

FINAL DRAFT REPORT

HARRISBURG DOWNTOWN CIRCULATION STUDY

July 26, 2023



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Final Draft Report

Harrisburg Downtown Circulation Study

Prepared for:
Tri-County Regional Planning Commission
112 Market Street, 2nd Floor
Harrisburg, PA 17101

Prepared by:
Kittelsohn & Associates, Inc.
409 North 2nd Street, Suite 201
Harrisburg, PA 17101
717.481.3465

Project Manager:
Laura Ahranjian
Associate Planner

Project Principal:
Andrew Duerr, PE
Senior Principal Engineer

Kittelsohn PN 25931

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CONTENTS

Introduction	1
Study Purpose	1
Study Area	1
Existing Conditions	5
Roadway characteristics.....	5
Traffic Data	5
Crash Analysis.....	5
Existing Conditions Analysis	9
Synchro Model Development.....	9
Traffic Operations Analysis.....	9
Travel Demand Model.....	12
Growth Rate Validation.....	13
Alternative Analysis	16
No-Build Alternative	19
Alternative 1- Market Street Two-way Conversion (2 EB Lanes, 1 WB Lane)	22
Alternative 2- Market Street Two-way Conversion (2EB Lanes, 1 WB Lane) w/ Bridge Reconfiguration	25
Alternative 3- Market Street Two-way Conversion (1 EB Lane, 1 WB Lane, 1 TWLTL) w/ Bridge Reconfiguration.....	28
Alternative Analysis Summary	32

APPENDICES

Appendix A- Existing Turning Movement Count Volumes
Appendix B-Crash Data
Appendix C- Capacity and Queue Analysis-Existing Conditions
Appendix D- Future Volumes
Appendix E- Capacity and Queue Analysis-No-Build
Appendix F- Travel Time Analysis-No-Build
Appendix G- Capacity and Queue Analysis-Alternative 1
Appendix H- Travel Time Analysis-Alternative 1
Appendix I- Capacity and Queue Analysis-Alternative 2
Appendix J- Travel Time Analysis-Alternative 2
Appendix K- Capacity and Queue Analysis-Alternative 3
Appendix L- Travel Time Analysis-Alternative 3

LIST OF FIGURES

Figure 1: Project Study Area.....	2
Figure 2: Study Area Crash Summary Statistics (2018-2022)	7
Figure 3: AM Peak Hour 9 th Percentile Queue Lengths	12
Figure 4: PM Peak Hour 9 th Percentile Queue Lengths.....	12
Figure 5: No-Build	17
Figure 6: Alternative 1	17
Figure 7: Alternative 2.....	18
Figure 8: Alternative 3.....	18
Figure 9: No-Build AM Queue Lengths	20
Figure 10: No-Build PM Queue Lengths.....	20
Figure 11: Alternative 1 AM Queue Lengths.....	23
Figure 12: Alternative 1 PM Queue Lengths	24
Figure 13: Alternative 2 AM Queue Lengths.....	26
Figure 14: Alternative 2 PM Queue Lengths	27
Figure 15: Alternative 3 AM Queue Lengths.....	29
Figure 16: Alternative 3 PM Queue Lengths	29

LIST OF TABLES

Table 1. Level-of-Service Definitions (Signalized Intersections)	10
Table 2. Level-of-Service Criteria for Signalized Intersections.....	10
Table 3: Existing Delay, Level of Service (LOS), Volume to Capacity (V/C) Ratios Summary (2023).....	11
Table 4. Land Use Comparison within Study Area.....	14
Table 5: Summary of Alternatives.....	16
Table 6: No-Build Delay and Level of Service (LOS) Summary (2045).....	19
Table 7: Alternative 1 Delay and Level of Service (LOS) Summary (2045)	22
Table 8: Alternative 2 Delay and Level of Service (LOS) Summary (2045)	25
Table 9: Alternative 3 Delay and Level of Service (LOS) Summary (2045)	28
Table 10: Alternative LOS and Delay Comparison- Design Year 2045	33
Table 11: Alternative Market Street Intersections 95 th Percentile Queue Comparison- Design Year 2045	35

