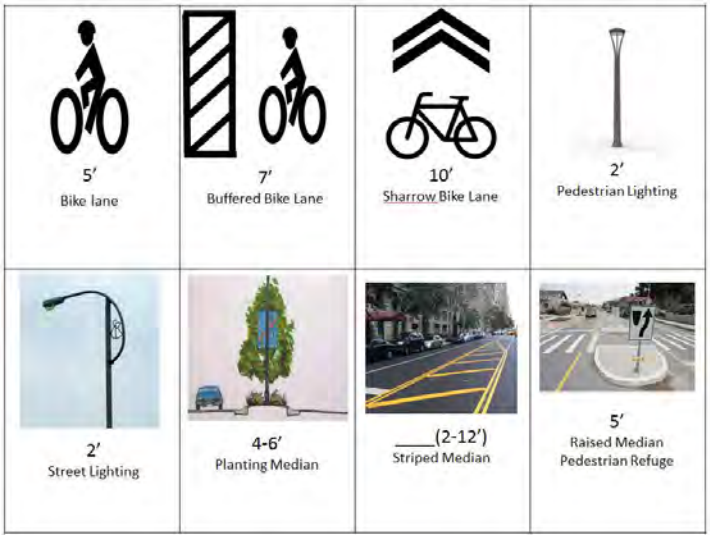
# Case Studies

As part of the study scope we have reviewed previous transportation studies to help us become familiar with recommendations for circulation, parking, and bicycle improvements. The case studies include various cities throughout the United States that have undergone a two way conversion.

Preliminary analyses of findings show that the primary argument for one-way streets is the ability to synchronize signals along a corridor allowing for an efficient through for vehicles and to allow for minimal stopping from the outskirts of a city to the core downtown. Other advocates of two-way streets cite that higher vehicle speeds do not promote a pedestrian friendly environment and do not breed a community-oriented neighborhood. These case studies are still undergoing further evaluation. Stay tuned for further analysis of our findings in the final report.

# Taking a Closer Look: Reconsidering the Public Space by Developing Alternative Roadway Sections

The Community Meeting in May will include a session that will take a closer look at roadway sections along the study corridor. A typical roadway section includes the following elements:

**BALTIMORE CITY DEPARTMENT OF TRANSPORTATION**
417 EAST FAYETTE STREET, ROOM 747
BALTIMORE, MD 21202

# St. Paul and Calvert Street Two– Way Conversion Study Community Meeting

The Baltimore City Department of Transportation will hold three community meetings to discuss the St. Paul Streets and Calvert Streets Two-Way Conversion Study.

**Please share this postcard with your neighbors and constituencies.**

**Please select the most convenient date that fits your schedule.**

**Tuesday, May 12, 2015 At Benton Building 417 E. Fayette Street 3rd Floor 6:00p.m. – 8:00p.m.**

**Thursday, May 14, 2015– At St. Philip and James Church 2801 N. Charles Street 5:30p.m. - 7:30p.m.**

**Tuesday, May 19, 2015– At Baltimore Montessori School 1600 Guilford Avenue 6:00p.m - 8:00p.m.**

The meeting location is accessible to persons with disabilities. Please contact Ms. Nikia Mack, Liaison Office Coordinator at nikia.mack@baltimorecity.gov or 443-984-4094/4095 if you have special needs. Should Baltimore City Schools have a delay or are closed due to weather, the meeting will be re-scheduled. If the meeting is postponed, a revised invitation will be shared with your community association and leaders.

**WE WELCOME YOUR COMMENTS**

**HTTPS://WWW.SURVEYMONKEY.COM/S/DOTCOMMENTS**

## NEXT STEPS

- **Administer follow up public opinion survey**
- **Publish final report**
- **<u>30 day public comment period on report</u>**
- **Project close & BCDOT recommendation sent to the director**

**COMPANY NAME**
STREET ADDRESS
ADDRESS 2
CITY, ST ZIP CODE

**CUSTOMER NAME**
STREET ADDRESS
ADDRESS 2
CITY, ST ZIP CODE

# St. Paul & Calvert Streets Two-Way Conversion Study

City of Baltimore Department of Transportation, Transportation Planning Division **January 2016**

**STUDY CORRIODR**

Primary Study Streets:
*St. Paul Street, Calvert Street*

Northern Limit: *University Parkway*
Southern Limit: *Fayette Street*

2.8 Mile Long Study Corridor

71 Intersections

Includes eight neighborhoods: *Charles Village, Old Goucher, Charles North, Barclay, Greenmount West, Mid-Town Belvedere, Mount Vernon and Downtown*


## Study Summary Edition

### In This Edition

This final newsletter serves as a summary of the St. Paul and Calvert Street Two-Way Conversion Study recapping the following components of the study:

1. A summary of existing data collected to assess current neighborhood demographics, traffic, parking, transit and safety along study corridor
2. A review of case studies to gain insight into what other cities experienced in converting city thoroughfares to two-way
3. The results of the public opinion survey
4. The commuter shed study
5. The public involvement process
6. Initial proposed cross sections under two-way flow
7. The initial findings of a two-way flow analysis

### Why Conduct a Two-Way Conversion Study?

In response to frequent community requests over the past several years, the Baltimore City Department of Transportation has carried out a study of the St. Paul and Calvert Streets corridor from Fayette Street to E. University Parkway assessing the feasibility and impact of converting the corridor, or a portion of the corridor, to two-way traffic flow. Some community groups/ members have expressed an interest for two-way flow in their neighborhood, due to the enhanced livability two-way streets tend to promote.

This study provides a robust picture of the corridor evaluating the traffic and safety impact on all modes of travel – vehicle, truck, bus, bike, and pedestrians - and the opinions of the business and resident community.

# Existing Conditions



**Below are key findings of the existing conditions analysis concerning neighborhoods, the roadway network, traffic conditions, on-street parking, traffic safety, and bus operations.**

***Auto ownership*** is highest in the Downtown & Greenmount West neighborhoods, & is in the middle range in most other neighborhoods.

***Population density*** varies widely throughout the study area neighborhoods, with the highest densities reached in Charles Village, Mid-Town Belvedere & Mount Vernon, & the lowest in Charles North & Downtown.

***Street configuration*** along St. Paul Street, north of Lafayette Avenue generally consists of two travel & two parking lanes. It operates with three travel lanes & one parking lane along the two blocks between 29th & 31st Streets. South of Lafayette Avenue, there is extensive variation from one cross section to another. Travel lanes vary from two to four lanes, & parking lanes are generally one to two lanes with a few blocks of no on-street parking.

Calvert Street, north of Lafayette Avenue has two travel lanes & two parking lanes. For the block between 33rd & 34th Streets there is only one parking lane. Between Lafayette Avenue & Centre Street, Calvert Street has two travel & two parking lanes. South of Centre Street to Fayette Street, the cross section varies from three to four travel lanes & zero to one parking lanes.

Nearly all study intersections have ***pedestrian signals & marked crosswalks***.

Of the 61 signalized intersections within the study area, 55 are ***operating at acceptable levels of service*** during both the morning & evening rush hour.

Out of the ***1,760 curbside parking spaces*** in the study corridor, there are nearly equal amounts along St. Paul & Calvert Streets. Spaces requiring residential permits & unrestricted spaces each account for one third of the curbside spaces. Out of 144 block faces (accounting for east & west sides of St. Paul & Calvert Streets), 45 blocks have a 75% or higher utilization rate during mid-day & 89 blocks have a 75% or higher utilization rate during the evening.

Over the five-year period of 2009-2013, there were a total of 767 ***vehicle crashes*** at the 71 intersections along St. Paul & Calvert Streets, for an annual average of 153 crashes. An equal number of crashes occurred along St. Paul & Calvert Streets. There is an average of 18,850 crashes per year within the City.

There were a total of 79 ***pedestrian or bicycle reacted crashes*** over the three year period from 2009 to 2011 along St. Paul & Calvert Streets. One pedestrian fatality occurred. There were significantly less pedestrian crashes on Calvert Street than St. Paul Street. Pedestrian & bicycle crashes were more frequent in Downtown at Saratoga, Lexington, & Fayette Streets. None of the study intersections are included in Baltimore City's top 25 high crash locations, according to the *Vision Zero* safety analysis.

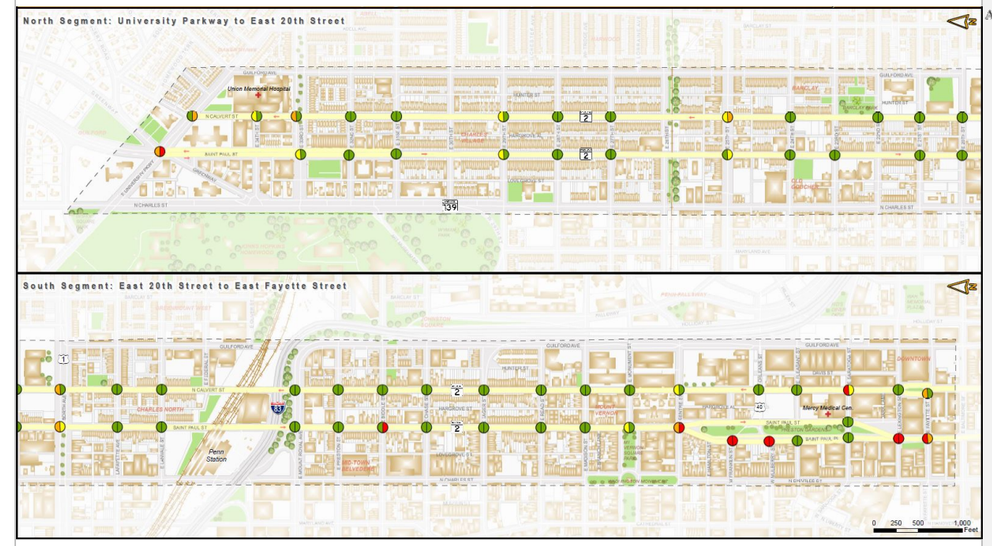
The total daily public and private transit ***bus boardings*** in the study area, at the 32 bus stops along St. Paul & Calvert Streets were 12,850. Total daily combined line ridership exceeds 30,000 passengers per day in some segments. Bus boardings south of Lafayette Avenue are almost twice than that of those north of Lafayette Avenue, & were three times higher along St. Paul than Calvert Street.

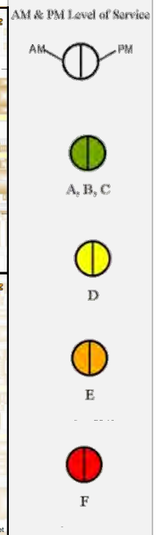
An origin-destination rush hour license plate survey of both St. Paul & Calvert Streets reveals that roughly 50% of ***commuters*** reside in Baltimore City, 25% in Baltimore County, and the remainder from other surrounding counties and Pennsylvania.

# Two Lane Two Way Level of Service



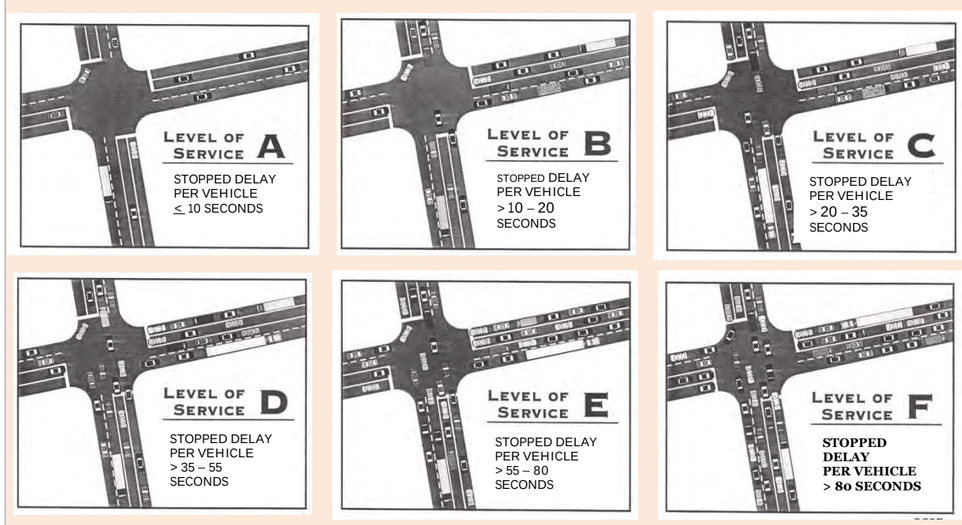
**The intersection level of service presented below reflects the traffic operations with no modification to the network except for the flip of the travel lane direction from one-way to two-way and full-time curb lane parking. As shown in the map, the traffic volumes south of Centre Street may not be adequately supported under two-way flow under existing roadway geometrics and signal timing.**




## *What is intersection level of service?*

*The graphics below visually show what each letter grade reflects in traffic operations.*

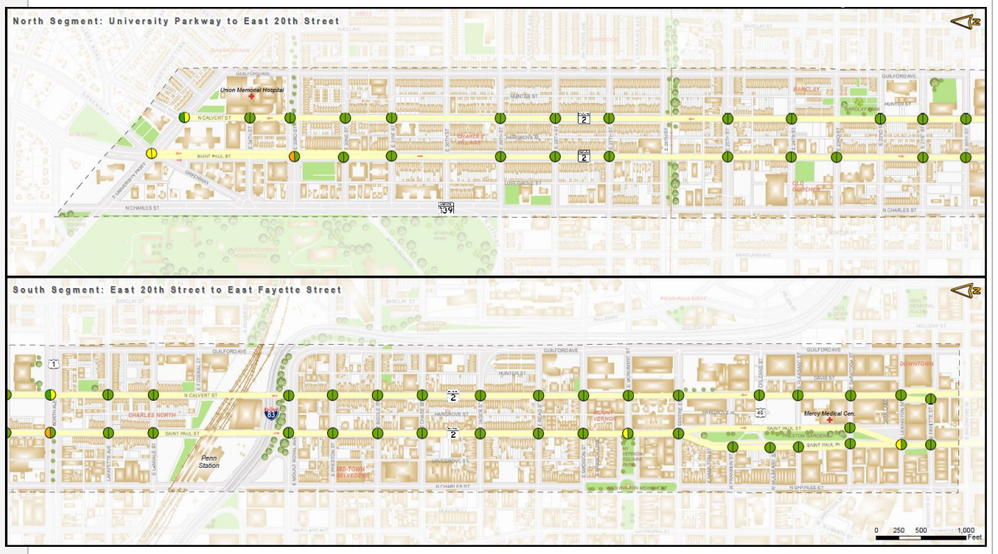



***LOS*** *is a qualitative measure describing operational conditions within a traffic stream based on the amount of delay experienced at an intersection. LOS ranges from A to F, where LOS A represents optimal conditions, and LOS F represents saturated or failing conditions.*

# Existing Traffic Operations – Level of Service



**The intersection vehicle level of service (LOS) presented below reflects the existing traffic volumes, roadway geometry and traffic signal timing. LOS measures the capacity of each intersection to identify traffic operation deficiencies. The impact of two-way flow on traffic operations is another consideration of this study.**




Currently, the study intersections operate at an acceptable level of service (where LOS is A, B, or C). This shows that the corridor effectively supports the flow of vehicles through the corridor with minimal delay. If the corridor was converted to two-way flow, without any additional changes made to the corridor such as signal timing, changes in lane use, etc., most of the intersections will drop to an unacceptable level of service.

| Intersection | Existing | Two-Way |
|---|---|---|
| St. Paul at University Pkwy. | D(D) | E(F) |
| St. Paul at 33rd St. | E(C) | D(C) |
| St. Paul St. at E 29th St. | B (B) | D (C) |
| St. Paul St. at E 25th St. | B(B) | B(D) |
| St. Paul St. at North Ave. | E (C) | F (D) |
| St. Paul St. at E Biddle St. | A (B) | A (F) |
| St. Paul St. at E Monument St. | D (A) | D (B) |
| St. Paul St. at E Centre St. | A (A) | D (F) |
| Upper St. Paul St. at E Franklin St. | C (C) | F (F) |
| Upper St. Paul St. at E Mulberry St. | A (B) | F (F) |
| St. Paul St. at E Lexington St. | D (B) | F (F) |
| St. Paul St. at E Fayette St. | A (A) | F (E) |
| Calvert at University Pkwy. | C (D) | C(E) |
| Calvert St. at E 33rd St. | B (C) | E (C) |
| Calvert St. at E 29th St. | B (A) | D (B) |
| Calvert St. at E 25th St. | C (C) | D (F) |
| Calvert St. at North Ave. | C (D) | E (F) |
| Calvert St. at E Centre St. | B (B) | D (C) |
| Calvert St. at E Saratoga St. | C (B) | F (D) |
| Calvert St. at E Fayette St. | B (B) | E (C) |

# On-Street Parking Spaces



**Data was collected and analyzed on curbside parking spaces along St. Paul and Calvert Streets by (1) type of curbside regulation, (2) by location within each neighborhood, and (3) by curbside space utilization. The impact to on-street parking is one of the aspects being considered in this study.**

There are a total of 1,760 spaces in the study area along both sides of St. Paul and Calvert Streets. With an even distribution of curbside spaces on both sides of St. Paul and Calvert Streets throughout the study area, the number of spaces in each neighborhood is mainly reflective of the length of each neighborhood crossed by the study area boundaries. A third of the spaces are regulated by residential permitting, a third are unrestricted, and a little under a third are pay-to-park spaces.

| Neighborhood | No. of Spaces | Percent of Spaces |
|---|---|---|
| Charles Village | 672 | 38% |
| Old Goucher | 34 | 2% |
| Charles North | 141 | 8% |
| Barclay | 263 | 15% |
| Greenmount West | 64 | 4% |
| Mid-Town Belvedere | 238 | 14% |
| Mount Vernon | 241 | 14% |
| Downtown | 107 | 6% |
| *Total* | *1,760* | *100%* |

| Parking Regulation | No. of Spaces | Percent of Spaces |
|---|---|---|
| Residential Permit | 591 | 34% |
| Unrestricted | 601 | 34% |
| Pay to Park | 439 | 25% |
| Other Permit Reserved | 53 | 3% |
| Pedestrian Loading Zone | 41 | 2% |
| Truck Loading Zone | 35 | 2% |
| *Totals* | *1,760* | *100%* |

# Transit – Bus Operations

**The study corridor is a significant transit (bus) corridor for the City. The impact to trips by bus is one of the numerous data points being taken into consideration for the final recommendation. Here, we paint a picture of bus operations along the corridor. Bus operations along the study corridor are significant, with St. Paul Street experiencing more transit and bus activity in the peak hour than Calvert Street. Charles Street serves as the transit couplet to St. Paul Street, and experiences a similar amount of transit activity.**

BUS OPEPERATORS

There are six (6) transit operators in the study area:

- Maryland Transit Administration (MTA)
- The City of Baltimore (Charm City Circulator)
- Collegetown Shuttle Services
- John Hopkins University
- University of Baltimore Shuttle Services
- University of Maryland Baltimore Shuttle Services

BUS DENSITY

Of the six operators, MTA operates the greatest number of buses along the study corridor. Between University Parkway and Layfette Avenue, the northern segment of the study corridor, MTA runs six buses along St. Paul Street and zero buses along Calvert Street. Between Layfette Avenue and Fayette Street, MTA runs 26 buses along St. Paul and 11 buses along Calvert Street in the peak hour. The four institutional operators operate 13 bus routes along St. Paul and Charles Streets.

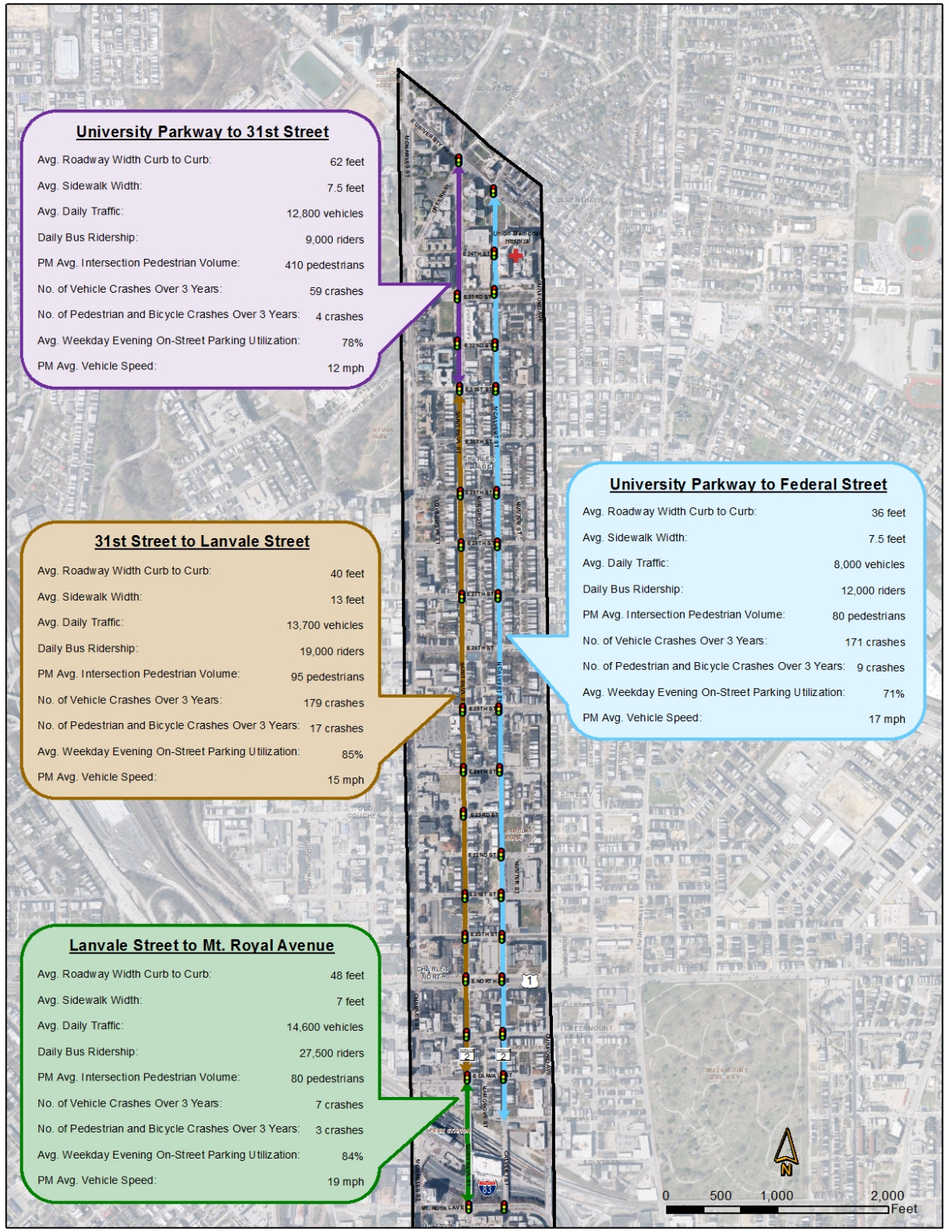
BUS RIDERSHIP

A metric of transit use is ridership – commonly reported as the number of people who board a bus at a given stop or for a specific route. For all 32 bus stops along St. Paul & Calvert Streets within the study corridor, there are total of 12,850 bus boardings daily. *St. Paul Street has more trips by bus than Calvert Street, accounting for 73% of the total daily boardings.* The northern half of the segment (north of Lafayfette Street) experiences more boardings than the southern half, accounting for 62% of the total daily boardings.