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Section 1

Introduction

INTRODUCTION

STUDY PURPOSE

Tri-County Regional Planning Commission (TCRPC) initiated the Harrisburg Downtown Circulation Study on behalf of the Harrisburg Area Transportation Study (HATS) to review vehicular and multimodal operations along Market Street between the Lemoyne Bottleneck on the West Shore and Cameron Street in downtown Harrisburg. The study investigates the potential to make the following changes to the roadway network within the study area:

1. Convert the one-way portion of Market Street (2nd Street to 5th Street) to two-way operations;
2. Optimize lane configurations on Market Street across the Market Street Bridge and from 5th Street to Cameron Street to match current and future traffic volumes for all modes;
3. Investigate potential impacts on the parallel street network (i.e., Walnut and Chestnut Streets) in the City of Harrisburg; and
4. The effect on transit access through downtown Harrisburg and the West Shore once the Susquehanna Regional Transportation Authority (SRTA) transfer center is relocated further east.

STUDY AREA

The study area is located within the City of Harrisburg in Dauphin County, Pennsylvania, encompassing the following intersections (**Figure 1**):

1. Market Street/South Front Street (West of Susquehanna River)
2. Market Street Bridge/City Island Ramps
3. Market Street/North Front Street/South Front Street
4. Market Street/North 2nd Street/South 2nd Street
5. Market Street/North 3rd Street/South 3rd Street
6. Market Street/North 4th Street/South 4th Street
7. Market Street/Aberdeen Street
8. Market Street/North 5th Street/Bus Terminal Driveway
9. Market Street/North 10th Street/South 10th Street
10. Market Street/North Cameron Street/South Cameron Street
11. Walnut Street/North Front Street
12. Walnut Street/North 2nd Street
13. Walnut Street/North 3rd Street
14. Walnut Street/North 4th Street
15. Walnut Street/Aberdeen Street
16. Walnut Street/ North 5th Street
17. Chestnut Street/South Front Street
18. Chestnut Street/South 2nd Street
19. Chestnut Street/South 3rd Street
20. Chestnut Street/Amtrak Parking Lot/South 4th Street/Mulberry Street

While maintaining or improving transit system efficiency with the pending move of the transit system's transfer center was the genesis behind the study, maintaining or improving downtown traffic options and flow, potential parking enhancements, potential safety improvement, and having a consistent traffic pattern throughout the entire corridor were also identified as project needs.

Additionally, it is important that the Market Street corridor, on both the east and west shores, be reflective of the urban context of Harrisburg, Lemoyne, Wormleysburg, and Camp Hill, providing consistent lane configurations to encourage consistent, urban speeds and improve safety for the vulnerable road users typically found in such environments.

Figure 1: Project Study Area



RELEVANT FUTURE PROJECTS IN THE STUDY AREA

There are several future projects in various stages of development that would affect the study area and potentially the recommendations Kittelson will conclude from this study. Projects that TCRPC and Kittelson are aware of and reviewed are as follows:

- Lemoyne Bottleneck
 - **Location:** Market Street from 3rd Street to Front Street/Market Street Bridge on the West Shore
 - **Implementer:** PennDOT District 8-0
 - **Scope:** Preliminary and final design for a roadway reconstruction project
 - **Purpose:** Improve safety for all users and provide multimodal facilities on a corridor with heavily constrained right-of-way (ROW)
 - **Potential Changes:** reduce eastbound travel lanes to one lane, signal optimization and emergency vehicle pre-emption, free-flow right-turn lane at Market/Front Street into Harrisburg
 - **Potential Study Area Impacts:** Front Street/Market Street intersection operations on the West Shore
 - **Status:** Alternatives Analysis
- Market Street Bridge
 - **Location:** Market Street Bridge, from Front Street on the West Shore to Front Street on the East Shore
 - **Implementer:** PennDOT
 - **Scope:** Preliminary and final design for a bridge improvement project
 - **Purpose:** Rehabilitate bridge structures and improve connectivity for all road users
 - **Potential Changes:** alternatives are currently being examined
 - **Potential Study Area Impacts:** this study is examining the 3-lane section for the Market Street bridge as a potential option for the Market Street Bridge project
 - **Status:** Preliminary engineering and environmental studies
- SRTA Transfer Center Relocation
 - **Location:** Market Street/2nd Street, TBD
 - **Implementer:** PennDOT/Rabbit Transit
 - **Scope:** Preliminary and final design for relocation of transfer center