# Existing Conditions — Northern Half of Corridor



**The maps divide the corridor into nine segments based on similar roadway cross-section and present a summary of the key transportation characteristics.**

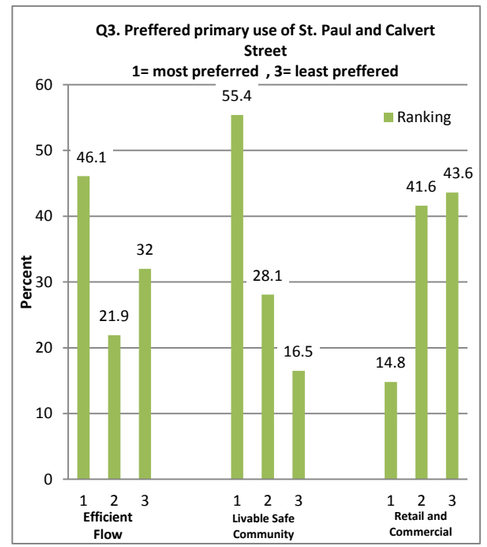


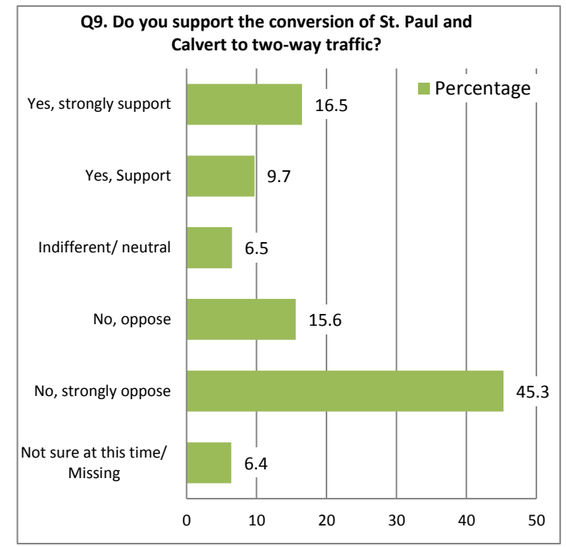

# Public Opinion Survey

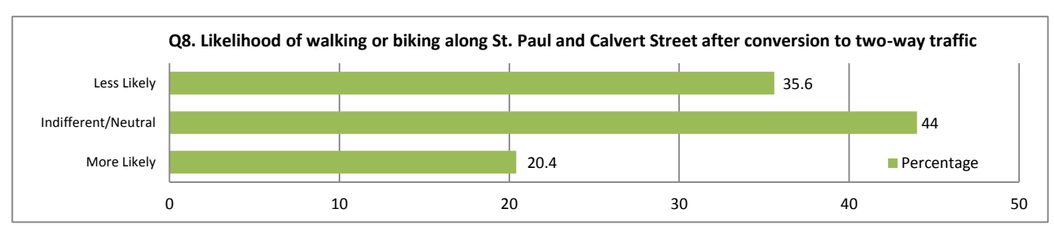


Many respondents expressed concern over the conversion of St. Paul and Calvert Streets to two-way traffic conversion, anticipating negative effects to local businesses and livability of the community. Although 60% of respondents oppose conversion, 55% prefer the primary purpose of St. Paul and Calvert Streets to serve as a livable safe community. Several case studies highlighted on page 6 show how some two-way conversions have played a role in increasing the quality of businesses, and how traffic calming led to increases in community livability and decreases in crime and crashes. The case study in Louisville cited drops in crime rates and the case study in Cincinnati cited a decrease in vehicle speeds, both of which can increase the appeal of walking. However, the highest share of respondents said a conversion to two-way will not change their likelihood of walking or biking on St. Paul and Calvert Streets and 48% are satisfied or highly satisfied with the current livability of the community.

The operational and capacity analysis for the existing conditions shows that the corridor operates efficiently for vehicle traffic, as referenced on page 14 where a majority of the intersections are shown to operate at an acceptable level of service. Forty-six percent of respondents reported a preference for St. Paul and Calvert Streets providing efficient traffic flow and 50% are satisfied or highly satisfied with the existing traffic flow. Additionally, 70% anticipate a negative effect on traffic flow due to a two-way conversion.

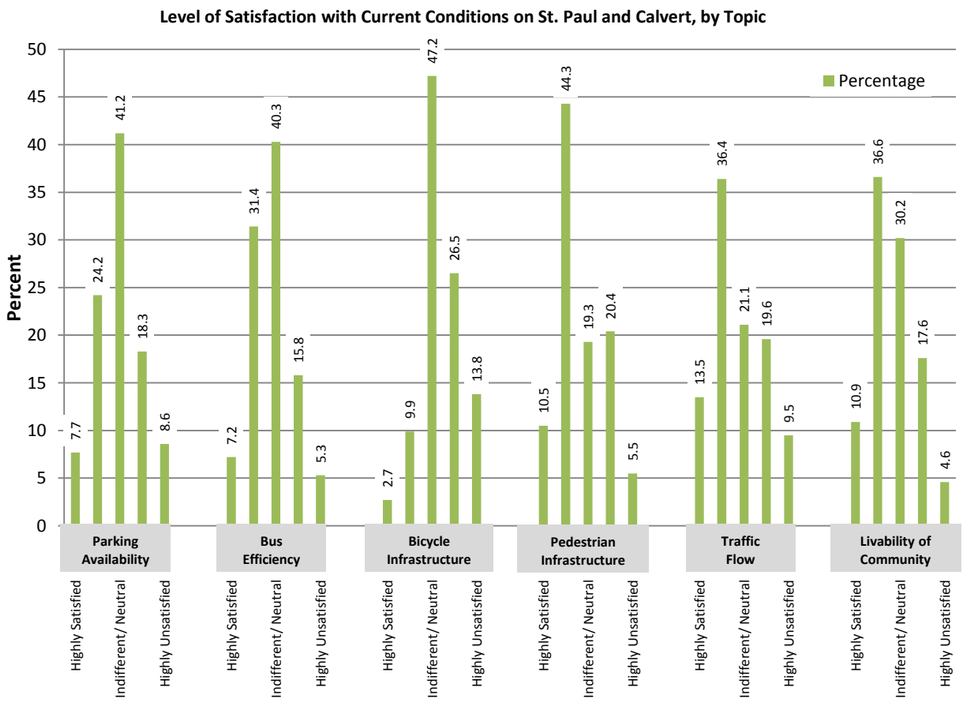


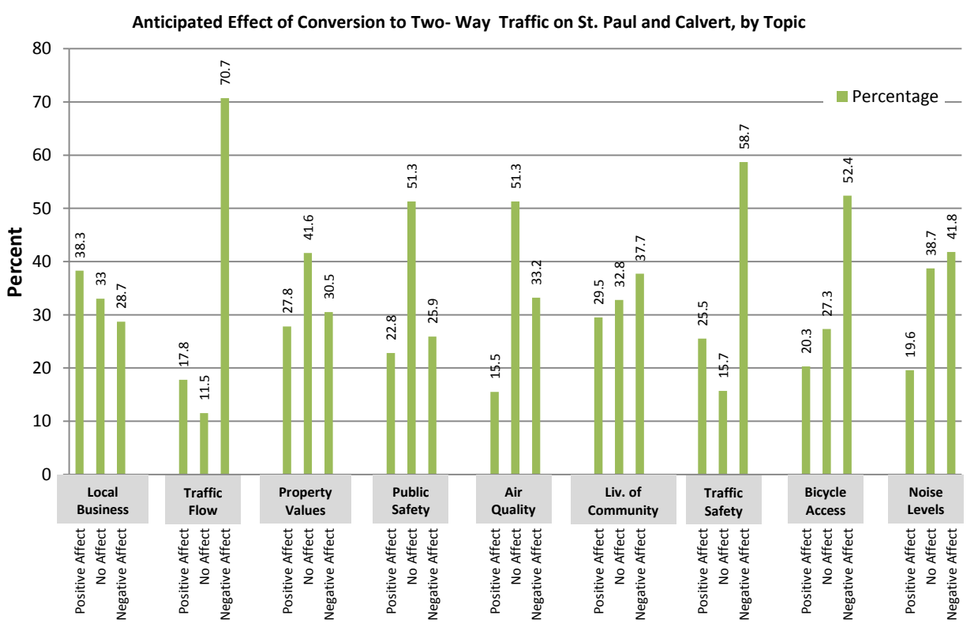



# Public Opinion Survey

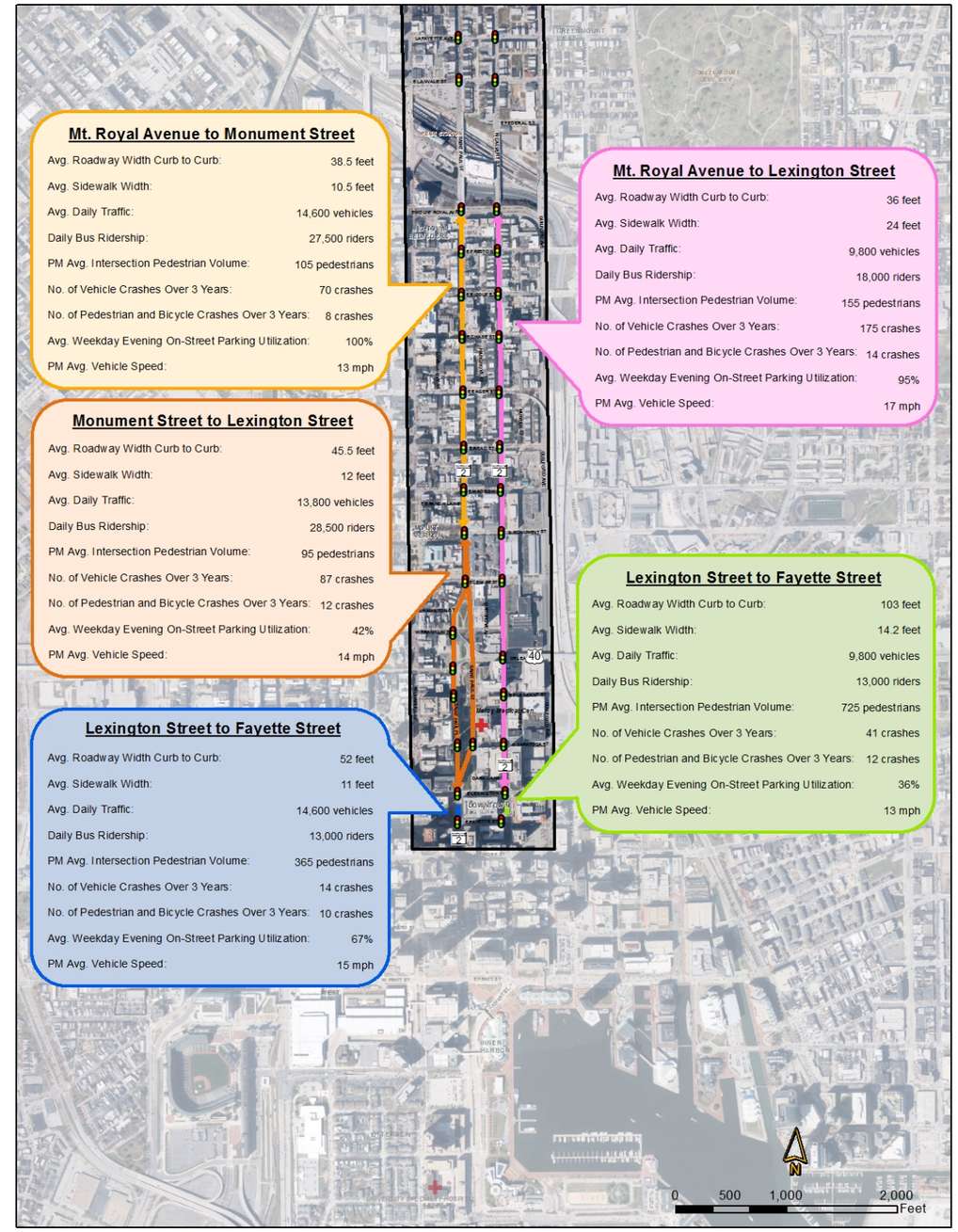





# Southern Half of Corridor





# Case Studies

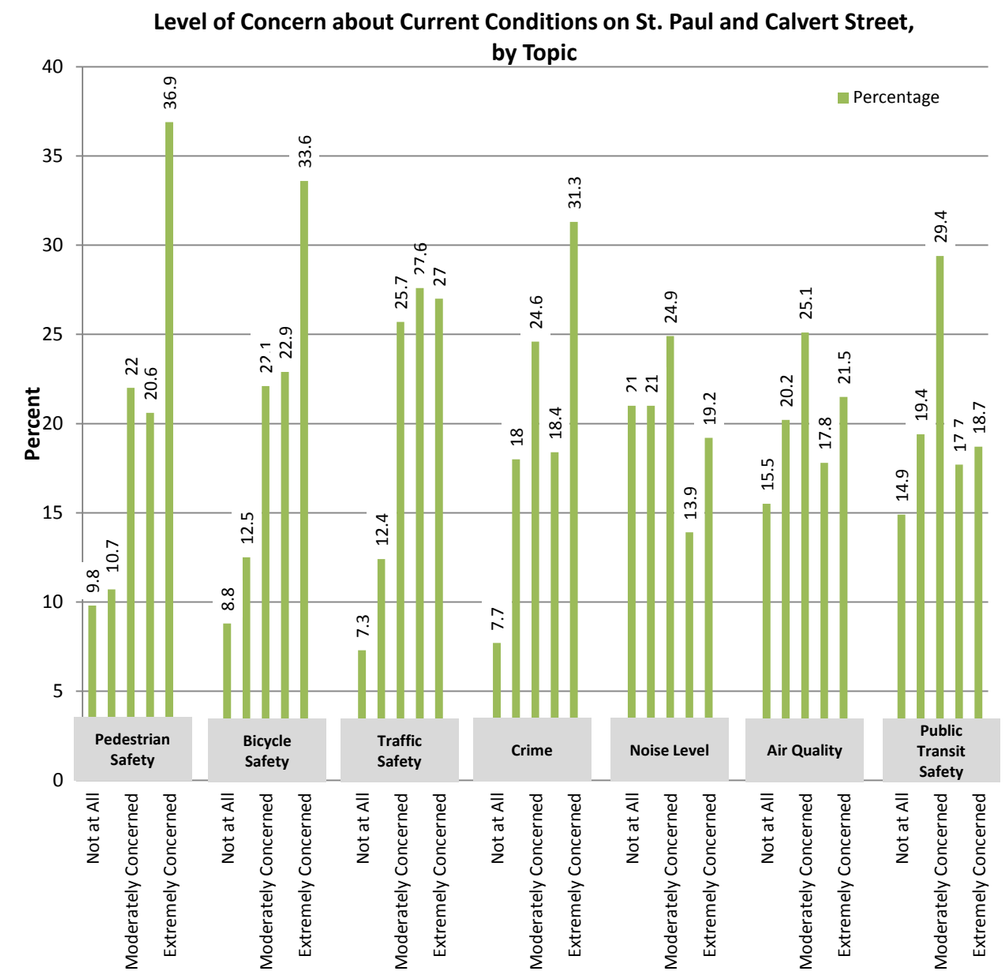


**Presented here are case studies of two-way conversions experienced by other cities. The case studies can be compared to the St. Paul & Calvert Street corridor by daily traffic. The primary reason that the cities converted and its result are shown.**

| LOCATION | AVERAGE DAILY TRAFFIC | YEAR CONVERTED | PRIMARY REASON FOR CONVERSION | RESULTS |
|---|---|---|---|---|
| **St. Paul & Calvert Sts.** | **12,500 (St. Paul 2013) 7,500 (Calvert 2013)** | **N/A** | **Enhance the livability of the communities** | **N/A** |
| Kings St. Charleston SC | 11,500 (1994) | 1994 | Commercial and economic benefit of downtown Charleston | • Frequency and quality of business increased post conversion<br>• Conversion induced a positive change in commercial property values |
| Brook & First St. Louisville KY | 8,900 (Brook 2009) 7,700 (Brook 2013) 3,650 (First 2009) 5,700 (First 2013) | 2011 *Converted to a single lane in each direction with bike lane* | Downtown revitalization with a focus to establish more desirable residential neighborhoods | Pre- vs. post- conversion analysis revealed:<br>• 23% drop in crime<br>• Brook St.: 36% reduction in collisions<br>• First St.: 60% reduction in collisions<br>• Brook St.: 39% increase in property values |
| North & Main St. Old Town Fairfax VA | 17,000 (2005) 12,000 (Main 2013) 22,000 (North 2013) | 2006 | Downtown Revitalization including creating a pedestrian-friendly downtown | • Speeds increased post conversion by 2-4 MPH<br>• Daily traffic volumes decreased<br>• Conversion spurred redevelopment that also increased off-street parking four fold |
| 2nd Ave. Midtown Detroit MI | N/A | 2014 *Four lanes to one in each direction, a center turn lane, & buffed bike lane in each direction* | Traffic calming to create a broader walkable urban district and revitalized a deteriorated corridor | Anecdotal:<br>• Reduces confusion to visitors<br>• Feels more like a slower paced residential street<br>• Encourages more bike riding<br>• Negatively impacts parking and access to a specific restaurant |
| Vine St. Cincinnati OH | N/A | 1975 *Converted to one-way;* 1999 *Converted to two-way* | To stimulate and support increased business activity; *40% of the businesses on Vine St. closed after the 1975 conversion to one-way* | • Post-1999, traffic volumes decreased by 28%<br>• Average crashes per year were 212 prior to 1975, 102 from 1975-1999, and 164 post 1999<br>• Post-1999, travel times doubled from 2 minutes to 4.5 minutes<br>• Post 1999, average speed decreased from 18 to 12 mph |

# Public Opinion Survey






Many residents express concern over bicycle and pedestrian safety, as well as traffic safety. While the study corridor has been shown to be a high traffic volume area, on average 153 vehicle accidents occur in the study area per year, with most accidents concentrated at 7 of the 71 intersections along St. Paul and Calvert Streets. Bicycle injury within the corridor is low, with on average 6 accidents per year. While 67% of the community walks along the corridor more than three times per week, a similar percentage of the community (58%) is extremely or very concerned about pedestrian safety. There is an average of 20 pedestrian related crashes per year, with crashes occurring at 29 of the 71 study intersections (41%). and only one pedestrian fatality between 2009 and 2011.

# Public Opinion Survey

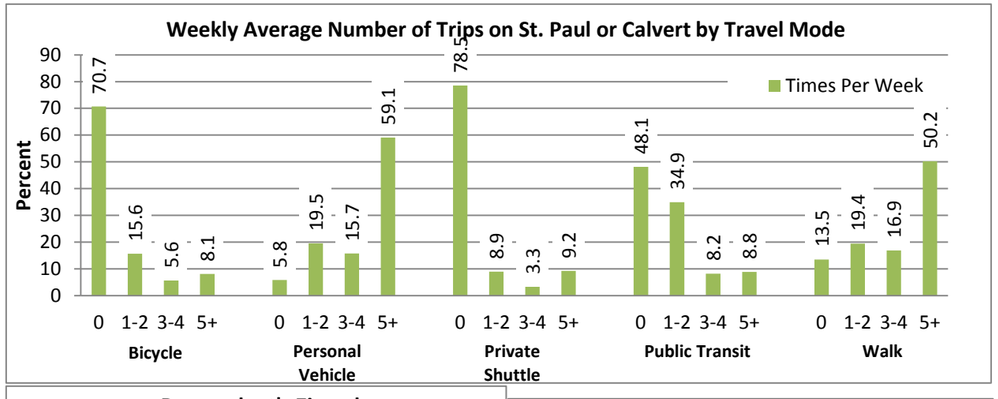


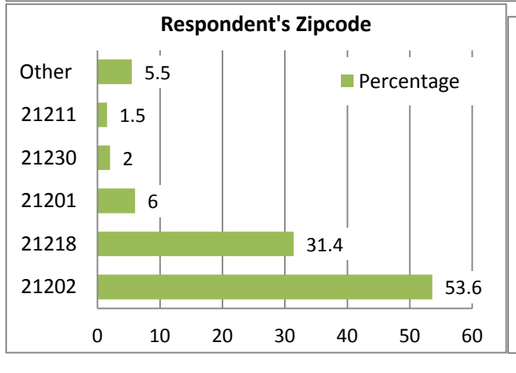
**To gain an understanding of the Community's opinion on one-way versus two-way flow, the City conducted a public opinion survey as part of the study. Approximately 5,895 postcard invitations to a twenty two question online survey were mailed to residents, business owners, and property owners along the study corridor. During the survey two month open period in Fall of 2014, the survey received 1,446 responses. A summary of the results is presented here.**

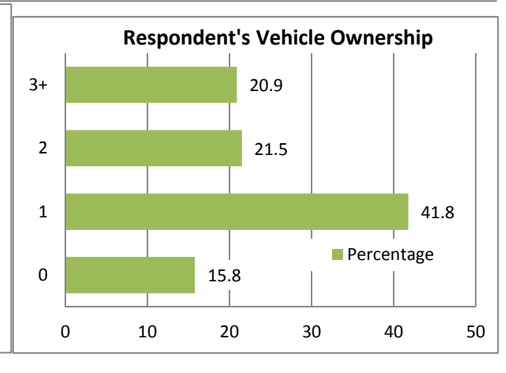
A series of **demographic** questions were included and the key findings from the survey are outlined:

- 63% of responses came from a residence and 37% from business owners, with 60% of respondents renters of their home and/or business
- About half of the respondents have lived in the study corridor for less than five years
- 40% of respondents are between 18 and 34 years of age
- 84% identified themselves as white
- 52% of respondents have a graduate/professional degree, with 90% of respondents having some higher education degree
- 54% of respondents represent households of two or more adults, with no children

The survey results below support the findings of the commute shed study and how people travel the corridor. About 85% of the survey responses represent residents/business owners in zip codes 21218 and 21202, which are two of three zip codes that represent highest trip origins of vehicles driving on the study streets. Additionally, with over 84% of the community owning one or more vehicles and 75% using a personal vehicle more than three times per week, it is seen that the community surrounding the study area shows high utilization of the roads and high reliance on personal vehicles. Additionally, although bus ridership is significant, few reported traveling by bus.



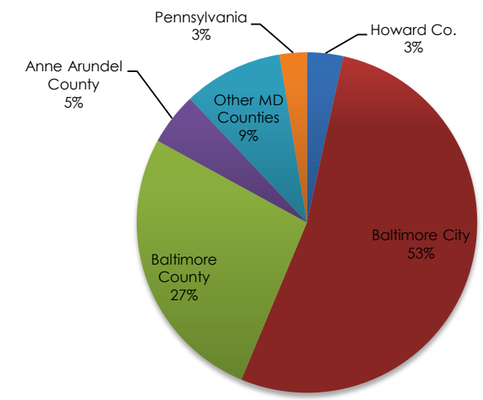

# Commuter Shed Study



**An origin-destination study was performed on St. Paul & Calvert Streets to better understand who utilizes the corridor. Maryland and Pennsylvania license plate data of non-commercial vehicles were manually recorded, and later transcribed for three peak hour periods: morning (7:00-8:00am), midday (12:00-1:00pm) and evening (4:30-5:30pm). Data was collected at four different locations to capture traffic patterns on each street and segment of the corridor: 1)Calvert St. north of 28th St., 2)Calvert St. north of Read St., 3)St. Paul St. south of 28th St., and 4) St. Paul St. south of Read St. The impact to users of the corridor (commuters and locals) is another piece of the story.**

The results show that:

- 53% of commuters are from Baltimore City
- 47% of commuters are from surrounding counties
- Zips codes 21212, 21218 & 21202 had the largest percentage of commuters who live in the study corridor and utilize St. Paul & Calvert Streets
- The highest volume of commuters on St. Paul Street is during the morning rush hour, which is opposite of Calvert Street where the highest volumes is during the evening rush hours




# Public & Community Involvement

In addition to quantitative analysis, input from the public was also solicited to complete the whole story of the operations of the corridor. A *steering committee* comprised of community representatives provided feedback to the project team throughout the 18 month study. At the seven steering committee meetings held, the following entities were represented.

Community Organizations

- Central Baltimore Partnership
- Charles Village Civic Association
- Downtown Partnership of Baltimore
- Jubilee Baltimore
- Mount Vernon Belvedere Association

Local Business & Institutions

- John Hopkins University
- Medstar Health
- Shara Communications

City Government Departments

- Baltimore City Department of Health
- BCDOT – Planning
- BCDOT – Traffic
- BCDOT – Transit
- Mayor's Office

Three series of *public meetings* were held throughout the study. For each series, three meetings were held in the evenings at separate locations throughout the corridor. These meetings provided the opportunity to share the findings of the study periodically, and receive feedback from the community on the progress of the study. Here are the topics presented at each of the three series of meetings.

October 2014

Project Purpose & Goals
Study Area & Neighborhoods
Priorities & Challenges
Work Plan & Next Steps

February/May 2015

Public Opinion Survey Results
Case Studies
Existing Conditions Mapping
Cross-Section Development Exercise

December 2015

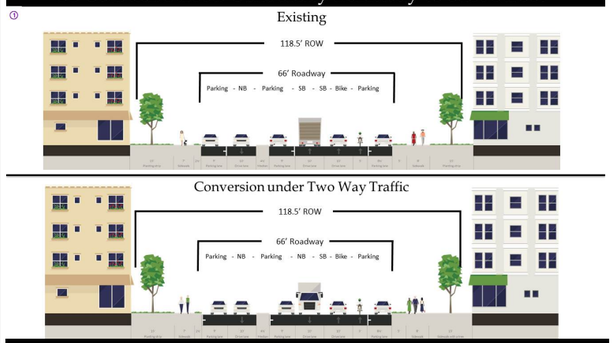
Two-Way Conversion Cross Sections
Commuter Shed Study
Existing & Two-Way Travel Times

# Two Way Proposed Street Configuration

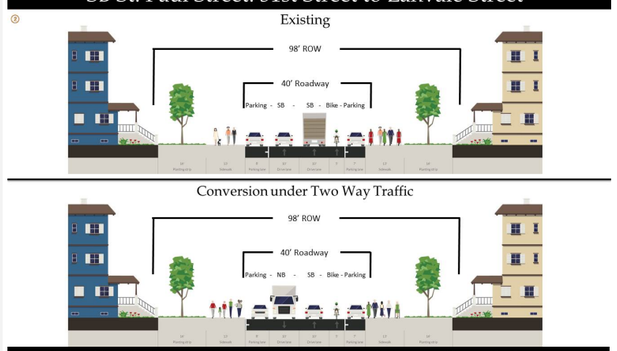


The existing and proposed cross-sections under a two-lane, two-way flow are shown to the right for the eight defined segments of the corridor. While roadway width may vary from block to block, each of the eight segments represents the typical cross section for that selection of blocks. The proposed cross section under two-way flow works within the existing right-of-way, and for a majority of the cross sections, one travel lane is converted to the opposing direction while existing lane width, sidewalk width, and number of parking lanes are unaffected. Parking lanes are added on segments 4) St. Paul St. Mount Royal Ave. to Centre St., and on segment 5) St. Paul St. Lexington to Fayette St.. Also, in segment 5, there is 10 feet of excess roadway width under the two way flow to be assigned a use. Additionally, the cross section under two-way flow is undetermined for the short segment on Calvert St. between Fayette and Lexington St. (#6), where travel lanes are currently divided by a 47 feet median.

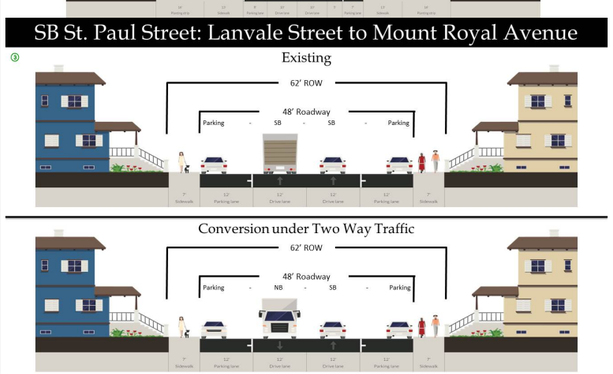
## SB St. Paul Street: University Parkway to 31st Street



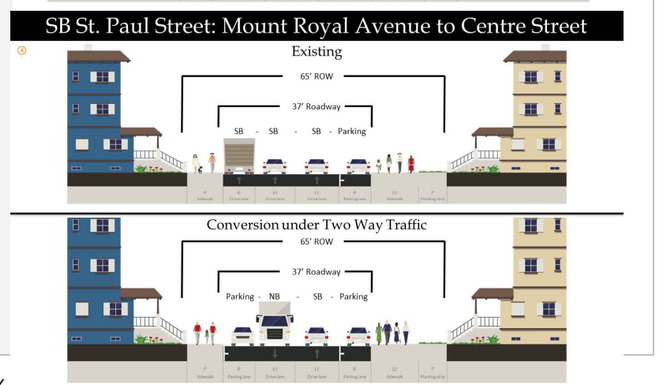

## SB St. Paul Street: 31st Street to Lanvale Street




## SB St. Paul Street: Lanvale Street to Mount Royal Avenue



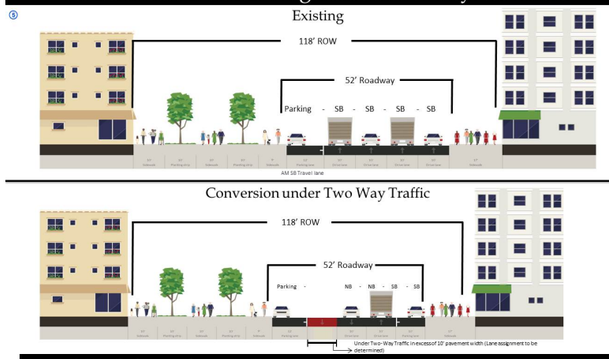

## SB St. Paul Street: Mount Royal Avenue to Centre Street



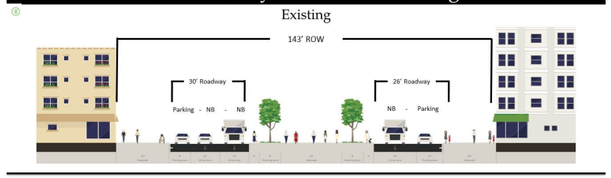





## SB St. Paul Street: Lexington Street to Fayette Street

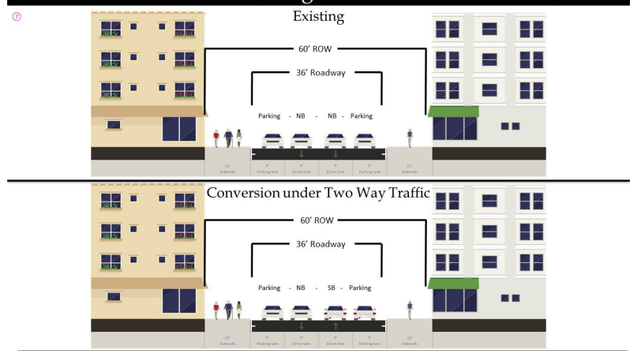



## NB Calvert Street: Fayette Street to Lexington Street

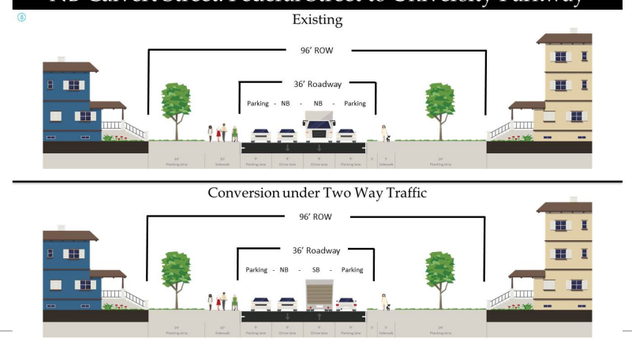


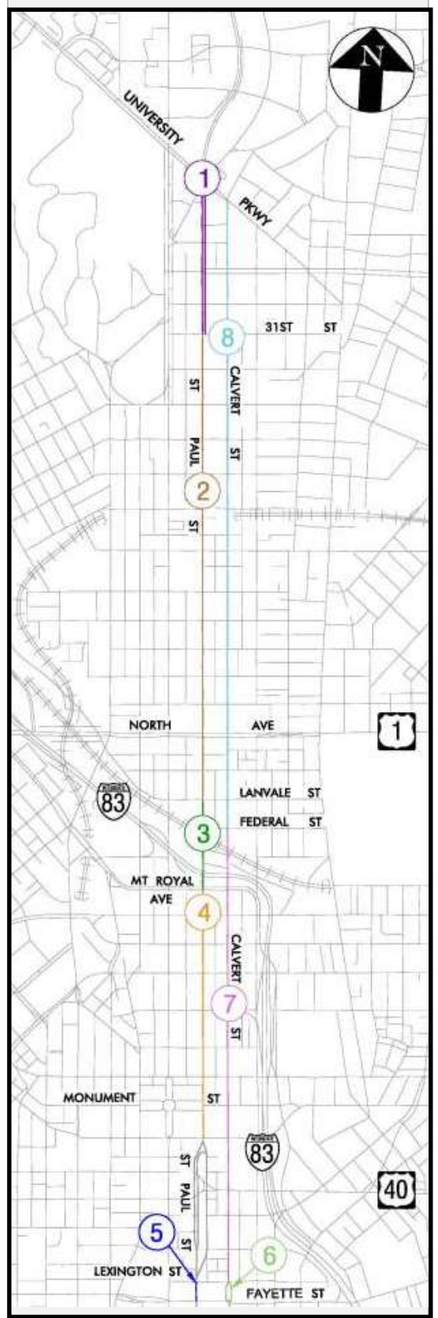

Lane Assignment to be determined

## NB Calvert Street: Lexington Street to Federal Street




## NB Calvert Street: Federal Street to University Parkway



# APPENDIX F

# TWO WAY CASE STUDIES

# St. Paul & Calvert Streets Two-Way Conversion Study

## Case Studies of Cities with Two-Way Conversions

*Public Meetings*
*February 17, 19 and 26, 2015*

Sabra, Wang & Associates, Inc.

# Agenda

- Introductions
- Project Overview
- Case Studies
  - Louisville, Kentucky: Brook and First Streets
  - Old Town Fairfax, Virginia: North and Main Streets
  - Cincinnati, Ohio: Vine Street
  - Detroit, Michigan: Second Avenue
  - Charleston, South Carolina: King Street

Sabra, Wang & Associates, Inc.

# Louisville, Kentucky: Brook and First Streets

## Population

City/County: 757,000
Metro Area: 1,263,000

## Brook and First Streets

Converted to a single lane in each direction with bike lane

## Average Daily Traffic (ADT)

| Brook Street | First Street |
|---|---|
| 2009: ADT 8900 | 2009: ADT 3650 |
| 2013: ADT 7700 | 2013: ADT 5700 |

## Bus Service

| Brook Street | First Street |
|---|---|
| 1 local, 1 express | |
| Medical Ctr Circulator | Med Ctr Circulator |


Sabra, Wang & Associates, Inc.

# Louisville, Kentucky: Brook and First Streets

Brook Street in 2007
One Way


Brook Street in 2011
Two Way with Bike Lane


Sabra, Wang & Associates, Inc.

# Louisville, Kentucky: Brook and First Streets

## Goals

- Downtown revitalization and residential neighborhood desirability
- Improve traffic and community safety

## Results

- Reduced crime by 23% (auto theft and robberies)
- Reduced collisions
  - Along Brook Street by 36%
  - Along First Street by 60%
- Increased property values by 39%
- Increased property improvements by nearly 100%
- Supporting actions: Street trees, bike lanes, community gardens, public art, and adaptive reuse of abandoned properties

Sabra, Wang & Associates, Inc.

# Old Town Fairfax, Virginia: North and Main Streets

## Population

City/County: 25,000 / 1,000,000
Metro Area: 5,860,000

## Average Daily Traffic (ADT)

| Main Street | North Street |
|---|---|
| 2005: ADT 17,000 | 2005: ADT 17,000 |
| 2013: ADT 12,000 | 2013: ADT 22,000 |

## Bus Service

7 bus lines operate along and across North and Main Streets

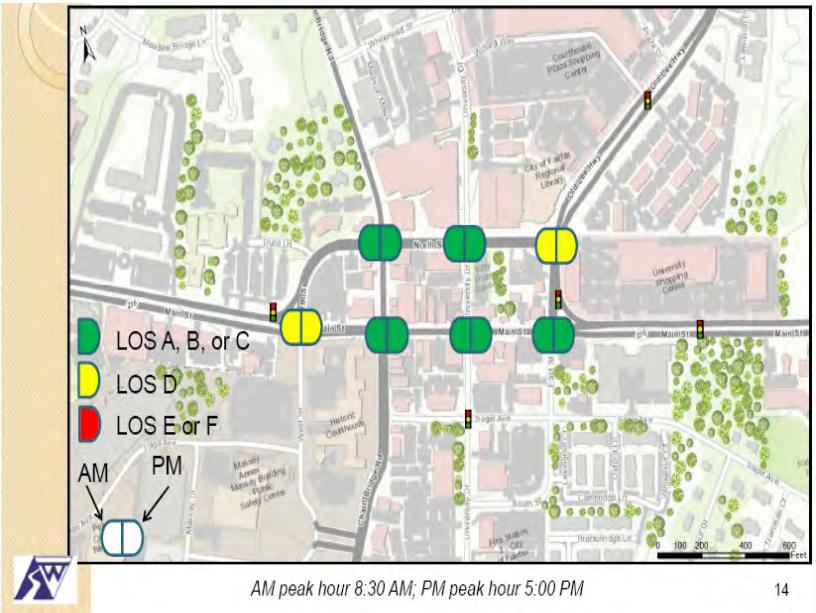
Operators include WMATA and local governments



Sabra, Wang & Associates, Inc.

# Old Town Fairfax, Virginia: North and Main Streets

- Originally Two-Way Operation
- 1972 One-Way Pair
- 2008 Reverted to Two-Way Operation




- Both streets converted to a single lane
  In each direction with center turn lanes


Sabra, Wang & Associates, Inc.

# Old Town Fairfax, Virginia: North and Main Streets

Goals

- Downtown revitalization/pedestrian-friendly downtown with wider sidewalks
- Balance between efficient traffic flow and pedestrian safety
- Reduce through traffic in downtown area

Results

- Speeds increased post conversion by 2-4 mph
- Overall, daily traffic volumes decreased
- Conversion spurred development and increased parking 4-fold
- Crashes rose slightly after the conversion to two-way, but have fallen every year since 2011

Sabra, Wang & Associates, Inc.

# Cincinnati, Ohio: Vine Street

## Population

City/County: 300,000

Metro Area:  2,000,000

## Vine Street

1975 Converted to One-Way

1999 Converted to Two-Way

## Average Daily Traffic (ADT)

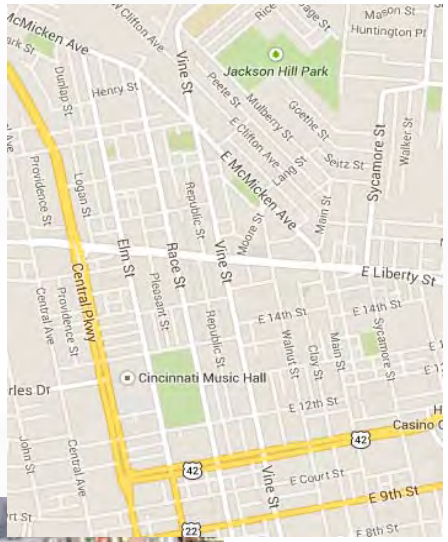
Vine Street

2009: ADT 7400

## Bus Service

3 bus lines operate along Vine Street

46, 78 and Metro Plus





Sabra, Wang & Associates, Inc.

# Cincinnati, Ohio: Vine Street

## Goals

- To stimulate and support increased business activity
- 40% of the businesses on Vine St closed after the 1975 conversion to one-way


## Results

- Post-1999, traffic volumes decreased by 28%
- Average crashes per year were 212 prior to 1975, 202 from 1975-1999, and 164 post 1999
- Post 1999, travel times doubled from 2 min. to 4.5 min.
- Post 1999, average speed decreased from 18 to 12 mph
- Supporting actions: Signals, signs, pavement markings, parking meters and bump-outs

Sabra, Wang & Associates, Inc.

# Detroit, Michigan: Second Avenue

## Population

City/County: 700,000
Metro Area: 4,700,000

## Second Avenue

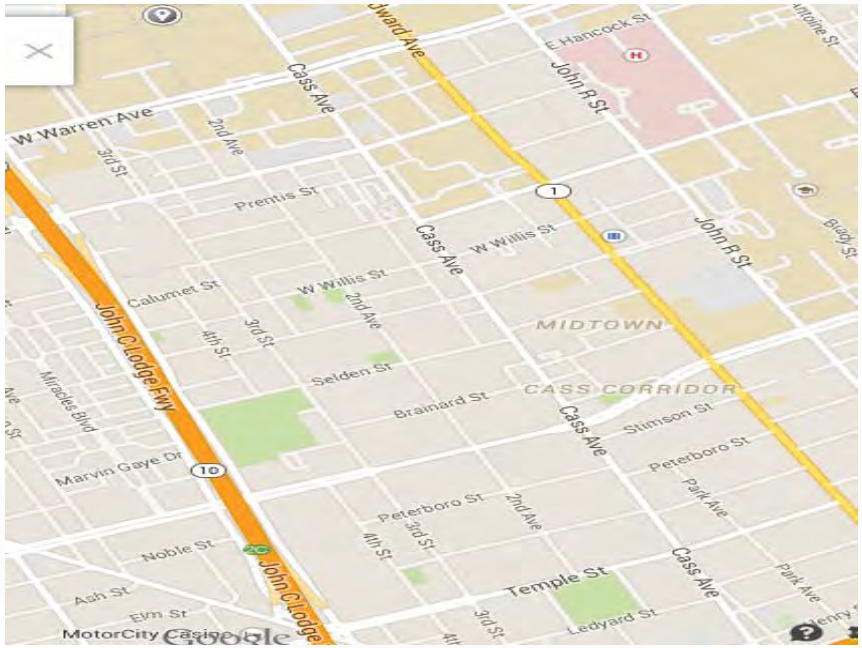
2014 Converted to Two-Way between Warren Avenue and Temple Street with bike lanes and parking on both sides

## Average Daily Traffic (ADT)

Second Avenue near Warren: 3600
Second Avenue Mid Section: 10,800
Second Avenue near Temple: 1700

## Bus Service

Two bus routes, 16 and 23, along Second Avenue




Sabra, Wang & Associates, Inc.

# Detroit, Michigan: Second Avenue

## Prior to 2014

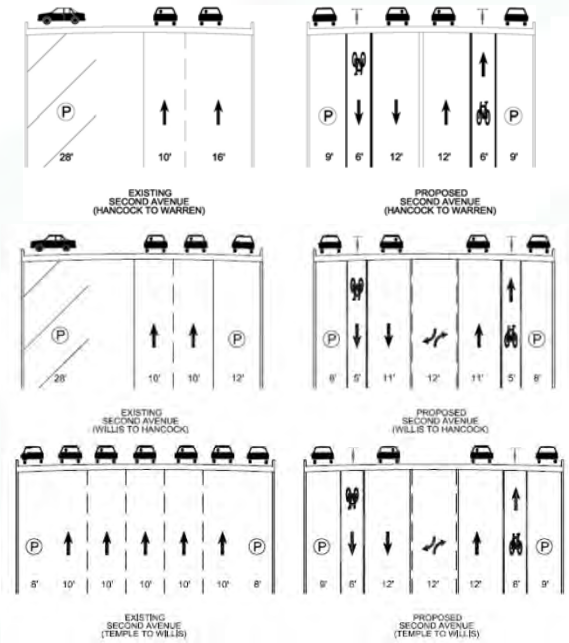
Photo at right shows one way operation with angle parking

## Design Cross-Section

One lane in each direction, center turn lanes, buffered bike lanes in each direction, parking on both sides

Three cross sections are before and after

- Hancock to Warren
- Willis to Hancock
- Temple to Willis




Sabra, Wang & Associates, Inc.

# Detroit, Michigan: Second Avenue

## Goals

- Make community more livable and economically successful
- Making the corridor safer and friendlier for all modes
- Create a broader walkable urban district
- Revitalize neighborhood

## Results (anecdotal)

- Reduce confusion to visitors
- Feels more like a slower paced residential street
- Encourages more bike riding
- Negatively impacted parking and access to a restaurant
- Overall response to the project has been very favorable as reported by Midtown Detroit, Inc. (MDI)

Sabra, Wang & Associates, Inc.

# Charleston, South Carolina: King Street

## Population

City/County: 120,000
Metro Area: 549,000

## King Street

1994 Converted to Two-Way
from Calhoun St to Spring St

## Average Daily Traffic (ADT)

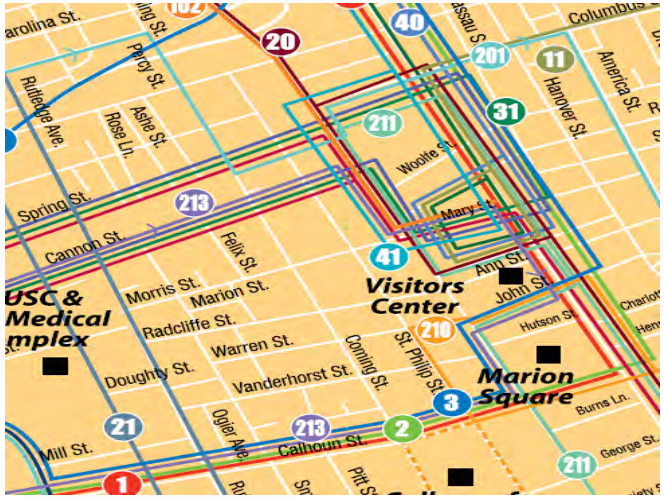
1994: 11,500
2005: 12,600
2012: 9,300


Sabra, Wang & Associates, Inc.

# Charleston, South Carolina: King Street

## Bus Service

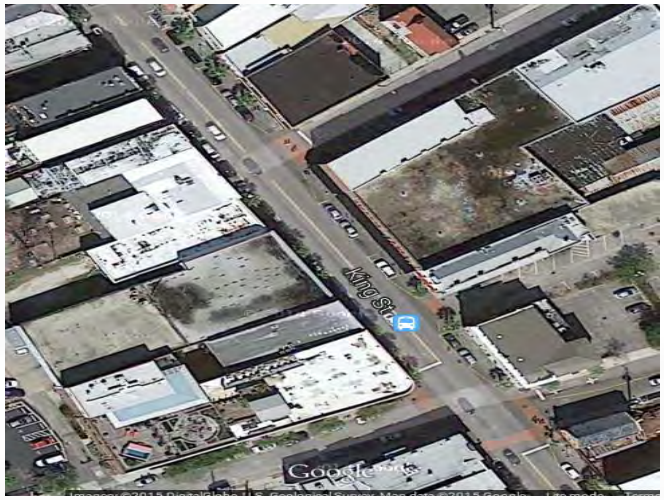
6 routes operate along three segments of King Street




## 4 Lanes

1 lane in each direction

1 parking lane on each side




Sabra, Wang & Associates, Inc.

# Charleston, South Carolina: King Street

## Goals

- Commercial and economic benefit of downtown revitalization

## Results

- Frequency and quality of business increased post conversion
- Conversion induced a positive change in commercial property values

Sabra, Wang & Associates, Inc.

# REFERENCES


1. Jaffe, Eric. "The Case Against One-Way Streets." The Atlantic's CityLab. 31 Jan. 2013 <http://www.citylab.com/commute/2013/01/case-against-one-way-streets/4549/>
2. Gilderbloom, John. "Two-Way Streets Can Fix Declining Downtown Neighborhoods." Planetzien. 11 June. 2014 < http://www.planetizen.com/node/69354>
3. Gayah, Vikash V., and Carlos F. Daganzo. "Analytical Capacity Comparison of One-Way and Two-Way Signalized Street Networks." Transportation Research Record: Journal of the Transportation Research Board 2301 (2012): 76-85.
4. O'Toole, Randal. "Don't Abandon One-Way Streets." News.Heartland.org 1 Feb. 2003 <http://news.heartland.org/newspaper-article/2003/02/01/don%E2%80%99t-abandon-one-way-streets>.
5. Walker, G. W., Walter M. Kulash, and Brian T. McHugh. Downtown Streets: Are We Strangling Ourselves on One-Way Networks? Proc. Of Urban Street Symposium Conf., 28-30 June 1999, Dallas, Texas: Transportation Research E-Circular, 2000.
6. Gilderbloom, John and Zaria Murrell. One-way to Fix Our Downtown Neighborhoods. Proc. Of International Making Cities Livable Conf., June 2014, Portland, Oregon.
7. Cunneen, Michael and Randal O'Toole. "No Two Ways About it: One-Way Streets Are Better Than Two-Way." Online posting. Feb. 2005. Center for the American Dream. <http://transportation.i2i.org/2005/02/10/no-two-ways-about-it-one-way-streets-are-better-than-two-way/>.
8. Whitman, Requardt & Associates, LLP. "Charles Street Two-Way Study". City of Baltimore. 30 Sept. 2003.
9. Baco, Meagan Elizabeth. "One-Way to Two-Way Street Conversions as a Preservation and Downtown Revitalization Tool: The Case Study of Upper King Street, Charleston, South Carolina." Diss. Clemson U and College of Charleston, 2009.
10. Johnson-Thornton, Rachel L., et al. "Achieving a Healthy Zoning Policy in Baltimore: Results of a Health Impact Assessment of the TransForm Baltimore Zoning Code Rewrite." Diss. Johns Hopkins, 2013. DA 128 (2013): 87-103.
11. Duff, Charlie. "Two ways about it [Commentary]." The Baltimore Sun 16 July, 2014. <http://articles.baltimoresun.com/2014-07-16/news/bs-ed-two-way-street-20140716_1_complete-streets-paul-and-calvert-streets-property-values>.
12. Chiu, Yi-Chang, Xuesong Zhou, and Jessica Hernandez. "Evaluating Urban Downtown One-Way to Two-Way Street Conversion Using Multiple Resolution Simulation and Assignment Approach." Journal of Urban Planning and Development © ASCE 113.4 (2007): 50 pars. December 2007. < http://cedb.asce.org/cgi/WWWdisplay.cgi?161460>.

# APPENDIX G

# TRANSIT ROUTE INFORMATION

## Baltimore City - Charm City Circulator


# Charm City Circulator
## Map and Operating Schedule

### Purple Route
Federal Hill - 33rd Street

| # | STOP NAME | STOP LOCATION |
|---|---|---|
| 301 | Baltimore Visitor Center | 302 Light St. |
| 302 | Inner Harbor | S. Calvert St. & W. Pratt St. |
| 303 | Light Street | E. Redwood St. & Light St. |
| 304 | Fayette Street | N. Charles St. & E. Fayette St. |
| 305 | Pleasant Street | N. Charles St. & W. Pleasant St. |
| 306 | Hamilton Street | N. Charles St. & S. Hamilton St. |
| 307 | Washington Monument | N. Charles St. & E. Mt. Vernon Pl. |
| 308 | Eager Street | N. Charles St. & E. Eager St. |
| 309 | Biddle Street | N. Charles St. & E. Biddle St. |
| 310 | Penn Station - Northbound | 1545 N. Charles St. (Penn Station) |
| 311 | North Avenue - Station North Arts District - Northbound | N. Charles St. & North Ave. |
| 312 | 22nd Street - Northbound | N. Charles St. & 22nd St. |
| 313 | 25th Street - Northbound | N. Charles St. & 25th St. |
| 314 | 27th Street - Northbound | N. Charles St. & 27th St. |
| 315 | 31st Street - Baltimore Museum of Art | N. Charles St. & 31st St. |
| 316 | 33rd Street - MedStar Union Memorial Hospital | St. Paul St. & 33rd St. |
| 317 | 29th Street | St. Paul St. & 29th St. |
| 318 | 25th Street - Southbound | St. Paul St. & 25th St. |
| 319 | 22nd Street - Southbound | St. Paul St. & 22nd St. |
| 320 | North Avenue - Station North Arts District - Southbound | St. Paul St. & North Ave. |
| 321 | Penn Station - Southbound | 1600 St. Paul St. (Penn Station) |
| 322 | Preston Street | St. Paul St. & E. Preston St. |
| 323 | Eager Street | St. Paul St. between Chase and Eage |
| 324 | Madison Street | St. Paul St. & E. Madison St. |
| 325 | Centre Street | St. Paul St. & E. Centre St. |
| 326 | Mulberry Street | St. Paul St. & W. Mulberry St. |
| 327 | Saratoga Street | St. Paul St. & E. Saratoga St. |
| 328 | Fayette Street | St. Paul St. & E. Fayette St. |
| 329 | Pratt Street - Inner Harbor | Light St. & E. Pratt St. |
| 330 | Conway Street | Light St. & E. Conway St. |
| 331 | Lee Street | Light St. & E. Lee St. |
| 332 | Montgomery Street | Light St. & E. Montgomery St. |
| 333 | Cross Street Market | Light St. & E. Cross St. |
| 334 | Ostend Street | Light St. & Ostend St. |
| 335 | Fort Avenue | Fort Ave. & S. Charles St. |
| 336 | West Street | S. Charles St. & E. West St. |
| 337 | Henrietta Street | S. Charles St. & E. Henrietta St. |
| 338 | Key Highway – Maryland Science Center | Light St. & Key Highway |

**Year Round Operating Hours:**

| | |
|---|---|
| Circulator | |
| Monday-Thursday | 7:00am-8:00pm |
| Friday | 7:00am-Midnight |
| Saturday | 9:00am-Midnight |
| Sunday | 9:00am-8:00pm |
| Harbor Connector | |
| Monday-Friday | 7:00am-7:00pm |

## Fast. Friendly. *Free!*
### Welcome to the Charm City Circulator

The CCC consists of four separate routes—

**Orange Route:** Hollins Market - Harbor East
**Green Route:** City Hall - Fells Point - Johns Hopkins
**Purple Route:** Federal Hill - 33rd Street
**Banner Route:** Inner Harbor - Fort McHenry

Charm City Circulator • 417 E. Fayette Street, Baltimore, MD 21202 www.CharmCityCirculator.com 10/15

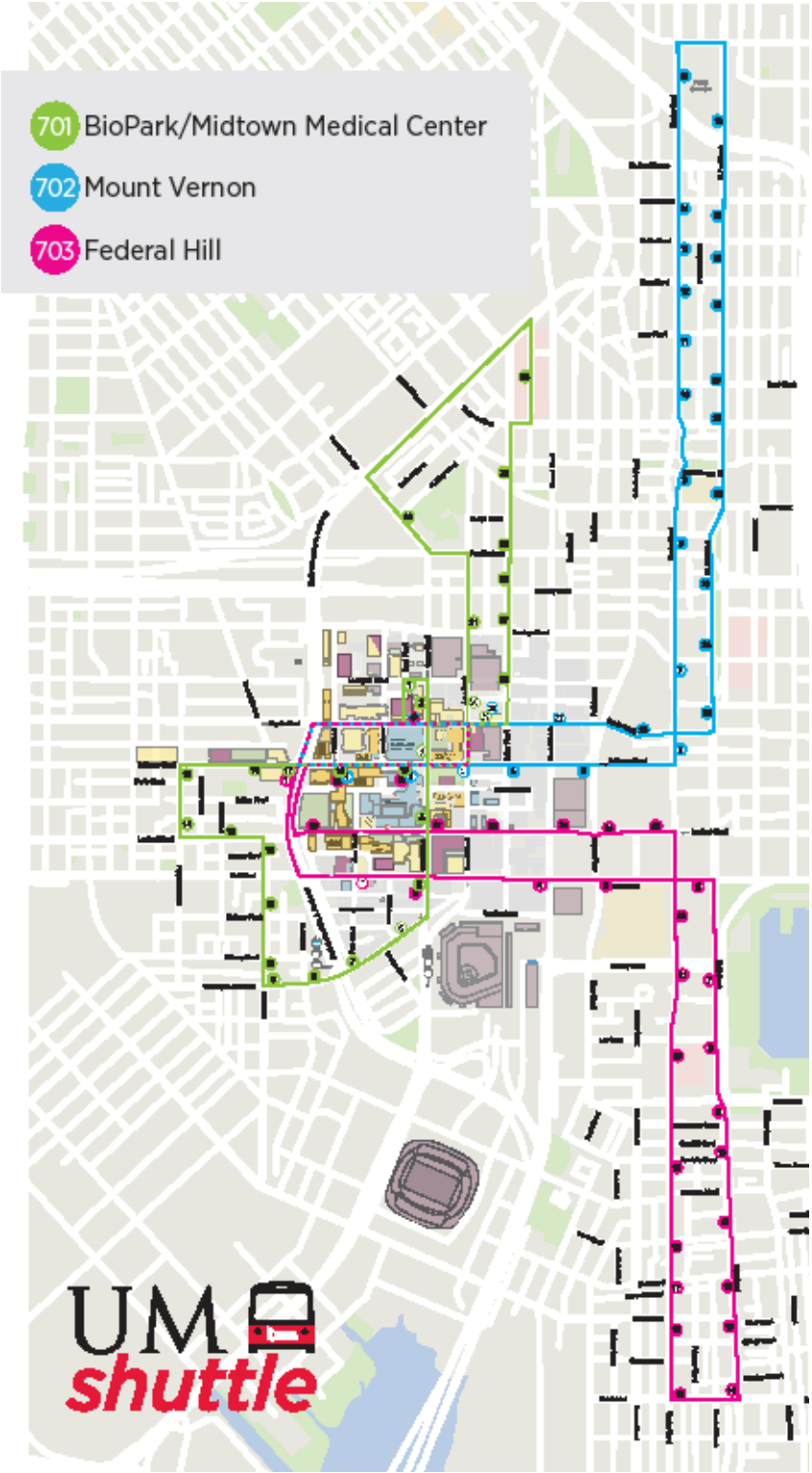
## John Hopkins University - Blue Jay Shuttle

## Collegetown Shuttle

## University of Baltimore Route 601

## University of Baltimore Route 602

## University of Maryland



# APPENDIX H

# PUBLIC COMMENTS

**Public Input Exercise**

**Sticker/Dot Exercise**

At the February and May 2015 public meetings, as well as at the April Stakeholder Committee meeting, attendees participated in public involvement exercise. Attendees could choose from four different colors of dot stickers each representing a category (travel lane modifications, bike facilities, pedestrian infrastructure, and curb-side parking needs) and place the stickers on an enlarged aerial of the corridor. The location of the stickers represent where the participant would like to see modifications to the existing infrastructure. Examples of possible modifications were shared with the attendees and are listed in the second row of the table.

The following table summarizes where stickers were placed along the corridor and is broken down by each of the four categories/colors used as well as at which meeting the comments were shared.

| **TRAVEL LANE MODIFICATIONS**<br>*Dedicated Bus Lane*<br>*Two Way Flow*<br>*Dedicated Turn Lanes* | **BIKE FACILITIES**<br>*Buffered Bike Lane*<br>*Standard Bike Lane*<br>*Sharrow Bike lane*<br>*Cycle Track* | **PEDESTRIAN INFRASTRUCTURE**<br>*Pedestrian Refuge*<br>*Planted Buffer*<br>*Curb Bumpout* | **CURB-SIDE PARKING NEEDS**<br>*Angled On-Street*<br>*Parallel On-Street*<br>*Peak Hour Parking Restrictions*<br>*Peak Hour Bus Lane* |
|---|---|---|---|
| **02/17/15 *BALTIMORE MONTESSORI SCHOOL*** | **02/17/15 *BALTIMORE MONTESSORI SCHOOL*** | **02/17/15 *BALTIMORE MONTESSORI SCHOOL*** | **02/17/15 *BALTIMORE MONTESSORI SCHOOL*** |
| Possible two-way on St. Paul between 25th and 26th (By School) | Along St. Paul from 20th to 33rd and at University Parkway w/emphasis between 30th and 32nd | Other than concerns at the cab area by Penn Station the walk to/from downtown along St. Paul or Calvert is in synchronicity with the corridors green time and thus good for pedestrians. The citizen wished to maintain and maximize the walking mode at every intersection. | More parking needed at E. Biddle St. & Hargrove |
| Possible two-way on Calvert between 33rd and University | Along Calvert St. w/emphasis between 30th and 31st & between 21st and 22nd & 23rd and 24th | **05/12/15 *BENTON BUILDING*** | More parking needed at St. Paul and Mt. Royal |
| Study lanes @ Calvert and 29th | Along Light Street for the two blocks approaching Pratt St. | Charles at Penn Station | More parking needed along St. Paul between Saratoga & Orleans and along Saratoga |
| Study lanes at St. Paul between 31st and University | Along St. Paul at Lexington where St. Paul St. and St. Paul Place converge | North side of St. Paul at Mount Royal | More parking needed on North Ave. |
| Study lanes at St. Paul and I-83 Off-ramp | Along St. Paul St. and St. Paul Place at West Franklin St. (both west side crossings) | South side of Center at St, Paul | More parking on St. Paul between 32nd and 33rd |
| Study lanes at Calvert and Lanvale | At St. Paul and I-83 off-ramp | Intersection Calvert & Center | Re-purpose parking at St. Paul and Eager St. |
| | At Mt. Royal Ave. and Charles St. | Intersection Light & Lombard | Re-purpose parking, north side of St. Paul between 32nd & 31st |

| Travel Lane Modifications | Bike Facilities | Pedestrian Infrastructure | Curb-Side Parking Needs |
|---|---|---|---|
| **05/14/15 *Saint Philip and James Church*** | Along Calvert St. and Along St. Paul (North to South) @ Centre St./Madison St./and Eager St. | Along Calvert between 26th & 33rd | Re-purpose parking on the north side of Calvert St. between 30th and 29th |
| Travel lanes St. Paul & Center | At St. Paul and Lanvale (SE Quad) | **05/14/15 *Saint Philip and James Church*** | Re-purpose St. Paul between 25th and 26th in School Loading zone area |
| Travel lanes S.t Paul & Franklin | At Calvert St. and LaFayette (Westside) | Mt. Royal & St. Paul - NW leg | **05/14/15 *Saint Philip and James Church*** |
| **05/19/15 *Baltimore Montessori School*** | **05/12/15 *Benton Building*** | Intersection Calvert & Mt. Royal | More parking along St. Paul between Chase and Preston |
| Traffic signal at St. Paul & 22nd | North side of St. Paul and Mt Royal | Intersection Chase & Hargrove | More parking St. Paul and Saratoga |
| Traffic signal at Calvert and 23rd | St. Paul at Penn Station | Intersection Reed & Lovegrove | More parking St. Paul Place between Saratoga and Lexington |
| Lanes at 28th & Lovegrove | North side of Lexington & St. Paul | Intersection St. Paul Place & Saratoga | Evaluate parking north side of Calvert at Chase |
| Lanes at 28th & Hargrove | **05/14/15 *Saint Philip and James Church*** | **05/19/15 *Baltimore Montessori School*** | **05/19/15 *Baltimore Montessori School*** |
| Lanes at 33rd & St. Paul | Bike facilities at Calvert & Lafayette | All intersections along St. Paul between 32nd & Lafayette | More parking (angled) along Fayette from Charles to Guildford |
| | **05/19/15 *Baltimore Montessori School*** | All intersections along Calvert between Lafayette & 32nd | More parking (angled) along 20th, 21st, 22nd, 23rd, & 24th from Charles to Guildford |
| | Hatched boxes in green at each intersection along St. Paul between 33rd and Lafayette – bike boxes? | Intersection Charles & 24th | More parking on 26th between Charles and Guilford |
| | | | Evaluate street cleaning restrictions |
| | | | Need for loading zones |

| TRAVEL LANE MODIFICATIONS | BIKE FACILITIES | PEDESTRIAN INFRASTRUCTURE | CURB-SIDE PARKING NEEDS |
|---|---|---|---|
| STAKEHOLDER COMMITTEE MEETING 04/16/15 *Benton Building* | | | |
| St. Paul between Preston to Madison | Penn Station Access | St. Paul on east side of Penn Station | Evaluate regulations along east side St. Paul btw. 26th and 27th |
| Calvert btw. Madison to Preston | St. Paul & Mt Royal - North Leg | Intersection Charles & Mt. Royal | More parking 26th btw. Charles & St. Paul |
| Bus lane on E Pratt St at South St | Mt. Royal & Guilford - North Leg | Intersection Mt. Royal & St. Paul | More parking 32nd & 33rd |
| St. Paul between 29th & 26th Sts | Pratt & Light - SE Corner | St. Paul btw. Center & Monument | |
| St. Paul between 34th to 33rd Sts | Pratt & South – South side | Intersection Charles & Center | |
| | St. Paul between North & Layette (Currently exists, keep it) | Intersection Center & St. Paul | |
| | Calvert btw.n Lafayette & North | Intersection Hamilton & St. Paul | |
| | St. Paul between 30th & 31st Sts | Intersection Franklin & St Paul | |
| | St. Paul between 33rd & University | Intersection Lexington & St. Paul | |
| | | Intersection Lombard & Light | |
| | | Intersection Calvert & Lombard | |
| | | Intersection Lexington & Calvert | |
| | | Calvert btw. Monument & Madison | |
| | | Intersection St. Paul & North | |
| | | Intersection Calvert & North | |
| | | Intersection Calvert & 23rd | |
| | | Intersection Charles & 25th | |
| | | Intersection St. Paul & 25th | |
| | | Intersection Calvert & 25th | |
| | | St. Paul & 26th - North Leg | |
| | | St. Paul & 29th - North Leg | |
| | | St. Paul & 33rd - West Leg | |
| | | Calvert & 35th South Leg | |
| | | Intersection St. Paul & Greenway | |
| | | St. Paul & University - E/W Legs | |

**Public Comments from Other Sources**

The following section contains all public comments received throughout the study. The sources of these comments vary but include:

- Survey Money
- Comment cards, which were distributed at community meetings
- Emails
- Telephone calls
- Mail

| Date | Method Received | Comment |
|---|---|---|
| 4/14/2015 | Survey Monkey | I strongly support the conversion. If conversion is infeasible, I strongly support other serious traffic calming measures on these streets. |
| 4/20/2015 | Survey Monkey | I am not in favor of conversion to 2-way because I believe that will make it more difficult for pedestrians to cross safely. |
| 4/21/2015 | Survey Monkey | I do not see any advantage to turning either street into a two way street. The current flow works just fine. Given the incredibly long times it takes for city road work to be completed, it would substantially disrupt traffic flow for a very long time, without any obvious benefit. One of the worst problems on St. Paul Street is the carriage lane, which serves to reduce traffic flow without providing a really viable route in the opposite direction. The actual lane is very narrow, once cars are parked in the parking spots, so it is a problem for large cars to get through. |
| 4/22/2015 | Survey Monkey | I have owned a home on the 900 block of Saint Paul Street for 10 years. I am completely in favor of having St. Paul and Calvert converted to two-way in the hopes both streets will stop being used as a highway for commuters coming in and out of the city. I did not receive the survey, nor did anyone I know in my neighborhood (Mt Vernon). I would like to know if you have done any analysis on the surveys returned to you by geography? How many "No" and "Yes" answers came from Roland Park, Guilford, Mt Washington vs. Mt Vernon? How many surveys were sent out and how many returned by neighborhood? Those are questions I would be very interested in. If Mt Vernon is not accurately represented in these results, how can you base a decision on them? |
| 11/10/2015 | Survey Monkey | converting these streets is an absolutely terrible idea. If you turn them both into two way streets, you don't gain any additional traffic lanes, and you add the complications of having to stop traffic when anyone wants to turn left when there is oncoming traffic. Traffic will come to a dead stop at every intersection and congestion will skyrocket. With both streets being one way, traffic is able to flow and people who need to turn are able to do so whenever a light is green instead of having to hold up all traffic in their direction until there is an opening in oncoming traffic. Please, please, please, do not convert them. Traffic is bad enough already. Especially when events like flower-mart or arts cape cause any of the other major north-south routes to be closed or impeded. |
| 11/10/2015 | Survey Monkey | This is a bad idea for St. Paul Street. It is much harder to coordinate traffic signals on two-way streets and auto and bicycle travel time through the corridor will be increased. Converting Calvert is two-way is not as bad. Charles efficiently serves NB traffic, and Calvert has a speeding issues. I would, however, prefer other traffic calming on Calvert rather than making it two-way |

| | | |
|---|---|---|
| 11/10/2015 | Survey Monkey | I strongly oppose making St. Paul and Calvert streets into two-way streets. Both streets serve as an alternative to I-83, and with the proposed changes to Charles Street (turning it into a transit way), North Baltimore will end up with Southeast Baltimore's traffic problems. |
| 11/10/2015 | Survey Monkey | Would love to have a way of safely riding a bike around the area up and down. I usually drive in as well to pick my wife up from downtown. I come in via rt 40 and turn left onto St Paul. The "intersection" on the bottom of your map is a GIANT mess. I do not know how to fix this but the flows all seem to lock up during rush hour and a better way of getting folks to flow together would work wonders. As it stands folks get frustrated and block the intersection when they cannot make the light. |
| 11/10/2015 | Survey Monkey | I full support retooling both of these streets. Especially Calvert. |
| 11/10/2015 | Survey Monkey | The multi-lane one-way streets throughout downtown and midtown Baltimore make way finding difficult and encourage dangerous high speeds, so I fully support this proposal. |
| 11/10/2015 | Survey Monkey | I am fully in support of the conversation, as it will make the street safer for pedestrians and cyclists. |
| 11/10/2015 | Survey Monkey | In general, I am very much in favor of converting St. Paul and Calvert Streets to two-way operation. For livability, way finding, safety, and economic development, two-way streets are superior to multi-lane one-way streets. Multi-lane one-way streets are simply incompatible with sustainable development. |
| 11/10/2015 | Survey Monkey | What happens when the UPS truck or other vehicle double parks and blocks the street, which is an every night occurrence on Calvert Street? Will traffic be held up for vehicles making left hand turns, or will there always be a left turn light? |
| 11/10/2015 | Survey Monkey | I'm very concerned about this conversion and I am planning to move out of the area directly because of it. It will make things harder for pedestrians because they will have to take note of traffic coming from both directions rather than 1 -- drivers already blow through turns where pedestrians have the right of way and making them able to turn at all intersections is going to make this much worse and much more dangerous. I also worry about the state and placement of bike lanes--bicyclists already don't use the bike lines enough--they still ride up sidewalks half the time, terrorizing pedestrians as they do so--and making things two way will just make their existing recklessness worse. It's also much easier and safer for a resident to park on a one-way street than a two way because you don't have to turn around if you see a space on the other side of the street. I particularly find it despicable that you hide behind claims of "safety for pedestrians and residents" when the real reason you're doing it is to increase traffic in front of commercial areas. If you were honest about it, I'd respect it---hey, improving local business is a fine aim to have! But the fact that you're trying to tell us you're doing this for our safety when you KNOW that is a bald-faced LIE is just outrageous. I |

| | | |
|---|---|---|
| | | used to love living in Charles Village and in the city in general and things like this make me hate it more and more and more. It's obvious the city has no respect for its citizens whatsoever and can't even tell us the truth when the truth isn't even that bad. How many millions of dollars is this "study" and conversion going to cost that could go toward much needed infrastructural improvements in Baltimore, including just plain old fixing of potholes? It's also really tiring to have to deal with this AFTER we had to put up with the Charles Street construction for years---and Charles Street, being much wider, would have made SO MUCH MORE SENSE to make two way. I can't believe what money and time is being wasted--my money (taxes)! my time! I can't wait until I am able to move, because I am tired of living in a city where the government so clearly despises the people they are supposed to serve. |
| 11/10/2015 | Survey Monkey | I support two way conversion to reduce traffic speeds |
| 11/11/2015 | Survey Monkey | I support this conversion even though it could theoretically have a negative impact on me, living on Howard street. We need to further study 28th and 29th. |
| 11/11/2015 | Survey Monkey | Both St. Paul and Calvert Streets see excessive speeding and almost no yielding to pedestrians at all of the legal crossings. Making both streets two ways would help slow speeds while maintaining throughput. The focus of this project should be making pedestrian crossings safer in the study area neighborhoods. PEDESTRIAN SAFETY AND COMFORT SHOULD BE THE FOCUS OF THIS PROJECT. |
| 11/11/2015 | Survey Monkey | It would be great to have bike infrastructure - even sharrows. Also, repaving of the potholes. And anything to calm traffic speeds. Pedestrian bulb outs would be nice. |
| 11/11/2015 | Survey Monkey | This would be a brilliant idea. It takes no lanes away from traffics but would calm it. It would go a long way toward encouraging me to bother biking up to midtown and north of there, and may even consider moving to Mt Vernon or nearby. I hope that you institute this on these two streets and on many more, particularly the east/west streets in midtown and downtown--no more intercity highways! The roads should be for us, the people who live here, rather than prioritizing those who just wish to drive through, collect a paycheck, and drive back out. |
| 11/12/2015 | Survey Monkey | I would absolutely welcome the conversion of St. Paul and Calvert to become two-way streets.<br>Two way streets are more efficient(1), more prosperous(2), as well as safer for drivers AND pedestrians(3). 1) http://www.accessmagazine.org/articles/fall-2012/two-way-street-networks-efficient-previously-thought/ 2) http://www.planetizen.com/node/69354 3) http://www.citylab.com/cityfixer/2015/07/the-many-benefits-of-making-one-way-streets-two-way/398960/ |
| 11/13/2015 | Survey Monkey | I am 55 years old, I have lived on multiple continents, and I have never held a driver's license. Foot, public transport, and bicycle are |

| | | |
|---|---|---|
| | | and have always been my primary means of local transportation. In general, given the choice between two-way or one-way traffic, I much prefer one-way traffic. I find it less stressful to negotiate, and, by virtue of its easier fluidity, more pleasant to live alongside. I see only disadvantage in converting Calvert and St. Paul to two-way traffic. |
| 11/12/2015 | Survey Monkey | I live just a few blocks north of Charles Village on St. Paul. My office is in Little Italy. I will often commute down St. Paul and back up Calvert. Making those roads one way will force all the intra-city traffic over to 83 which is already overly congested at rush hour. I am surprised to hear there is any consideration of making them two-way. I would think there would be more discussion of going the other way and working to time the lights, add true bike lanes, etc. Making them two-way seems like a step backwards. |
| 11/13/2015 | Survey Monkey | Please make them two way streets! It would make both streets safer and more friendly for pedestrians. It would probably reduce traffic speeds and traffic noise, making the areas better for the many people who live directly on those streets. Please return those streets to the way they were originally designed. |
| 11/13/2015 | Survey Monkey | I would like to see Calvert and St. Paul converted to 2 ways. In addition, I would like to see measures to protect pedestrians, such as "NO Turn on Red" signs, well-marked crosswalks and traffic enforcement, both live and cameras. I do not want to lose any parking for two reasons - we need the parking for quality of life and the parking slows traffic. If we had 2 lanes in both directions, the speeding would be a problem. The current one way encourages speeding. Drivers reach highway speeds on these boulevards. |
| 11/13/2015 | Survey Monkey | As a resident who would be directly affected by this conversion, I have to voice the opinion that it would be entirely inappropriate and extremely unsafe. Between buses blocking traffic lanes (MTA, JHU and now the Connector) when picking up and discharging passengers, double parking (which happens on these streets WAY too often), package delivery at residences and businesses, and the discharge and pick up of handicapped and agility-compromised patients constantly blocking more than one lane at Union Memorial Hospital, the presence of multi-directional traffic on these streets would be a congestion nightmare. We need better policing of speed limits and ticketing of double parked vehicles and that would slow up traffic ... but we do NOT need these major arteries to become death zones with two way flow. |
| 11/16/2015 | Survey Monkey | Changing the traffic pattern will make the traffic downtown even worse than it already is. It is impossible to hire people who are willing to commute as it is. The streets are not wide enough to handle the one way traffic - making them two way will be a disaster for the downtown merchants and employees. |
| 11/18/2015 | Survey Monkey | For too long the neighborhoods or Charles Village to Mt. Vernon have been plagued by streets designed in favor of high-speed, noisy, commuter traffic racing through the community. These streets |

| | | |
|---|---|---|
| | | designed for traffic over people is a major detriment to the immediate community and to Baltimore's long-term revitalization. It's time that we returned the focus to safer, vibrant neighborhoods, not commuter car traffic. Let's make these streets two-way. Let's make it safe to bike and walk by adding decent bike lanes and proper cross walks with bump-outs at every intersection; lets slow down the traffic through better street design and with red-light and speed cameras. Let's make these street places where people will want to fix up a house, raise a family or enjoy their front porch. Where someone might open a business or a sidewalk café. Let's make St. Paul and Calvert streets places you want to be, not just speed through in your car. |
| 11/19/2015 | Survey Monkey | It would be fantastic if we could keep them one way but make changes so there is dedicated space for trucks to park for unloading (instead of blocking a lane) and for bicycles to have a dedicated path. I use both streets daily for my commute to work (work at the Lombard/Charles corner in one of the high rises). I would bike more to work if I felt safe. Right now I don't. |
| 11/19/2015 | Survey Monkey | Leave the streets as they are currently because this attempt to change the structure of traffic calming does not have to include this major destruction of the area. If you want to change the traffic flow, put in a few lights to slow down the traffic, or alternatively have police along the routes to give out tickets to slow it down. This is a plan introduced by Charles Duff who doesn't live in the area and should not have any say about the traffic flow. Certainly you can see that Calvert Street is not wide enough to have two-way traffic and attempting to do so will only cause problems for the neighborhoods involved in this study. Also consider the fact that there are two major hospitals along the way that will be negatively impacted by two way traffic. With respect to St. Paul Street, consider the fact that there are many schools along this corridor and two-way traffic will only cause disturbance in getting the children across the street. There are better alternatives to consider than two-way traffic and I can assure you living on 27th Street that instituting two-way traffic will not calm down traffic as I have personally witnessed several accidents that were caused by speeding cars that do not realize that it is two-way traffic. Also the previous survey clearly indicated that the neighborhoods involved did not want two-way traffic and this is totally unacceptable of you to have drafted another survey to get approval through this means. The residents have already spoken...they do not want two-way traffic. |
| 11/19/2015 | Survey Monkey | I am very opposed to this plan as it is going to destroy daytime traffic in Mt. Vernon and below as well as detrimentally impact everyone who works between UB and the CBD. There are daytime deliveries of UPS, FedEx and UPS trucks all day long on St. Paul and Calvert Streets that double park; during certain months there are also many moving trucks relocating Peabody and UB students; they tie up a full lane of traffic. This means that now, with one way traffic, often during |

| | | |
|---|---|---|
| | | daytime hours there is only one free lane headed north on Calvert and one lane headed south on St. Paul. If the streets were 2 way, vehicles would be completely blocked and either have to pause and wait frequently or blindly pass and create a serious danger to pedestrians. In addition to being inconvenient and dangerous, this is very business unfriendly. Coupled with the additional costs of owning a building downtown, the midtown special district tax, the property taxes, the personal property taxes, the cost of renting parking spaces etc., the constant inconvenience to our clients and vendors in not being able to travel to our office in a timely manner, there would be no point to working downtown. We would not, as we now do, be here to dine downtown at lunch and dinner, it would not be convenient to go to Center Stage, and we would not be here to support the new Mr. Vernon retail. There are many times during the year when there are already substantial traffic problems; two way traffic in two major arteries would surely add to them. As I am often a pedestrian during lunch and dinner and walk in the neighborhood during the day, I do not understand that there may be a pedestrian issue with the one way traffic and cannot imagine what the impetus for this initiative might be. |
| 11/20/2015 | Survey Monkey | Concerned about width of road allowing safe passage of bicycles and cars. |
| 11/21/2015 | Survey Monkey | I am not a big fan of converting St. Paul Street to two-way traffic, but I do see that there might be some merit in converting North Calvert Street to two ways south of 33rd St. My biggest issue is bicycle traffic, which, despite the City's excellent efforts to make Guilford Ave. a designated biking road, cyclists prefer St. Paul Street. I have witnessed numerous incidents where cyclists run through red lights, come right up next to autos at stop lights prohibiting cars from making legal right turns on red, bike right smack in the center of the road to passive-aggressively slow down the flow of traffic, etc. Unless the plan is to tear up the sidewalk and use eminent domain to take a few feet from property owners' front yards, I cannot see that you can do one car lane north, one car lane south, one bike lane each direction and parking on both sides of the street. There just isn't space. Given that so few domiciles have space in the alley to accommodate all the cars that would have to be taken off the street plus the need for businesses along lower St. Paul / Light St. to have parking for their customers, I do not see any net gain in this suggestion. |
| 11/21/2015 | Survey Monkey | As much as practical these streets should be two-way. Two way street are better with respect to pedestrians and encouraging neighborhoods to prosper. |
| 11/22/2015 | Survey Monkey | It would be a terrible and costly mistake to change St. Paul and Calvert Streets. from One Way to Two Way. I do not drive but enjoy walking and taking public transportation. When I have to cross E. 27th St. which is two ways (or any other Two Way traffic street) I get very concerned about my safety. It is obviously much more difficult |

| | | |
|---|---|---|
| | | to cross a street when traffic runs both ways and you need to be sure a car will not be traveling on one lane versus the one you are checking out at that moment. It is a "no-brainer". One Way traffic is far safer than Two Way and this is especially true for children. Along this route there are a number of schools and children tend to dart out into traffic. If they can at least see cars coming One Way they will stop and wait for them to pass. If cars travel on Two Way lanes it is easy for the child to miss turning to see the other lane of traffic. |
| 11/23/2015 | Survey Monkey | Flow of traffic will hinder people getting to work. Buses travel those routes. When buses stop for pick up and discharge passengers, the flow of traffic will stop causing delays and congestion. This will have a negative impact on the north south corridors. With the changes the MTA wants will add more congestion and problems. If the #8 bus is discontinued below 39th street, the pedestrian traffic will increase along these routes. |
| 11/23/2015 | Survey Monkey | I believe this would be a large issue, concerning parking. I know that it is a very common issue that, when someone wants to parallel park on those streets, they block all traffic in that lane, and cars use the other lane to allow traffic flow. This would no longer be possible under this system. If you increase the number of lanes, you reduce parking, which would be a HUGE issue in the Mt. Vernon. If you do not increase the number of lanes, traffic is not quickened dramatically, I would presume. |
| 11/26/2015 | Survey Monkey | We live on Calvert Street. Calvert Street and St. Paul streets are used as virtual highways for folks that don't live in the neighborhood to get downtown. Many folks who do not live on these streets certainly have an opinion, but either way, they are not impacted as much as those who do live on these streets. We feel strongly that converting these streets to two ways would reduce vehicle speeds and enhance the livability to residents on these streets. Folks are always adverse to change. But change can be very positive. Maryland and Charles can easily handle the additional traffic. Timing Howard Street lights and 25th street lights would also enable better diffusion of commuters. Making St. Paul Street and Calvert Street two way would also reduce accidents as folks would slow down. |
| 11/26/2015 | Survey Monkey | First of all, I haven't seen the study that REQUIRES this section of St. Paul and Calvert to even BE two-way. And is this one lane going each way or is it two-lanes? How did your department come to this conclusion? Why is this necessary? You just spent two years refurbishing Charles Street and honestly, it doesn't look all that different except it now has no mature trees to provide shade and relief from the heat for people waiting for buses or to cross the street. I realize that may sound a bit sour grapes but really, if you are honest you have to admit it does not look that different. It did provide an opportunity to replace much worn sewage and water pipes lying below street level which was good. And it looks spiffier with art and wider sidewalks but it took FOREVER and cost a nice packet and was it worth having a huge section of Charles Street closed for two years? I |

| | | |
|---|---|---|
| | | have not had an opportunity to attend any of your community meetings where the reason for these conversions might have been discussed. For those of us who can't get out easily at night, you might want to upload a PDF copy of the complete study with its conclusions to your website so we can acquaint ourselves with the pertinent information. I'd imagine that that would also save time at these meetings. If we are simply to accept this conversion as a fait accompli, I suggest you just go ahead and not bother to ask for input as asking for input just looks like a phony effort at fulfilling the community input requirement and that you are not really serious about our input. I'm sorry to be so snarly. But really, this and Baltimore Link are not being handled well with regard to the involvement of the public who will be affected. We're being TOLD it's necessary and how wonderful it will be. But where's the justification? Where's the thought being put into this? To my mind, these conversions are going to be extremely disruptive, especially to those who live along these streets and I don't think they will address your congestion problem. At least not for long, if at all. With all the properties being converted to rental stock and more being built every month, the problem's only going to increase. Parking will disappear or become incredibly complicated. I don't know what will happen to the bus service which many people need to get to and from work or for the many disabled people who ride the buses to get to medical facilities. Also, since large sections of these streets are fronted by rental units, where are the moving vans, the postal delivery vans, the package delivery vans, and yes, in the case of emergencies (and there are tons of those in Baltimore) where are the police, the ambulances and the fire engines going to park? Because right now, all of the above stop with great regularity right in the lane and flip on the emergency blinkers. Unless you have someone there to stop them doing that, or an alternative, the same thing will happen. This, by the way, is the major cause of your congestion. I'm not kidding. I ride the route back and forth along Charles, St. Paul, and Maryland/Cathedral three days a week during rush hours and this is what backs up traffic and makes an obstacle course of the streets. This, and city crews tearing up the streets. Otherwise traffic moves pretty well. Right now, one curses the double-parkers, pulls out into the next lane, and goes around them. But you won't be able to do that if you're confined to one lane. Then you have a major jam with traffic backed up endlessly. You can get rid of all the parking along these streets, and make it double-lane going both ways but even then it's going to be difficult because these streets are simply not wide enough. This is an old city. It wasn't built for cars. It was built for trolleys. I mean, this is an opportunity. Re-think it for the future. And unfortunately for a lot of people, the future will not include cars. Check out the European cities that are much more forward-thinking. This is an expensive patch, at best. This may not work, or will become outdated very quickly. Forgive the digression but DOT is also planning to mess |

| | | |
|---|---|---|
| | | around with the bus service through Baltimore Link, eliminating several major routes, collapsing them into fewer routes. The no. 11 bus, for example, looks to be replaced by a route (RED!) that appears to be dependent on this two-way conversion. For instance, you're eliminating a bus that goes north on Charles all the way to Towson, helping people who work at Notre Dame University, Loyola, Towson, and GBHC among other major employers. Now, they will have to go way out of their way, I think, to get to and from work or school. This doesn't look like an improvement. It's not something we "need and deserve." Your maps are so poor for Baltimore link (they don't treat individual routes but instead are Section maps which like the above map include little detail of specific streets) that it's hard to tell what's going on, but it looks as though the No. 11 or what will be the RED route is being diverted to St. Paul and goes north with St. Paul being two-way going north. Trying to do both of these projects simultaneously, building dependence one on the other (if that is what I'm seeing) doesn't seem very smart. And again, hugely disruptive to the drivers of the buses who have to divert and confusing and downright inconvenient (and in some cases, impossible) to the passengers who will have to walk quite a ways to their destinations (at least as far as the No. 11 goes) and/or to their closest bus stop. Baltimore Link and this conversion will contribute to major disruption in parking and bus routes and I can't believe people (if they even know about it) are happy. I know I'm not. I realize I'm coming to this discussion without all the info but that's why there are websites, capable of dispensing specific details of your projects. Maybe it's not as bad as it looks but how would I know? We need to see proper maps with information on how you plan to do this conversion. And how Baltimore Link fits into it. And we need to understand why. It's no good asking people what they want in terms of bike lanes and bus lanes and "pedestrian refuges", as if the basic plan is just fine. I think the basic plan, the very idea of it at this point, is flawed. Unless I get more information and some rationale behind this project, how can I think otherwise? What's the rush? You should have a good year for the public and for your designers to understand and really consider what the best way forward is. And if that means, eliminating traffic altogether in favor of a lot more public transport with MORE ROUTES, then that is what you should be focusing on. And frankly, that is what makes the most sense if Baltimore City hopes to, and probably will attract more residents. |
| 11/30/2015 | Survey Monkey | Thinking about two-way travel on Saint Paul and North Calvert Streets, where each would be configured with only one northbound and one southbound vehicular lane, it seems inevitable that there would be both a substantial reduction of capacity and an increase in travel time for everyone (including local residents heading downtown and then back home).<br>Listed below are lane blockages of vehicular travel (observed in my experience) that will be devastating in a two-way, single-lane-in-each- |

| | | |
|---|---|---|
| | | direction system:<br>• Vehicles stopped to make left turns.<br>• Buses not pulling completely into bus stop spaces.<br>• Vehicles being parked.<br>• Package delivery services which routinely need to double-park (such as UPS, FedEx, DHC,and occasionally USPS). Also occasionally hot convenience food delivery.<br>• Very reasonable double-parking by trucks making heavy deliveries, such as appliances and furniture. And also moving vans.<br>• Residents who need to double-park for short periods in order to off-load or pick up heavy items with their vehicles. • Residents jump-starting a disabled parked car.<br>• Police, Medical, and Fire personnel double-parked in response to an emergency call.<br>• Bicyclists straying outside of the bicycle lane on Saint Paul Street.<br>The normal operation of buses will be hindered acutely during heavy traffic conditions in a Two-Way system. Drivers can be expected to seize aggressively the opportunity to pass a bus while it is in a bus stop. Bus drivers will have difficulty leaving a stop. Eventually bus drivers will be reluctant to pull into a bus stop completely, thus blocking traffic while stopped for passengers. (I've observed recently the #3 route running articulated buses. Due to their extra length, these buses certainly will not be pulling into designated bus stop spaces.) A reduction of street capacity and vehicular travel time will adversely affect the response of various emergency vehicles. Consider, if a 911 call is for someone who has just had a heart attack, and life depends on very prompt medical attention and unhindered transport to a hospital emergency room, wouldn't one-way traffic on a street provide easier and safer maneuverability? Minutes are crucial. Similarly, police response to crime and the pursuit of criminal suspects would be affected adversely. Travel for bicyclists (not in designated bicycle lanes) among vehicles going in two directions would be dangerous for the bicyclists, and also for the drivers traveling on the street. (Hopefully, bicyclists will not be traveling in both directions as well.)<br>There are new safety hazards for pedestrians:<br>• Vehicular traffic on interior streets (i.e. Lovegrove, Hargrove, and Hunter) will increase, endangering both pedestrians and pets:<br>(a) Drivers will resort to using interior streets as short cuts to achieve a change in cardinal direction (from northbound to southbound and vice versa) in the search for open parking spaces.<br>(b) Interior streets will be used more frequently as detours when there are obstructions in the single one-way lanes proposed for Saint Paul and North Calvert Streets.<br>• Crossing Saint Paul and North Calvert Streets at any non-signaled intersection (an example is at 30th Street) will be difficult because pedestrians must wait for a safe opening occurring |

| | | |
|---|---|---|
| | | simultaneously in the northward and southward flows of vehicles. (Installation of traffic control signals will be required.) Apparently a major thrust of the two-way proposal is to slow traffic. There are less disruptive ways available.<br>Consider the following:<br>• Reduce the speed limit from 30 mph to 25 mph. With most of the lanes involved being narrow, a bicycle lane added where the street is a bit wider, and most of the travel being through residential areas, one wonders why speed limit reduction hasn't been accomplished already.<br>• Install a generous number of speed limit signs. Currently they are hard to find.<br>• Install electronic warning signs alerting drivers when speed limits are being exceeded; and coordinate the devices with the visibility of speed limit signs.<br>• Re-engineer the progressive traffic control light system to incorporate a 25 mph speed limit, and ponder how to discourage speeding when a driver is at the tail end of a green light interval and has an incentive to speed up in order to pass thru all the green lights in front of him/her.<br>• Install speed/traffic light cameras at key intersections. (In my immediate area there are 4 intersections which regularly have serious accidents: Saint Paul & 29th, Saint Paul & 28th, N. Charles & 29th and N. Charles & 28th.)<br>• As an aside, note that the speed limit on 28th and 29th Streets also needs to be reduced to 25 mph. These streets serve as extended on and off ramps for I-83. Despite passing through residential neighborhoods, unfortunately, speeding on them (30 to 60 mph) is addictive. Also the timing of the traffic control lights need to be studied and safety adjustments made. A particularly tempting stretch for speeding on Saint Paul Street is between 31st and 29th Streets. The street in an incline leading to 29th Street, with only the 29th Street traffic light visible to drivers. When the light is green, drivers speed (30 to 50 mph) so as not to miss the opportunity to pass the light. (Note there is no traffic light at 30th Street.) A traffic engineer needs to ponder how to remedy this situation. Even with an enforced 25 mph speed limit, I believe that driver behavior would still be a problem. The larger city planning question posed by the Two-Way Proposal is: Are we to treat two major transportation corridors primarily as local neighborhood streets, thereby making it difficult for area residents to reach Downtown Baltimore, or shall we continue to support the economic health and development of the core of Baltimore, the largest city in Maryland, by maintaining two efficient north-south routes (arterials) in their present configurations?<br>My own choice is to recognize the importance of downtown Baltimore, and the necessity of maintaining efficient transportation connections to it. I'm opposed to the Two-Way Proposal because it runs counter to that objective. |

| | | |
|---|---|---|
| 12/1/2015 | Survey Monkey | I believe converting either St. Paul Street or Calvert Street from one way to two ways will cause more traffic issues than there are now. Along both of these roads there are many businesses and parking garages which will become more difficult to enter and exit if you need to cross two way traffic. I work in a building on the corner of Calvert and Baltimore with a garage entrance on Calvert. The garage entrance is close to the Baltimore St. intersection which currently allows a somewhat easy departure when the traffic light turns red. If the traffic was two way, there would be cars backed up from the light blocking the garage entrance. If I make a right hand turn from the garage (assuming two way traffic) to try and go north I would need to travel quite a few extra city blocks to get turned around because Baltimore Street is also one way going west to east. Also, I would assume if both of these streets are converted to two way traffic the availability of parking (even temporary) will be restricted, which will cause additional challenges. Especially around the court house. |
| 12/2/2015 | Survey Monkey | As a resident that walks, bikes and drives this corridor daily, I don't feel confident in the statistics that were presented. To begin with, the statistics presented did not seem to accurately portray the mean driving speeds I witness on this corridor; especially from 25th street to Mount Royal and more specifically, south of North Ave to Mount Royal. Daily, cars are observed driving well over 40 miles per hour attempting to pass through the green light across the St. Paul street bridge near Penn Station. Additionally, what are the demographics of stakeholders involved in not only the survey's, but also the residential impacted by this potential change? Again, it is observed that citizens in these impact zones have very polarizing opinions representing a clear fear of change, either positive or negative. As a resident homeowner on the 24 hundred block of Saint Paul Street, I am in favor of the two way conversion. Human safety is my number one concern and slowing traffic by converting this corridor to two ways will have numerous far reaching, positive impacts that will be reflected for generations to come |
| 12/2/2015 | Survey Monkey | I am 100% supportive of all efforts to improve the current traffic situation on Calvert and Saint Paul Streets and I believe that conversion to two-way streets will help. I do not think last night's December 1 presentation was helpful in presenting a neutral report on the study results. Instead it served to fuel the arguments of those who are against change. A very important factor that was not mentioned is the ACTUAL SPEED OF VEHICLES WHEN DRIVING. An average of vehicular speed plus stopped time does not present an accurate image of what is happening on these urban streets that are used as freeways by commuters often driving 40-50 mph between traffic lights. Since both streets widen and become narrower in various places, the "bottleneck" areas need to receive more focused attention. A few constructive criticisms/suggestions regarding the presentation: 1. Present data in a way that is more clear and understandable to laymen. Some of the data seemed to be |

| | | |
|---|---|---|
| | | unintentionally misleading i.e. travel time after conversion. Perhaps a dry run to a few laymen might iron out potential conflicts with residents. 2. This is clearly a contentious issue. Although it is understandable that you wanted to complete the presentation before taking questions, people still want to be able to ask questions during the presentation. Perhaps allowing them to write and submit questions during the presentation would alleviate some of the tension and hostility. Someone on your team could vet questions prior to submission to speaker. 3. Send speakers to a public speaking seminar that would help them to create more engaging presentations. This could also teach methods of responding to question diplomatically, accurately and with more conviction. |
| 12/2/2015 | Survey Monkey | Ridiculous notion to change the current travel patterns! The area is congested with a high degree of consistent traffic, traffic would easily be bottlenecked due to the fact that these streets under consideration are already narrow, the residences who count on off street parking would be faced with undo restriction to access their homes and it would likely be a financial burden forcing them to possibly move out of the city all together. There are a plethora of deliveries necessary to keep commercial businesses operating and those trucks would be a source of bottlenecking and surely accidents would entail because those needing to pass would take risks because their travel time has been increased significantly as the studies have already proven. Travel time increases from 12-20 minutes to 1 hour....how can this absurd conversion of traffic be a remedy to anyone let alone the city? Get real. How much money is this consideration, planning and surveying costing the city anyway. Leave it alone!! Thank you. |
| 12/8/2015 | Survey Monkey | I am generally in favor of efforts to improve the Mt-Vernon neighborhood by calming traffic -- specifically, by diminishing the expressway atmosphere that currently prevails. I believe a conversion to two-way would help in this regard. However, I do not understand why Charles Street has been left out of this study. For this reason, I'm not sure I can make specific comments like those requested below -- that is, I'm not sure how the conversion would work if it neglects Charles Street. |
| 12/08/2015 | Survey Monkey | I have been told, but have not read the studies, that in general; covering from one way to 2 way streets will have a positive effect on the community. It is clear that these two streets (and Maryland and Charles) were made one way to speed traffic in and out of town. I think that as a result of this traffic moves very fast, and has had a negative effect on the values of the homes on these streets. I think that slowing traffic would be a good thing to increase the value of the residences on these streets. I do worry that there is not going to be a good way to shuffle this traffic elsewhere- where will it go- on Charles and Maryland? I wonder if you all have modeled the effect of transferring the two streets to 2 ways on the remainder of the streets. Will some traffic to the north just shift over to 83? |

| | | |
|---|---|---|
| 12/08/2015 | Survey Monkey | I am in favor of returning these streets into the 2-way pattern they were up until the 1960s. |
| 12/9/2015 | Survey Monkey | I am opposed to this idea, especially in the residential area of Charles Village. A car breakdown, someone struggling to parallel park, picking someone up or dropping someone off, a truck stopping to make a delivery...these are normal, everyday occurrences and with a two-way street they would result in major traffic jams and slowdowns. A terrible proposal. |
| 12/10/2015 | Survey Monkey | With all due respect, absolutely one of the worst ideas someone has voiced. Look at other heavily trafficked areas, Fells Point, Fleet and Alicanna streets. One lane in either direction and it gets so jammed. Amplify that on a larger scale and you have a clown show. Also with the license plate count, I'm not sure |
| 12/10/2015 | Survey Monkey | From what I've heard so far, I am supportive of a conversion to two ways. It sounds like it will be better for the neighborhood in terms of pedestrian safety, crime, and also will support local businesses. The downsides of a slower commute seem worth it for these community improvements. |
| 12/11/2015 | Survey Monkey | think it is a dangerous - costly -unnecessary conversion most deadly accidents occur head on - why up the danger factor - people are safer driving around the block to get where they need to be I don't know who or why this is being pushed - would like to be there to find out pedestrians are already being struck because of the narrow parking access lanes that go in the opposite directions -think they should be removed look how much the one cost on Charles street in front of Hopkins - people managed fine without it - found other routes - everyone was safer - was a giant waste of money |
| 12/12/2015 | Survey Monkey | While it would obviously take us longer to get downtown, as a neighbor who lives less than a block from Calvert St (on 32nd), I am strongly in favor of converting at least Calvert St, if not both Calvert and St Paul, back to two way traffic. There are alternate one way routes to get downtown (Charles and Maryland) and also the Jones Falls Expressway, which was intended for that purpose. Returning the streets back to two ways would greatly enhance the neighborhoods affected, and also slow down traffic to a safer, less lethal speed. Thanks you for considering my thoughts. |
| 12/14/2015 | Survey Monkey | The traffic speed along St. Paul Street and Calvert Street near my house in Mt. Vernon is out of control. Traffic flies by along these streets at 40+ miles per hour, and there are numerous accidents as a result. One of my neighbor's houses at St. Paul and Biddle has been hit multiple times by cars driving far too fast along |
| 12/21/2015 | Survey Monkey | Converting Calvert and St. Paul street into two way streets is a horrible idea and won't achieve the intended goals of improving the safety or walk-ability of the neighborhoods in question, only gridlock. I am a young millennial with a family that lives on Calvert Street. I walk, shop, bike, drive, and use public transit along this corridor, and support the goal of improving the neighborhoods, but this study has |

| | | |
|---|---|---|
| | | been a sham. The study was undertaken in order to promote what certain neighborhood groups had already decided was the best course of action, the 2 way conversion. The studies presented by the consultants were not high quality, nor did they support the claims they made about the causality of the impact of two way conversions including reduced crime, increased property values, etc. There is no way to make this proposal workable unless you eliminate parking along these streets at certain times of day, but the consultant nor the city wanted to discuss this point. They only stated that it was outside of the scope of this work. The fact that the study didn't look into the impact of eliminating parking, only points to the fact that this study is useless and a waste of time. Changing human behavior is hard. People won't stop driving overnight and many individuals who live in these neighborhoods don't have any other option besides street parking. The amount of bus traffic along the road alone will make driving these streets a nightmare. There aren't enough other alternatives for all of the cars that use these roads to get into and out of downtown. I wonder why the city didn't look at other options including red light speed cameras, improved signage for pedestrian crossings like the new signs on 23rd and Calvert, protected bike lanes etc? This study was a $140k boondoggle and the consultant set the city up to pay for the next study that should have been done in the first place. If this happens, and my neighborhood turns into a parking lot, you can be sure I'll move OUT of Baltimore. Don't you want to attract families and young people for the tax base? I represent both of those but this whole process stinks like dead fish. |
| 12/01/2015 | Comment Card | I understand the concept of trying to make residential areas along transportation corridors more residential. This plan was not presented at the beginning explaining the reason for such a plan. However, there are means of looking at this in different ways. Has the committee considered changing the traffic lights to much shorter waits during non-peak hours? San Francisco, CA is a good ex. |
| 12/01/2015 | Comment Card | If the conversion of St Paul & Calvert St is impossible (especially south of Mt Royal) please consider the east/west streets going thru the corridor for ex. Biddle & Preston. |
| 12/01/2015 | Comment Card | My concern is dealing w/all the double parkers-cabs, people dropping off school kids, delivery trucks, Fed-Ex/UPS – and still keeping our parking places. Not sure how left turns will be accommodated and those cars that block the boxes (intersections). Environmental effects (pollution) should also be studied. |
| 12/01/2015 | Comment Card | I find it unlikely that 2 way traffic is safer for pedestrians. Charles St had the southbound lane eliminated for pedestrian safety. The reality is that trucks have to double park to load and unload. Emergency vehicles would be impeded. |
| 12/01/2015 | Comment Card | Oppose 2 way traffic on St Paul & Calvert |
| 12/01/2015 | Comment Card | Please include the MTA's future plans for modification of the bus system in your plans whether or not you convert to two way streets. |

| | | |
|---|---|---|
| 12/01/2015 | Comment Card | This creates a hazard for emergency vehicles. It will be dangerous with people trying to go around delivery vehicles and transit vehicles. I am strongly opposed to this conversion and think it will lead to gridlock, both morning and evening. What about closer control of speed limits with enforcement? |
| 12/01/2015 | Comment Card | Please use expertise to make an informed decision that is in the best interest of the entire community. Do not allow NIMBY attitudes to prevail. Baltimore is at an important crossroad and we should take the opportunity to make our city better- 2 ways or not. |
| 12/01/2015 | Comment Card | How much traffic that is currently coming turn outside the corridor to get downtown would use other routes if 2 way traffic were instituted. |
| 12/01/2015 | Comment Card | What exists at present & what is proposed for St Paul St south of 31st St shows a bike lane. Bicycling would be safer either way without the bike lane. A cyclist in the bike lane risks being doomed. Also, Maryland law requires a motorist passing a cyclist to allow 3ft of clearance, so the motorist needs to go into the adjacent travel lane. It would be safer just to get rid of the bike lane to allow cyclist to use the same lane as the cars. The street is just too narrow to do otherwise. |
| 12/01/2015 | Comment Card | Emergency vehicles a problem. 2 way traffic will not allow passage of Fire trucks & ambulances, especially on Calvert. Stopped ER vehicles are worse. UPS trucks always double park. Intake JHH shuttle, they will hold up traffic picking up and dropping off. True for other buses too. If the Shuttles become too difficult, so will the driving. |
| 12/01/2015 | Comment Card | Can you confirm that both pm travel (rush hour) averages are accurate? It seems statistically unlikely that both are the same average times(12-15 minutes) |
| 12/01/2015 | Comment Card | Good presentation!!! Our traffic/safety issues at Calvert & 23rd are critical on a daily basis. Children play regularly in the park. One day, one of them will be hurt. |
| 12/01/2015 | Comment Card | STUPID IDEA!!!!! WASTE OF MONEY!!!FORGET ABOUT IT!!!! INCREASE TRAVEL TIME 16 MIN-60 MIN? ARE YOU PEOPLE CRAZY?? HOW DO YOU KNOW IT WON'T BE 60 MINUTES? |
| 12/09/2015 | Comment Card | Take a concept from Pittsburgh, PA. Use Calvert and Maryland/Cathedral Ave/Street as demonstration or test options to have majority traffic flow accommodate two travel and one parking lane w/opposing flows accommodate one lane. Majority traffic has a selected left turn lane, whereas the opposing traffic must make right turns only to complete a needed left turn. As far as parking/loading for those streets, lightly traveled east-west streets be converted to angle parking so a number of those streets may become one way to accommodate the proposal but it may well be an example to do so to other streets rather n/s/e/w. Also, traffic synchronize a study to solve congestion. |
| 12/09/2015 | Comment Card | Take a closer look at 22nd and 24th – concerned for pedestrian safety. |

| | | |
|---|---|---|
| | | I know 3 parking spaces taken on Calvert to accommodate for “blood spots”, but more needs to be done for pedestrian safety and to prevent vehicular crashes. Concerned w/drop-off/pickup of daycare/schools Calvert. |
| 12/09/2015 | Comment Card | Although it’s too late to change methods at this point it is not enough to simply do a brief online (or paper) survey. Your study would greatly benefit from vigorous qualitative methods, including focus groups, in-depth (?) with community members, etc… for future studies. |
| 12/09/2015 | Comment Card | Study correctly points out 50% of the traffic on St Paul & Calvert St is thru commuter traffic. It feels to account for alternative roads and fails to note safety advantages to 2 way traffic. It looks like the study needs to be updated. The pedestrians aspect was not assessed with the study. |
| 12/09/2015 | Comment Card | On some intersections which I use regularly, there are mirrors set up with stop signs so that you can see around the corner. I find these very helpful. Although it is unrelated to the study, I would like stop sign mirrors. |
| 12/09/2015 | Comment Card | DON’T DO IT!!!!!! |
| 12/09/2015 | Comment Card | Please still consider bike lanes, if it came to a hand redesign. I feel that currently it is or was 2 separate 1 way street |
| 12/15/2015 | Comment Card | What is the proposed end date range for the change? Is this within a 5-year scope, 2-year, etc…? Will the conversion include new light inter-Sections or solely use of existing intersections that already have traffic lights? Will Maryland Avenue have any construction changes due to Conversion if decision is made to proceed? |
| 12/15/2015 | Comment Card | Hoping to see posting of some of the raw survey and license plate data collection data! Lots of citizens’ w/data skills ready to help. Printed plans on table displayed pm travel speeds and parking data for St Paul St. Don’t we want to know am info for southbound traffic? |
| 12/15/2015 | Comment Card | I am a homeowner on Calvert. I have a toddler and a wife who is pregnant. I can’t tell you how dangerous Calvert St is for my family. Please I beg you to do something to slow traffic. |
| 12/15/2015 | Comment Card | I’m really happy the city is doing this study and hope it is used to make road improvements regardless of the final recommendation. I hope segments of the corridor are considered (Mt Royal to Central) and DOT can follow through with an evaluation of I83 and exits in the corridor. Thanks! |
| 12/15/2015 | Comment Card | The primary frustration with the existing conditions is the high speed of traffic and it seems that could be addressed by changing the signal timing too slow vehicles to 20-25 mph, with far fewer impacts. However doing so would require a shift in policy and a commitment to slowing and managing the speeds. |
| 5/14/2015 | Comment Card | Signal timing along 29th Street and St. Paul is set up to tempt drivers to run red lights. When signal at Calvert, the St. Paul signal turns green. When signal turns green at Calvert there is a very short window to make the green at St. Paul encouraging speeding/red light running and in turn causing accidents with Southbound traffic. |

| | | |
|---|---|---|
| 5/14/2015 | Comment Card | 29th and Lovegrove, 28th & Charles, 28th & St. Paul- Traffic turning right onto St. Paul to go westbound on 29th is turning and speeding to Lovegrove to make green light at Calvert. Right turning traffic from Lovegrove do not see this sudden traffic and turn in front of speeding/accelerating cars causing accidents. |
| 5/14/2015 | Comment Card | Would like to see alleys with bike lanes since they are already being used as cut through. |
| 5/14/2015 | Comment Card | Concerned with Parking spaces will be reduced. |
| 5/14/2015 | Comment Card | What is the estimated cost of the conversion? How can residents who do not want conversion connect with? You gave examples of cities that had positive experiences with conversion are there any cities with negative experiences? |
| 5/14/2015 | Comment Card | What do you consider an overwhelming request from the community? How Many and What Community? |
| 5/14/2015 | Comment Card | Are you planning in closing the I-83 Exit at St. Paul to avoid further bottlenecking? |
| 5/14/2015 | Comment Card | With the conversion my three mile commute (to and from Federal Hill) would most likely take more than an hour. Why should I continue to live in the city if my commute becomes just as long as a suburban commuter? |
| 5/14/2015 | Comment Card | What good are improvements if I have to spend longer commuting and can't enjoy it? |
| 5/14/2015 | Comment Card | If a tractor trailer is parked on St. Paul making a delivery or an ambulance how am I going to get around it on a two-way Street so I can get to work? For example today I had to change lanes (round trip) for a cement truck, fed-ex truck, delivery truck, ambulance, road work at 26th Street, 3 buses and 2 parallel parkers (In six Miles Round Trip!!). |
| 5/14/2015 | Comment Card | Old Goucher. Decrease bus stops (instead of every block or every other block every third block) to increase travel efficiency for busses. Angled parking between 20th to 24th & 26th & 27th to alternate parking on St. Paul & Calvert Street and Guilford bike lane on St. Paul or Calvert continuously to Downtown from JHU/Waverly. Merge busses: JHU, UB, and MTA into one, North/South, East/West to fill up public busses during various time of day. Add street lights to add visibility on a street level and pedestrian level on 20th to 27th Street. Suitable pavement from concrete to brick and bump outs. |
| 5/14/2015 | Comment Card | If it isn't broke don't fix it- The cars are too big, the public transportation needs to be improved, commuters want to get where they need to in the least amount of time, 35 MPH should be the speed limit on both streets, Synchronize the lights, Get rid of the pay to park meters were just fine. |
| 5/14/2015 | Comment Card | Concerned with buses will not use bus bays in mainline for two-way and will block mainline traffic at bus bays |
| 5/14/2015 | Comment Card | Corridor is already slow, my commute will be doubled. A three mile commute would most likely take more than one hour. |
| 5/14/2015 | Comment Card | There are no other parallel routes where traffic can be diverted |

| | | |
|---|---|---|
| 5/14/2015 | Comment Card | Improve pedestrian safety in and around campus with better connectivity to St. Paul – Charles Village retail and Calvert to St. Paul via 33rd. Comparing profiles are shorter distances with less ADT and Transit volume. Also, comparisons of more retail oriented with less residential compared to Baltimore. |
| 5/14/2015 | Comment Card | Most of your charts show the various Hopkins shuttles as a viable mode of Transportation, However the Majority of residents have no correlation with Hopkins & are therefore not allowed on those shuttles. |
| 5/14/2015 | Comment Card | I honestly do not see how it can work. We need spaces for buses, bikes, parking and deliveries- How do you expect to do that with one way each way? |
| 5/14/2015 | Comment Card | I strongly support the 2- way conversion of St. Paul and Calvert. My business recently bought a building on St. Paul and Calvert. One of the reasons we moved to St. Paul is because of the potential 2-way conversion and its potential positive impact on our block. Currently traffic is very dangerous. Many drivers go 40 or 45 MPH and the heavy volume makes it difficult to walk across the street. I worry about my employees safety when they bike or walk along Saint Paul Street or they are trying to park. The impact on air quality from the traffic is awful. Our front door and surfaces in the offices get covered in exhaust soot weekly. |
| 5/1/2015 | Comment Card | Need better Synch of traffic lights on St. Paul & Calvert Street. |
| 5/1/2015 | Comment Card | Many drivers go 40 or 45 MPH and the heavy volume makes it difficult to walk across the Street on St. Paul. |
| 5/1/2015 | Comment Card | 35 MPH should be the speed limit on both street |
| 5/1/2015 | Comment Card | Improve pedestrian safety in and around campus with better connectivity to St. Paul – Charles Village retail and Calvert to St. Paul via 33rd Street. |
| 5/1/2015 | Comment Card | Add street level and pedestrian level lights from 20th to 27th Street. |
| 5/1/2015 | Comment Card | Use bricks instead for concrete for better visibility and bumpouts. |
| 5/1/2015 | Comment Card | Business owner recently moved/purchased a building on St. Paul because of the potential 2-way conversion and its potential positive impacts on our block. I worry about my employees safety when they bike or walk along St. Paul. |
| 5/1/2015 | Comment Card | Add bike lane on St. Paul or Calvert. Continuously to Downtown from JHU/ Waverly. |
| 5/1/2015 | Comment Card | The majority of residents have no correlation with Johns Hopkins and are not allowed on those shuttles. |
| 5/1/2015 | Comment Card | Concerned with spaces for buses, bikes, parking, and deliveries |
| 5/1/2015 | Comment Card | Public transportation could be improved |
| 5/1/2015 | Comment Card | Cars are too big. |
| 5/1/2015 | Comment Card | Consolidate buses into one (JHU, UB, MTA etc.) into one so that we can be more efficient. |
| 5/1/2015 | Comment Card | Get rid of pay to park, meters were fine and made more sense |
| 5/1/2015 | Comment Card | Decrease number of bus stops in Old Goucher (instead of every other block to every three blocks to increase travel efficiency. |

| | | |
|---|---|---|
| 5/1/2015 | Comment Card | Alternate parking on S. Paul or Calvert with parking on 20th to 24th & 26th to 27th. |
| 5/1/2015 | Comment Card | Concerned with possible improvements if the consequence are longer commute times. |
| 5/1/2015 | Comment Card | Access and Egress from Medstar Union Memorial hospital for patients, emergency vehicles and employees are paramount. |
| 5/1/2015 | Comment Card | Parking garage access at two locations: 34th & Calvert and 34th and St. Paul. Two way traffic would impact high volume times and requires control mechanism which is not favorable. |
| 5/1/2015 | Comment Card | Concerned with tractor trailers parked on St. Paul making a delivery or an ambulance and not being able to get around under two way conditions. During a six mile trip on St. Paul had to changes lanes for a cement truck, federal express truck, delivery truck, ambulance, and roadwork @ 26th Street, 3 buses, and 2 parallel parkers. |
| 5/1/2015 | Comment Card | The impact on air quality from traffic is awful. Our front door and surfaces in the office get covered in exhaust soot weekly. |
| 10/28 & 10/29 2014 | Comment Card | Two-way operations will make it unsafe for Margaret Bent School kids crossing the street/getting to school. |
| 10/28 & 10/29 2014 | Comment Card | Concerned about drop off for Margaret Brent School. |
| 10/28 & 10/29 2014 | Comment Card | I am concerned about school drop off zones. |
| 10/28 & 10/29 2014 | Comment Card | Two way traffic will be more dangerous to the children. Calvert St is too narrow. |
| 10/28 & 10/29 2014 | Comment Card | Two way streets would make conditions safer for kids at Margaret Brent. |
| 10/28 & 10/29 2014 | Comment Card | Two way street would be safer for the school kids |
| 10/28 & 10/29 2014 | Comment Card | Please do not consider parking restrictions. The corridor will become a raceway and the safety of residents will be jeopardized. |
| 10/28 & 10/29 2014 | Comment Card | Please try and limit impact to on street parking. No parking restriction please. No Peak hour parking restrictions. |
| 10/28 & 10/29 2014 | Comment Card | Concerned about left turning traffic and double parked vehicles – moving into oncoming traffic. Two-way bike lanes. |
| 10/28 & 10/29 2014 | Comment Card | South of North Avenue, at the very least, two- way traffic would be completely unworkable. Every parking spot is needed and the traffic volume unobjectionable. Left turns, bicycles, loading zones, utility work, and transit would all suffer. If traffic speed is an issue perhaps signal timing |
| 10/28 & 10/29 2014 | Comment Card | Making Calvert St 2way will eliminate critical parking for residents, increase student pedestrian accidents because student do not look both ways, hinder emergency vehicles traveling to Union Memorial, create back-up behind buses and left turns. If parking is eliminated in front of my house, I and many long term residents will move out of Charles Village. |
| 10/28 & 10/29 2014 | Comment Card | I want no parking restrictions during peak hours. |

| | | |
|---|---|---|
| 10/28 & 10/29 2014 | Comment Card | I would love to see the double parking stopped. Why don't they give speeding tickets out on these streets and other streets? |
| 10/28 & 10/29 2014 | Comment Card | South of North Avenue, at the very least, two – way traffic would be completely unworkable. Every parking spot is needed and the traffic volume unobjectionable. Left turns, bicycles, loading zones, utility work, and transit would all suffer. If traffic speed is an issue perhaps signals timing could be addressed. The current timing incentivizes speeding. A different timing could allow smooth traffic flow at a lower speed. |
| 10/28 & 10/29 2014 | Comment Card | Double parking at all hours usually closes one lane. What will happen when there's only one lane N/S available? |
| 10/28 & 10/29 2014 | Comment Card | End rush hour parking restrictions. |
| 10/28 & 10/29 2014 | Comment Card | Calvert Street is a main artery for ambulances to Union Memorial hospital. It is very congested during rush hour so left turns; parallel parking and emergency traffic will have no outlets. |
| 10/28 & 10/29 2014 | Comment Card | In two ways traffic there is no way for ambulances to go to Union Memorial, gridlock for parallel parking, gridlock for left turns. Parking after 6pm is already difficult, taking away parking means traveling how many blocks to find it? And what, if any, are the benefits for 2-way traffic? |
| 10/28 & 10/29 2014 | Comment Card | N Calvert Street is a main artery for ambulances, parallel parking buses and left turns will become impossible if Calvert Street becomes two ways, unless of course, you take away parking or our sidewalks or yards. |
| 10/28 & 10/29 2014 | Comment Card | I believe 2- way streets will lead to a more walkable, livable community and am willing to make parking and traffic sacrifices to achieve it. |
| 10/28 & 10/29 2014 | Comment Card | The main priorities should be to diminish the volume of traffic increase pedestrian and cyclist safety, reduce noise and vibration. |
| 10/28 & 10/29 2014 | Comment Card | Two way traffic would enhance pedestrian safety and increase value and lower traffic injuries and fatalities. I'm highly in favor of Calvert St & St Paul Street being 2 way. |
| 10/28 & 10/29 2014 | Comment Card | I cycle and need no more traffic coming towards me. I have rear view mirrors on my 21 speed bike. |
| 10/28 & 10/29 2014 | Comment Card | Regardless of car traffic directions, pedestrian cross walk safety is abysmal on St Paul St & University Pkwy. & other intersections further south on St Paul. Signage is too small & often/frequently ignored. |
| 10/28 & 10/29 2014 | Comment Card | I'm concerned about the narrow lanes on St Paul Street now as a result of the new bike lanes (hazards re: Car door openings) – this would exacerbate if the lane widths remain in a two way scenario. |
| 10/28 & 10/29 2014 | Comment Card | Bus travel which would be greatly hampered by 2-way also, driving to appointments to & from downtown & to venues, dining downtown would be very hard to drive to, as a pedestrian, I know one-way traffic is much safer than 2-way. Two way is very dangerous. |
| 10/28 & 10/29 2014 | Comment Card | Yes, transit needs to be a priority on both streets to serve the density of the neighborhood. The crosswalks need to be pedestrian friendly |

| | | |
|---|---|---|
| | | for a more vibrant neighborhood. |
| 10/28 & 10/29 2014 | Comment Card | The Hopkins bus takes up the 2 right lanes when it stops at 27th street,-(a big long stop in the morning) because there is no dedicated curb space…imagine if St Paul Street becomes 2 way. |
| 10/28 & 10/29 2014 | Comment Card | You should consider a day time presentation. |
| 10/28 & 10/29 2014 | Comment Card | I want no parking restrictions during peak hours. |
| 10/28 & 10/29 2014 | Comment Card | The ultimate conversion will help the City of Baltimore and Mayor implement their complete streets policy. |
| 10/28 & 10/29 2014 | Comment Card | The average and median home prices seem to be very low. |
| 10/28 & 10/29 2014 | Comment Card | Please include plan of how other communities communicate any changes to traffic (like one-way; two way) so people can change habits quickly. |
| 10/28 & 10/29 2014 | Comment Card | Its fine like it is. |
| 10/28 & 10/29 2014 | Comment Card | Indifferent. Came opposed! |
| 10/28 & 10/29 2014 | Comment Card | Keep them as currently one way. If you make the streets 2 way, we'll get double the congestion & noise & inability to get in and out of our cars. |
| 10/28 & 10/29 2014 | Comment Card | Do not hinder traffic flow – i.e. double parking on a two-way street will stop traffic while it does not on a one way street with two lanes. Same for deliveries, breakdowns, street repairs, etc. |
| 10/28 & 10/29 2014 | Comment Card | Glad you will be reviewing, improving one-way traffic as well. Would like to see where traffic will go to/how it will impact adjacent streets & neighborhoods. Not only one adjacent street. Should look at signal timing for one-way…and other options to help one- way traffic. |
| 10/28 & 10/29 2014 | Comment Card | Calvert Street is too narrow as it is on St Paul. |
| 10/28 & 10/29 2014 | Comment Card | Bus stops, left turns, a parking will obstruct traffic with 2 way operation. Traffic on these streets is mostly county & north Baltimore during rush hours. Where will this traffic go? JFX already a parking lot at times. Will two-way operation mean giving up parking that is already at a premium? |
| 10/28 & 10/29 2014 | Comment Card | Close JFX exit ramp at St Paul and Mount Royal Ave – necessary if streets become two-way and desirable anyway. Enforcement restrictions on large truck. |
| 10/28 & 10/29 2014 | Comment Card | YES! Bring the Circulator up to University Parkway. |
| 10/28 & 10/29 2014 | Comment Card | I want traffic calming and 24/7 parking. |
| 10/28 & 10/29 2014 | Comment Card | Traffic calming is good for improved urban living and will increase residential property values and business profits. |
| 10/28 & 10/29 2014 | Comment Card | You've got it covered. |

| | | |
|---|---|---|
| 10/28 & 10/29 2014 | Comment Card | I think that ease of commuting verses property values. Slowing down commuter routes will therefore hurt the economy and property values of the effected Baltimore neighborhoods. |
| 10/28 & 10/29 2014 | Comment Card | Yes, traffic moves way too fast. |
| 10/28 & 10/29 2014 | Comment Card | How can you avoid forecasting future use, traffic volumes? |
| 10/28 & 10/29 2014 | Comment Card | The ramp off I83 onto St Paul is dangerous for pedestrians & dumps traffic onto St Paul |
| 10/28 & 10/29 2014 | Comment Card | I live at 2801 St Paul – our intersection is the site of many auto accidents. People coming from I-83 – East Baltimore on 28th St – drive like maniacs. |
| 10/28 & 10/29 2014 | Comment Card | Concerned about delivery to home of furniture, etc. |
| 10/28 & 10/29 2014 | Comment Card | I am concerned w/how fast the current traffic drives/how many?? Thank you for addressing our concerns. |
| 10/28 & 10/29 2014 | Comment Card | Two way traffic, at least in the area south of North Avenue would be completely unworkable. Left turns, transit, loading zones, bicycles, and utility work would all interfere with each other and with parking. Please do not do this, If traffic speed is a problem perhaps signal timing could be changed so that speeding is no longer incentivized. |
| 10/28 & 10/29 2014 | Comment Card | I hope that, in addition to evaluating the potential for two ways at Calvert & St Paul that the option at keeping the streets one way but at a much slower speed. Currently it seems that the signal timing is timed for speeds above the 25mph speed limit. In 2009 the neighborhoods asked for signal timing to be adjusted to slow the speed. |
| 10/28 & 10/29 2014 | Comment Card | 55. I live at 2810 St Paul. I'm sure this will be a part of your study, but there are so many accidents at the intersection of 28th St & St Paul. I've seen too many- several where cars were overturned. & where the street light pole was taken out. Also, we need more bike lanes! If no 2 way conversion, please implement traffic calming measures. People drive too fast. |
| 12/1/2015 | Email | I want you to know I appreciate the straightforward and direct way you laid out the facts at the meeting without regard to any personal interest in the outcome. The comments from other in attendance were inappropriate in my opinion, and did not take into consideration the fact that you were there to report objectively on the job you were given.<br><br>I was glad to know the worst case scenario of 60 minutes drive time, because it showed that simply flipping the lanes will not give a satisfactory result. I need some level of assurance that if I leave my home, I will be able to return to it without each and every errand turning into a day trip.<br><br>Over the course of the study, I have heard no mention of placing a |

| | | |
|---|---|---|
| | | traffic signal at 26th and St Paul where there is the Margaret Brent school. I have seen no change or enhancement of the speed limit signage and certainly no enforcement of it. It seems to me these and other similar situations should be resolved before tackling anything as radical as the traffic conversion. |
| 10/21/2014 | Email | I'd like to follow up with a few outstanding questions or concerns which should, I hope, reiterate how important the 2 way conversion study is too many communities and stakeholders, and that we are available to assist with educating, informing, and promoting the study to our constituents and partners. The October 28 & 29 public meeting that DOT is hosting should present the study, in a broader context, pf what traffic calming is, the different approaches and methods, case studies and pros/cons of two way conversions any why communities have been requesting St. Paul and Calvert Street to be converted to two-way for the past 20 years. The study must include an analysis of the effects of two- way traffic on economic development. Empirical evidence suggests that such conversion have a strong positive impact on vehicular and pedestrian safety, property values, and retail sales. This item has to be clarified as soon as possible with an updated scope, identified consultant etc. We will be organizing public meetings on our send to get input and comments from our communities and we suggest using this forum as part of the project's official community engagement process, since it is such a diverse and extensive corridor. |
| 10/17/2014 | Email | As someone that uses this route many times a week it is an important matter to me. Years ago there was talk about making Charles St. A two way street. It would be a much better choice since it is wider. Why did that plan fail? Why would Calvert St. And St. Paul Street make a better choice?<br>Thank You, |
| 1/27/2015 | Phone | Lived on St. Paul since 1967 and when we moved here the whole street there was no parking from 7 to 9 and it was one way of course it was one- way Barnes had made a huge change here and gradually now over the years first one lane of parking and now two lanes have been allowed even during 7 to 9 AM weekdays and has been a great benefit to us to slow down the traffic a little bit and also to have much more parking available but to continue that would be really wonderful and I wanted to put my vote in. I certainly support a two-way which is the way it was originally of course even when there was a Street car going up and down there was two-way traffic for wagons and cars and I'd love to see that happen again. |
| 10/26/2014 | Email | I am unable at this time to attend meetings, but would like to be part of the voice of the community.<br><br>I am stressed by the vehicular traffic in and out of the city every day. I am distressed by people having to dodge traffic as they walk across a crosswalk. For years I was a bicycle commuter, but I am not afraid to bike anywhere unless I drive my car to a distant location to start. |

| | | |
|---|---|---|
| | | The City has been pioneering in some ways to provide safety and space for bicyclers and pedestrians – but we are still overwhelmingly a vehicle-centric city. Guilford being a bicycle route is great, but it still is not safe to bike the street itself.<br><br>In short – whatever can be done to pedestrian-friendly and bicycle-friendly the route the better. I drive, but would not at all mind being inconvenienced it was for this purpose. I do mind being further inconvenienced for county commuters. |
| 10/20/2014 | Email | We have been strongly opposed to the concept but we will be opening minded. |
| 3/13/2015 | Email | As a property owner on St. Paul Street and owner of a business at that location, I think that it would be a disaster for everyone if St. Paul and Calvert Streets were made two way-not only for workers and residents getting in and out of town but for our visitors and delivery people. Monday through Saturday 8AM to 6PM there are delivery trucks downtown, double parked, blocking one lane. If St. Paul were two way, traffic would have no recourse to pass-they'd have to wait for the oncoming traffic to abate. It would be time consuming and dangerous when they do decide to pass. We are already victims of slow traffic every time there is an event at the monument-even small ones.<br>In addition, parallel parkers slow down traffic-often for a long time because some people are bad at that task! They also block a lane.<br>I am often downtown at night and on the weekend-walking to restaurants and Center Stage etc. I never have trouble crossing the street or getting where I want to go and find the existing conditions pedestrian friendly. I am confused by the effort to make the streets one way. It is not only unnecessary, but will be another nail in the coffin for downtown business. |
| 10/31/2014 | Email | I was unable to attend Tuesday night's meeting at Streets. Phillip and James Church, but wanted to voice my opinion on the matter of changing St. Paul and Calvert Streets to two-way traffic.<br><br>As a life-long Baltimorean, a former homeowner on N. Calvert St. in Charles Village and a current homeowner on E. Mt. Vernon Place in Mount Vernon, I can attest to the sometimes extraordinary difficulty of parking near my place of residence. If the plans to convert St. Paul and Calvert Streets to two-way traffic results in the loss of even an insignificant amount of parking, it will have a deleterious effect on life in my neighborhood. Already, parking is somewhat of a contact sport and competition for spaces can be **extraordinarily** fierce, especially during the numerous street-closures for movie filming and city events. With bikeway plans for Mount Vernon slated to possibly remove 270 parking spots from Cathedral and Madison Streets, I find it incomprehensible that they city would consider removing more |

| | | |
|---|---|---|
| | | with the plans for St. Paul and Calvert.<br>I live in a complex that contains 23 condo units inside what had long ago been just two houses. There is absolutely no potential for on-site off-street parking – at any cost. If I had known that there was a plan to permanently and greatly reduce parking in my neighborhood, I would most certainly not have purchased my condo unit here 2 1/2 years ago. I made the decision to move to my Mount Vernon - in part – because of the fact that street parking was possible. *Difficult* perhaps, but *possible*.<br><br>I strongly believe that any benefits that may be garnered by changing these streets to two-way traffic will be outweighed by the cost to residents and visitors of the loss of a most precious resource: parking. Unless the plan for these street conversions comes with an equally aggressive plan to replace the loss of parking for residents, I cannot support it.<br><br>I can't imagine why my city would either. |
| 1/8/2016 | Email | The Guilford Association, Inc. is the community association representing approximately 815 homes in the area bounded by University Parkway on the south, Cold Spring Lane on the north, Greenmount Avenue on the east and Linkwood on the west. The community contains portions of the north-south arteries of Charles Street, St. Paul Street, Greenway and Greenmount Avenue. Based on what we have heard to date, we are opposed to converting St. Paul and Calvert Streets to two-way traffic.<br><br>It appears that your office has devoted a major effort to obtain a large amount of data to assist you in making a positive or negative recommendation to the Director of the Department of Transportation. Preliminary conclusions indicate that the conversion of St. Paul Street and Calvert Street to two-way traffic would cause major disruption to travel patterns and travel times to the downtown and throughout the corridor from University Parkway to Fayette Street and beyond. While we have not seen specific traffic engineering analysis of the feasibility of conversion, the changes that would have to be made to maintain travel times and traffic flow in the corridor would be great and costly and perhaps result in considerable disruption to the business and residential uses in the corridor.<br><br>Your research indicates that the present eighteen minute commute on St. Paul Street from University Pkwy. Would increase to one hour if only yellow lines were painted and traffic signs changed. While the cost of traffic engineering work to reduce the travel time from one hour to a manageable and acceptable time apparently is outside the scope of your report, an estimate of the cost and the disruption surely must be made to assess viability of the proposal and permit necessary |

| | | |
|---|---|---|
| | | evaluation. In addition, the impact on the road system feeding to the corridor from and to the north should be assessed.<br><br>Also, there must be an analysis of the economic impact such a change may have on the corridor and the downtown. Many people living north of University Parkway work downtown and support restaurants and cultural facilities so long as the driving time to these locations is reasonable. How might the desirable proximity of these areas change and resident willingness to frequent the center city be altered if travel was more difficult?<br><br>It appears that the conversion study was directed to look primarily at quality of life issues for those people living on St. Paul and Calvert Streets. In our view, the quality of life for those City residents living north of University Parkway could be substantially decreased if the two streets are converted to two-way status without there being any material betterment in life style for those who support the change. It would seem that there are many traffic calming actions that could be taken and traffic engineering changes made to the existing traffic pattern that would better accommodate pedestrians and bikers and improve quality of life for area residents rather than a street direction change.<br><br>We intend to read the final report in full as there will be data contained therein that may enable us to offer further comment. |
| 5/18/2015 | Email | As you are probably aware, there have been meetings scheduled by a two-way steering committee and as luck would have it, the last two meetings are scheduled on Tuesday evenings in May that happen to coincide with either MVBA's board meeting or general membership meeting, which of course, makes it near impossible for anyone from MVBA to attend. Given the impact to the neighborhood, it would seem that MVBA should be involved in the discussion, despite the fact that MVBA has supported the two-way conversion through the master plan.<br><br>However, there are many in the community that don't support the conversion and speaking only for myself, with two-way traffic in place on St. Paul and Calvert, it would seem that the ability to double park for deliveries (especially internet purchases), moving vans, buses hanging out at bus stops, emergency vehicles, such as police, fire, and ambulance getting through, seem to have not been taken into consideration. Maybe they actually have, but there does not seem to be much discussion on this that I am aware of. The other issue is the impact that the bike lanes will have to overall traffic, since the two projects appear to be conducted independent of each other. Between the two, when and if both are implemented, seems like grid lock is all but assured. My only hope is that Sabra Wing |

| | | |
|---|---|---|
| | | traffic study will bear this out, but then again, if it works that is ok as well. But it would seem to me that studies need to show that these issues have been taken into consideration and such a conversion would actually work. Since the two-conversion was born out of the desire to calm traffic flows, perhaps there are other means to accomplish this. |
| 1/28/2015 | Letter | Writing as a resident in Charles Village living in the 2800 block of Saint Paul Street Where I own a home, this paper offers my observations and opinions about the Two-Way Conversion Proposal for Saint Paul and North Calvert Streets.<br><br>The local population density is high as it is on most of Saint Paul Street as well as on many stretches of North Charles Street. The vehicular traffic is substantial most of the time. On- street parking is at a premium. We are on the edge of the Johns Hopkins University Homewood Campus. Students reside in the many available multi-family housing units. Many students bring their own vehicles; there are numerous out-of-state license plates. Some students who reside a distance away drive to the campus and park locally to attend their classes.<br><br>Parking demand in the 2800 block of Saint Paul (as well as in the 2700 and 2600 blocks) is especially accentuated because it abuts Residential Parking Area # 12 to the north. Residents living in the restricted parking area without parking permits, and students commuting to the campus by car, seek parking in the block immediately south of 29th Street.<br><br>St. Paul and North Calvert Streets are expeditious pathways (i.e. major arterials streets) leading to and from central downtown Baltimore that are used by local residents living near those streets, and also by residents living in neighborhoods north of University Parkway.<br><br>I note that Saint Paul Street is wide enough between 31st Street and Penn Station to accommodate a designated bicycle lane. The remainder of Saint Paul Street south to Center Street is much narrower. And yet this section is required to accommodate the additional southbound traffic from the I-83 ramp at Mount Royal Avenue.<br><br>Saint Paul Street north of 31st Street to University Parkway is an extra wide section thru commercial area immediately east of the JHU Campus. Traffic flow and parking is not troublesome. From time to time I walk to the referenced commercial area for minor grocery shopping.<br><br>North Calvert is narrow for its entire length (except for a section near |

| | | |
|---|---|---|
| | | Penn Station); bicycle lanes could not be accommodated without eliminating a lane for street parking.<br><br>Thinking about two-way travel on Saint Paul and North Calvert Street, where each would be configured with only one northbound and one southbound vehicular travel lane, it seems inevitable that there would be substantial reduction of capacity and an increase in travel time for everyone.<br><br>Listed below are the lane blockages of vehicular travel (observed in my experience) that will be devastating in a two-way, single-lane-in-each direction system:<br>• Vehicles stopped to make left turn lanes<br>• Busses not pulling completely into bus stop spaces<br>• Vehicles being parked<br>• Package Deliveries services which routinely need to double park (UPS FedEx etc.). Also occasionally hot convenience food delivery<br>• Very reasonable double parking by trucks making heavy deliveries, such as appliances and furniture. Also moving vans.<br>• Residents who need to double park for short periods in order to off-load or pick up heavy items with their vehicles<br>• Residents jump starting a disabled parked car<br>• Police, Medical, and Fire Personnel double parked in response to an emergency call.<br>• Bicyclist straying outside of the bicycle lane on Saint Paul (A motorist is required to provide 3 feet of clearance. When the adjacent traffic lane is opposing, the motorist cannot expect to move safely into it.<br><br>The normal operation of busses will be hindered acutely during heavy traffic conditions in a Two- Way system. Drivers can be expected to seize aggressively the opportunity to pass a bus while it is in a bus stop. Bus drivers will have difficulty leaving a stop. Eventually bus drivers will be reluctant to pull into a bus stop completely thus blocking traffic while stopped for passengers.<br><br>A reduction of street capacity and vehicular travel time will adversely affect the response of various emergency vehicles. Consider if a 911 call is for someone who has just had a heart attached and life depends on prompt medical attention and unhindered transport to a hospital emergency room, wouldn't one way traffic on a street provide easier and safer maneuverability? Similarly, Police response to crime and the pursuit of criminal suspects would be affected adversely. |

| | | |
|---|---|---|
| | | Travel for bicyclists (not in a designated bicycle lane) among vehicles going in two directions would be dangerous for bicyclist, and also for the drivers travelling on the street. (Hopefully, bicyclists will not be travelling in both directions as well).<br><br>There are new safety hazards for pedestrians:<br>• Vehicular traffic on interior streets )i.e. Lovegrove, Hargrove, and Hunter) will increase, endangering both pedestrians and pets:<br><br>(a) Drivers will resort to using interior streets as short cuts to achieve a change in cardinal direction (from northbound to southbound and vice versa) in the search for open parking spaces.<br>(b) Interior streets will be used more frequently as detours when there are obstructions in the single one-way lanes proposed for Saint Paul and North Calvert Streets.<br>• Crossing Saint Paul and North Calvert Streets at any non-signaled intersection (an example is at 30th Street (will be difficult because pedestrians must wait for a safe opening occurring simultaneously in the northward and southward flows of vehicles. (Installation of traffic control signals will be required).<br><br>Apparently a major thrust of the two-way proposal is to slow traffic. There are less disruptive ways available. Consider the following:<br><br>• Reduce the speed limit from 20 mph to 25 mph. With most of the lanes involved being narrow, a bicycle lane added where there is a bit wider, and most of the travel being through residential areas, one wonders why speed limit reduction hasn't been accomplished already.<br>• Install electronic warning signs alerting drivers when speed limits are being exceeded.<br>• Re-engineer the progressive traffic control light system to incorporate a 25 mph speed limit, and ponder how to discourage speeding when a driver is as the tail end of a green light interval and has an incentive to speed up in order to pass thru all the green lights in front of him/her.<br>• Install speed/traffic light cameras at key intersections (For my immediate are I recommend 4 intersections which regularly have serious accidents: Saint Paul & 29th, Saint Paul & 28th, N. Charles & 29th and N. Charles & 28th). |

| | | |
|---|---|---|
| | | The larger city planning questions posed by the Two Way Proposal is: *Are we to treat two major transportation corridors primarily as local neighborhood streets, thereby making it difficult for area residents to reach Downtown Baltimore, or shall we continue to support the economic health and growth of the core of Baltimore, the largest in Maryland by maintaining two efficient north-south routes in their present configurations?*<br><br>My own choice is to recognize the importance of downtown Baltimore, and the necessity of maintaining efficient transportation connections to it. I'm opposed to the Two-Way Proposal because it runs counter to that objective. |
| 1/28/2015 | Email | I would like to share our concerns from the perspective of Med Star Union Memorial Hospital regarding the two-way conversion study.<br><br>From Med Star Union Memorial Hospital's perspective, there are a number of hospital-centric issues that need to be addressed with the Baltimore City's Department of Transportation two-way conversion study of St. Paul and Calvert and any recommendation from the Charles Village Retail & Transportation Master Plan.<br>• Access to/Egress from hospital for…<br>  ○ Emergency Vehicles<br>  ○ Patients and families<br>  ○ Employees<br>• Overall Safety & Security in a two way conversion<br>• Improved Traffic at Major Intersections<br>• Way-finding<br>• Streetscapes<br><br>Specific to the Charles Village Retail and Transportation Master Plan, any expansion of two way traffic on St. Paul beyond the existing service lane north of 33rd St will put added pressure throughout the day, especially with hospital shift changes on the intersection of St. Paul and 34th St where traffic coming south on St. Paul makes a left onto 34th St. to access our two large garage structures. The current VHB transportation study does not include any data analysis on the impact of this traffic configuration. |
| 11/6/2014 | Email | So the map for the study area only includes from Guilford Avenue on the east over to Charles Street on the west. I think Maryland Avenue should be included in the study area for at least two reasons. The first is that the study area includes two north-bound one way streets but only includes one of the two south bound streets, St. Paul. Maryland Avenue (1 street west of Charles) is also southbound and will be affected/impacted by any changes. The second reason is that at the intersection of 29th Street and Maryland Avenue, there is a |

| | | |
|---|---|---|
| | | sign directing motorists to use Maryland Avenue as a way downtown. I will take a picture of this sign today so I can send to you.<br><br>I think for these two reasons, Maryland should be included in the study area. It will definitely be impacted and cars are already speeding down it.<br><br>Please see if you can find out about changing the study area to include Maryland. I think Maryland should be included before Guilford (already a two-way street) is! |
| 10/16/2015 | Email | Mercy has gone on record several times STRONGLY opposing this idea. It is a very bad idea from our standpoint. |
| 11/7/2014 | Email | This is from the Baltimore Brew article at this link: https://www.baltimorebrew.com/2014/11/06/residents-question-city-on-two-way-traffic-switch-for-st-paul-and-calvert/<br><br>"Rafey Subhani, a planner with Sabra, Wang & Associates, a firm that provides transportation consulting to the city, told meeting attendees the study will take an inventory of transit, looking at travel patterns from a multimodal perspective, as well as commuters' origins and destinations. It will also take into account traffic impact on parallel streets, two streets away from Calvert and St. Paul., including Maryland and Guilford avenues"<br><br>After reading this, I think that the map in the attachment you sent the other day is incorrect and that is should definitely include Maryland Avenue. Am I correct? Please let me know.<br><br>Also, I am attaching a picture I took this morning. I was on southbound 29th Street just above Maryland Avenue. You can clearly see from this photo the signs that tell motorists to go left onto Maryland Avenue (one way southbound) to get to 95, 295 and 40. There are two left turn lanes from 29th onto Maryland. Maryland is a major southbound street and will be greatly impacted by any changes.<br><br>Thanks, I look forward to hearing back from you. |
| 5/18/15 | Email | As you are probably aware, there have been meetings scheduled by a two-way steering committee and as luck would have it, the last two meetings are scheduled on Tuesday evenings in May that happen to coincide with either MVBA's board meeting or general membership meeting, which of course, makes it near impossible for anyone from MVBA to attend. Given the impact to the neighborhood, it would seem that MVBA should be involved in the discussion, despite the fact that MVBA has supported the two-way conversion through the master plan.<br><br>However, there are many in the community that don't support the |

| | | |
|---|---|---|
| | | conversion and speaking only for myself, with two-way traffic in place on St. Paul and Calvert, it would seem that the ability to double park for deliveries (especially internet purchases), moving vans, buses hanging out at bus stops, emergency vehicles, such as police, fire, and ambulance getting through, seem to have not been taken into consideration. Maybe they actually have, but there does not seem to be much discussion on this that I am aware of. The other issue is the impact that the bike lanes will have to overall traffic, since the two projects appear to be conducted independent of each other. Between the two, when and if both are implemented, seems like grid lock is all but assured. My only hope is that Sabra Wing traffic study will bear this out, but then again, if it works that is ok as well. But it would seem to me that studies need to show that these issues have been taken into consideration and such a conversion would actually work. Since the two-conversion was born out of the desire to calm traffic flows, perhaps there are other means to accomplish this. |
| 3/26/2015 | Email | So good to have this opportunity and thank you for allowing me to share my feelings. I own a business and brownstone on St. Paul Street. I've worked in the Mt. Vernon areas for over 20 years. I think that it would be very detrimental to city living and working if St. Paul and Calvert Streets were made two-way – not only for workers and residents getting in and out of town but for our visitors and delivery people. To begin, Monday through Saturday 8AM to 6PM there are delivery and mail trucks downtown, double parked, blocking at least one lane. If St. Paul were two way, traffic would have no safe way to pass these trucks- they'd have to wait for the oncoming traffic to abate. It would be time consuming and dangerous when they do decide to pass. We are already victims of slow traffic every time there is an event at the monument- even small ones. Also- just driving up Calvert and down St. Paul is often delayed and frustrated by parallel parkers (especially the inept ones) Two way streets would exacerbate that considerably. My staff and I are often downtown at night and on weekends- walking to restaurants, Center State etc. I never have trouble crossing the street or getting where I want to go and find the existing conditions pedestrian friendly. I am confused by the effort to make the streets two ways. It is not only unnecessary, but will be another nail in the coffin for downtown business. |
| 12/30/2015 | Survey Monkey | THIS IS A TERRIBLE IDEA. I do not believe that anyone will be safer as a result of such a plan. The process of conversion will be a nightmare, and the traffic backups that this proposal would create would be utterly horrifying. I feel perfectly safe driving and walking these streets just as they are. PLEASE, DO NOT DO THIS!!! Moreover, this seems a ridiculous use of city money. If you really want to improve safety, start a campaign to remind Baltimoreans that a green light means cars, not people, should start moving through the intersection! |
| 2/24/2015 | Letter | A hearty thanks to the BCDOT for conducting an opinion survey regarding converting St. Paul and Calvert Streets to two-ways. I appreciate the department soliciting as many opinions on the matter |

| | | |
|---|---|---|
| | | as possible. I am one of the 60.9 percent individuals who oppose it strongly oppose the 60.9 percent individuals who oppose or strongly oppose the conversion. I have been a business owner on St. Paul Street since 1989.<br><br>That said I am very much in favor of alternatives way to bring about traffic calming, pedestrian and bike safety without having to convert the streets to two ways.<br><br>I attended the February 29th community meeting held at the Baltimore Montessori School and participated in the charrette for alternative enhancements such as wider sidewalks, curb bum outs, ADA crosswalks at certain intersections, pedestrian signals, etc.<br><br>Following are the questions I posed at the meeting for your files:<br>1. Since 60.9% of the respondents oppose or strongly oppose converting St. Paul and Calvert 2- Ways does this end you study efforts? What are the next steps?<br>2. Who will pay for the conversion of the two streets? I am strongly opposed to being taxed on an effort that I so vehemently oppose in the first place.<br>3. How long will such a massive effort take it were to be approved? I don't think it will happen in my lifetime.<br>4. In order to create a more balanced north-south transportation system does the city have to change St. Paul and Calvert 2 ways? Are there alternative methods to achieve this balance by keeping the two major thoroughfares one way?<br>5. How would converting St. Paul/ Calvert to two ways increase property value as some think?<br>6. Have there been any studies done to show whether converting a 3.1 mile one way street to two ways may have the opposite affect by causing more fatalities?<br>7. Why are we engaging in this project? Most people oppose the effort? |
| 03/13/2015 | Email | I would like to voice a strong "No Vote: to the idea of changing these streets to two ways. The streets are too narrow and not conducive to two way travel due to traffic volume, commercial delivery traffic, parking, and the commercial and residential community that reside on those streets would be severely inconvenienced not to mention a safety hazard. |
| 4/14/2015 | Survey Monkey | Expensive enhancements will not be necessary if there is less traffic, and traffic is moving more slowly. Do not want to see Dedicated bus or turn lanes anywhere. Eliminate any remaining peak-hour restrictions. Some small daytime-hour loading zones are worth studying in commercial blocks. Would not like to see more bicycle facilities. Guilford Avenue and Maryland/Cathedral are being programmed for bikes. |

| | | |
|---|---|---|
| 4/20/2015 | Survey Monkey | I would like to see a brick and bordered pedestrian crossing on 31st St. at Saint Paul going from the Northeast corner of the intersection of Saint Paul and 31st St. to the Southeast corner. That is, from the corner where Donna's restaurant is located to the opposite corner of 31st St. A brick and bordered pedestrian crossing like the one that goes across Saint Paul at 31st St. from the Northeast corner to the Northwest corner. |
| 4/21/2015 | Survey Monkey | 33rd and St. Paul is a very dangerous intersection. The drivers coming west on 33rd face a lane changes that suddenly require them to be in a turn only lane, then immediately change to the other lane. The traffic flow there invites sudden lane changes. The fact that people may go north on St. Paul via the carriage lane, adds to the confusion and creates the potential for an accident. Many drivers making the left turn from 33rd on to St. Paul ignore the pedestrian right-of- way and come close to hitting pedestrians. This is not helped by the oblivious students who cross here in droves. The lanes on Calvert are quite narrow as they are. People are frequently double-parked in the travel lanes, and this can cause hazardous situations as people switch lanes to avoid them. I don't know where you could carve out more parking without reducing the traffic flow. |
| 11/10/2015 | Survey Monkey | Would like to see pedestrian enhancements in as many intersections between North Ave and 33rd St as possible under the budget you have. No sharrows - speed and volume are too high for them. Bike lanes should be buffered (or made as cycle tracks) if they are used. |
| 11/10/2015 | Survey Monkey | Pedestrian enhancements should occur wherever possible. |
| 11/10/2015 | Survey Monkey | Would like to see pedestrian enhancement throughout corridor. I'd love to be able to use my bike anywhere on here but as it stands I would die. If it’s the same protected type used in DC it would work wonders. I would use that every day. It’s frustrating as a driver to come into an area and the lanes change to dedicated ones for turning so I have to move over and back multiple times. While I believe this works well on paper please take a look at how many vehicles have to modify their course when navigating south on St Paul currently. I'd love to have a throughway down into the city with minimal modification to my course. Less parking please. I do not have a need to park anywhere on these roads. The entire road would be better suited for me as a bike/bus/pedestrian lane. Please more safety related bike dedicated areas. |
| 11/10/2015 | Survey Monkey | Keep Saint Paul one way going south, but make half the street a dedicated bus lane. This would fit in well with the new MTA City link plan. Make Calvert Street two ways with a dedicated cycle track. I would like to see a buffered two way cycle track on all of Calvert Street. Get rid of the Saint Paul one-way bike lane or significantly redesign it. As is, the Saint Paul cycle track is so dangerous. It is so close to the parked cars to the right that cyclists are constantly in danger of being doored. You could get rid of it, build up cycling infrastructure on Calvert. With a Calvert cycletrack and the |

| | | |
|---|---|---|
| | | already planned Maryland Avenue cycletrack you'd have a nice balance on the east and west sides of the Charles Street corridor area. |
| 11/10/2015 | Survey Monkey | Would like to see pedestrian enhancement everywhere. The multi-lane one-way streets have to go. Without more specific proposed re-arrangements, it's hard to know where to begin. Would like to see bike facilities everywhere. |
| 11/10/2015 | Survey Monkey | Would like to see pedestrian enhancements anywhere and everywhere possible. I strongly support dedicated bus lanes on both streets. Would like to see bike facilities everywhere. |
| 11/10/2015 | Survey Monkey | For my neighborhood (Waverly south of 33rd Street), the most important crossings are at 32nd and 31st Streets. Residents of my neighborhood use these streets to reach the Charles Village commercial district and Johns Hopkins Homewood. Reduced crossing distances would be helpful at these intersections. Pedestrian enhancements would also be helpful at the JFX overpasses, where the environment is not currently very friendly to people. Especially on Calvert Street, vehicle speeds exceed 40 MPH on the JFX overpass. I would like to see buses travel in both directions on a two-way Charles Street. The Hogan administration may include some kind of Charles Street transit way in its Baltimore Link plan.<br><br>In general I would prefer not to have dedicated turning lanes because the extra vehicle lane would need to be right up against the sidewalk, reducing the walkability of the street. I prefer turn restrictions.<br><br>There should be no peak-hour parking restrictions on city streets. Parking restrictions are put in place with the reasoning that more car commuters are more likely to travel during these times and so they need accommodations, but this reasoning ignores that walking and bicycling commuters also are more likely to travel during these times as well. The parking restrictions benefit driving commuters at the expense of walking and bicycling commuters.<br><br>The two locations inside the study area where I have observed double-parking most frequently are the Horizon House apartments at 1101 N Calvert and Margaret Brent Elementary School at St. Paul & 26th. It would be helpful in a two-way street design to have curbside space reserved in these locations for deliveries and drop-offs.<br>While it would be fantastic to have dedicated bicycle facilities on St. Paul and Calvert in two-way configurations, I don't believe that would be possible without eliminating on-street vehicle parking on one side of the street. I don't see eliminating all that parking as politically feasible. I'd rather have the two-way streets than one-way with bike facilities. The cycle track on Maryland Avenue is of course essential in making a two-way plan work. |
| 11/10/2015 | Survey Monkey | Over the past five years, there has been an increase in street parking, which is good for those who need the parking and for the City (meter revenue), but for the commuter it has created more traffic jams. For |

| | | |
|---|---|---|
| | | example, parking on St. Paul south of Mt. Royal - the right hand lane used to be wide open in the morning, and parking on Center Street - the left hand lane used to be wide open in the evening. Now there are bottle necks.<br><br><br>On a different / unrelated topic. it would be helpful to have someone temporarily directing traffic on Center Street near<br>Calvert where the current street work is going on to keep things moving |
| 11/10/2015 | Survey Monkey | There is no place on Calvert or Saint Paul you can fit a buffer or curb bump out and still have room for parking. Many houses and apartment buildings on those streets do not have parking pads in the back, so the space must be reserved for parking first or residents will move out because they've lost all their parking!<br><br>It would be nice to pretty up the existing medians/parking areas on St. Paul between 33rd and 31st as long as they don't take up any more space.<br><br>It would be great to have pedestrian safety things on St. Paul near the entrance to Penn Station, but with the bus stops and taxis on the one side and the entrance to the Parcel Post building on the other, there's no place to put it without causing dangerous traffic jams (especially if you made it two way down there!).<br><br>Do not want to see travel lane modifications because dedicated lanes remove parking spaces.<br><br>Unless this proposal includes a giant parking garage that provides FREE parking for all residents of Charles Village and Station North, all of this is infeasible. Remember oftentimes residents Charles, St. Paul, and Calvert are not allowed to buy street parking permits (for example, area 37) so they only have a choice of parking on those streets and cannot use the side streets. If you take away their parking you're creating a terrible situation.<br><br>If you could magically widen St. Paul Street without destroying anything, including parking spaces, then a dedicated bus lane along that for the Circulator would be a good idea, but it's impossible without destroying parking.<br><br>Would like to see more on street parking everywhere, on both sides of each street, unpermitted and for free except in front of commercial. Public areas where it makes sense to have meters. You can't have parking around Penn Station of course, but everywhere else. The current meter rates and hours are fair.<br>Do not want to see parking spaces repurposed for anything! |

| | | |
|---|---|---|
| | | I'd move the existing bike lanes on St. Paul Street to immediately adjacent to the sidewalk, with car parking next to it. So if you're standing on St. Paul Street facing south, you'd see on your right a sidewalk, then turning your gaze leftward<br>you see a bike lane, then parked cars, then the two travel lanes, and then the other parking lane, then finally the other sidewalk.<br><br>This way bicyclists have a buffer between them and traffic and are less likely to get car doored by drivers who can't see them coming after they park |
| 11/10/2015 | Survey Monkey | Wherever possible. Pedestrian improvements at 33rd/Calvert and University/Calvert are needed. NBL traffic at University and Calvert ignores pedestrian right of way. The double left turn is high speed and difficult to cross. Would like to see travel lane modifications wherever possible. Managing travel speeds should be the goal. Signal timing is important to accomplish this. Would like to see bicycle facilities wherever possible. Separation from traffic would encourage me to bike. |
| 11/10/2015 | Survey Monkey | Would like to see pedestrian enhancements on 25th & 23rd Streets. Travel lane modifications should be at the discretion of (pedestrian safety forward) engineers. Keep all hours of street parking, parking restrictions encourage reckless driving. Separating the St. Paul lane would be wise, it appears to be dangerous |
| 11/10/2015 | Survey Monkey | Reduced speeds -- this would be the single biggest pedestrian enhancement.<br>Better crossing accommodations at non-signalized intersections -- crossing at these intersections is the worst in the neighborhood-- especially for school children.<br>Curb bump outs -- could both increase sight lines at intersections and reduce crossing distances. If done, should be done cheaply with flexible delineators.<br>Pedestrian refuge -- these are unnecessary and expensive with only two travel lines.<br>This is applicable along the full length of St. Paul and Calvert.<br>St. Paul and Calvert Streets. for at least the whole distance north of Penn Station should be two way. Traffic interested in going at high speeds should use the I-83.More free parking is unnecessary.<br>The 'third lane' on St. Paul during rush hour should be kept as full time parking. It should be repurposed only where it can make commercial strips more vibrant. The studies for the Maryland Ave. cycle track and the existing Guilford Ave. bike boulevard should be enough. Making St. Paul and Calvert slower and safer for pedestrians will also benefit cyclists (especially on the existing St. Paul bike lane). |
| 11/11/2015 | Survey Monkey | Would like to see pedestrian enhancement anywhere possible. Particularly near north Ave and university, where being a pedestrian is dangerous. No dedicated turning lanes - it prioritized cars over other |

| | | |
|---|---|---|
| | | modes. Particularly right turn lanes - cars will just turn right without slowing. Reduce speeds! Current street parking levels are ok.<br>Not sure. Parking is needed, but not a "right". Sharrows plus traffic calming, or dedicated bike lanes - everywhere. |
| 11/11/2015 | Survey Monkey | I think that near the median around Saratoga St. by Mercy hospital could use some more pedestrian features. I'm from this city, walk around a lot and I've never even dared to walk across to it. Fayette St also strikes.<br>Two way everywhere! Also on Pratt, Lombard, Baltimore, Fayette, Mulberry, Franklin, Saratoga, Centre, Madison, Preston, Chase, Biddle, and Eager if we're counting streets that intersect! Then get to Paca, Eutaw, Charles, and Guilford.<br><br>I don't care about parking, so long as lanes aren't removed for more moving traffic. If you take away a lane for a bike lane or enhanced sidewalks, that's a great idea.<br><br>I always want more buffered bike lanes, but it seems as if they'd simply parallel the upcoming Maryland Avenue cycle track and so be redundant. However, I believe that ends at Wyman Park so to the north would be crucial. In addition, east west bike lanes at North Avenue and Fayette or Orleans/Mulberry/Franklin would be huge. |
| 11/12/2015 | Survey Monkey | I would be okay with pedestrian enhancement anywhere. I would like to see dedicated turn lanes at 25th, 28th, and 29th. I would like to see two-way streets for the entire study area. I would love to see cycle track in the whole of the study area. |
| 11/12/2015 | Survey Monkey | The major problem for pedestrians along Calvert and St. Paul is not architectural, but social. Far and away the most useful pedestrian enhancement would be constant police patrol between 27th Street and Penn Station. I think Baltimore is mostly unsuitable for bicycles. A majority of local residents insists upon curbside parking for automobiles, and most Baltimore streets do not have sufficient width to accommodate both curbside parking and a dedicated bicycle path. |
| 11/12/2015 | Survey Monkey | The primary use of these streets is for thru traffic. This is not new. Homeowners and residents on these roads bought/moved in knowing this. Indulging their newfound need to make these streets effectively un-passable for thru traffic is an indulgence that makes the living for the rest of us more difficult. I ride a bike to work many days (Guilford to Little Italy). Guilford Avenue is already available for biking. The street has little vehicular traffic and works very well. Every street does not need to be bike friendly. Bikers are more than capable of figuring out the most efficient and safe routes. |
| 11/13/2015 | Survey Monkey | Street parking does not need modification. I would start with returning the streets to two way traffic, then see if anything else is needed. I think it would be fine with just the two way traffic change. Maybe make some intersections that now have traffic lights four way stop signs. |

| | | |
|---|---|---|
| 11/13/2015 | Survey Monkey | I support all pedestrian enhancements. I disagree with dedicated bus lanes - I don't want to lose parking. I'm not interested in dedicated car turn lanes as it makes the road more dangerous for pedestrians. Charles Village (20th Street to University Parkway) does not have parking restrictions. I would like to maintain parking and not lose parking for rush hour. It is not our purpose as residents to provide a highway for suburban commuters. They should be traveling on the JFX. I don't want to lose any parking. We are forced to own cars because the public transportation in Baltimore is inefficient and poor. I also don't want to lose parking for my business clients. Bike lanes are fine as long as we don't lose parking. |

# APPENDIX I

# STEERING COMMITTEE MEMBERS

| Name | Organization |
|---|---|
| Alex Hoffman | BCDOT-Planning |
| Anna Perry | Baltimore City Department of Health |
| Ashley Wallace | Central Baltimore Partnership |
| Caitlyn Doolin | BCDOT-Transit |
| Caroline Peri | Downtown Partnership of Baltimore |
| Celeste Chavis | Resident |
| Charles Baker | BCDOT-Traffic |
| Charles Duff | Jubilee Baltimore |
| Chris Muldor | Resident |
| Chris Muldor | Resident |
| Gary Letterson | HNA |
| Grishae Black | BCDOT-Liason |
| Heather Martin | BCDOT-Planning |
| Jennifer Erickson | Resident |
| Jennifer Mielke | John Hopkins University |
| Joe Kosloski | Southern Management/ Mt. Vernon Resident/ Business |
| Justin Lane | City Council Staff |
| Katey Mote | Baltimore City Department of Health |
| Katherine Good | Resident |
| Keisha Pollack | JHSPH/BCDOH |
| Klaus Philipsen | Mt. Vernon |
| Krycia Cowling | Baltimore City Department of Health |
| Lane Decker | Mount Vernon Belvedere Association |
| Leon Pinkett | Mayor's Office |
| Linda Taylor-Newton | BCDOT-Planning |
| Maria I. Garcia | Central Baltimore Partnership |
| Matthew Newcomer | Resident |
| Mitch Herbert | Medstar Health |
| Nan Rohrer | Downtown Partnership of Baltimore |
| Nikia Mack | BCDOT-Liason |
| Robert Ferguson | BCDOT-Traffic |
| Sandra Matier | BCDOT-Liason |
| Sandra Sparks | Charles Village Civic Association, President |
| Sandy Harley | Sahara Communications |
| Serena Liu | BCDOT-Traffic |
| Steven Shen | Mount Vernon Belvedere Association |
| Valorie LaCour | BCDOT-Planning |
| Vanessa Purnell | Medstar Health |