- **Purpose:** Improve operations for transfer center and provide room for multiple buses
- **Potential Changes:** Relocate transfer center from its current Market Street/ 2nd Street location further east.
- **Potential Study Area Impacts:** Market Street/2nd Street signal volumes, bus volume redistribution along Market Street, need for two-way roadway throughout Market Street
- **Status:** Site selection, concept design
- Harrisburg Bus Stop Optimization Project
 - **Location:** Derry Street from South 13th to South 29th Street, Market Street from the Market Square Transfer Center to Hale Avenue, Herr Street from Cameron to Poplar Street, 3rd Street from PA higher Education Assistance Agency to Boas Street, 6th Street from Division to Boas Street, 7th Street from Shamokin to Chestnut Street
 - **Implementer:** City of Harrisburg/Rabbit Transit
 - **Scope:** Optimization plan
 - **Purpose:** Improve operations for transit in the City of Harrisburg
 - **Potential Changes:**
 - Bus stops at Market Street/3rd Street and at Market Street/10th Street will be upgraded
 - Bus Stop at Market Street/Cameron Street will be eliminated
 - Modernizations of signs and stations, alignment improvements, and application of embedded technologies at transit stations
 - Addition of transit signal prioritization for signals along Walnut Street and Market Street
 - Coordination of signals at Market Street/5th Street
 - **Potential Study Area Impacts:** additional signal coordination at Market Street/5th Street, addition of transit signal prioritization along Walnut Street and Market Street
 - **Status:** post study, pre-implementation
- Cameron Street Resurfacing Project
 - **Location:** Cameron Street from Elmerton Avenue to Berryhill Street
 - **Implementer:** PennDOT District 8-0
 - **Scope:** Resurfacing, signal upgrades, ADA updates
 - **Purpose:** Improve roadway condition for Cameron Street and signals along the corridor.
 - **Changes:** Updated signal heads, lane assignments, signage, new curb ramps.
 - **Study Area Impacts:** Market Street/Cameron Street signal timings will be updated, along with signal heads and lane assignments for eastbound leg (going from left-thru and thru-right lanes to left turn lane and thru-right lane)
 - **Status:** Pre-construction (post-award)



Section 2 Existing Conditions

EXISTING CONDITIONS

ROADWAY CHARACTERISTICS

Market Street is a two-way, 4-lane roadway across the Market Street Bridge, which traverses City Island. At 2nd Street, Market Street changes to one-way eastbound with three lanes until 5th Street where it reverts back to a two-way, 4-lane roadway. The posted speed limit throughout the study area is 25 miles per hour (mph), with the exception of the Market Street bridge which is currently posted at 40 mph and Cameron Street which is posted at 35 mph. Walnut, Market, 2nd, 3rd, 4th, and Front Streets are all classified as other principal arterials. Aberdeen and 5th Streets are classified as major collectors, and Chestnut Street is classified as a minor arterial.

Land use in the study area consists of mostly business, restaurants, with some apartment buildings and other residential spaces. Large government buildings including the police department, Pennsylvania Department of Conservation and Natural Resources, and the Dauphin County Courthouse. UPMC Harrisburg Hospital is also located in the study area. Large parking garages are also present, along with the Market Square Transfer Center and Harrisburg Transportation Center (Amtrak and Greyhound buses). The roadway network is traversed by many different road users including, vehicles, buses, pedestrians, bicyclists, and trucks.

Multiple SRTA bus routes serve the Market Street corridor, including but not limited to Route 1- Market Street, Route 2—ROC/Capital Complex Shuttle, Route 6/13—Sixth Street/Thirteenth Street, Route D—Erford Road/Capital City Mall. Routes serving the study area currently utilize the Market Square Transfer Center at 2nd and Market Streets.

TRAFFIC DATA

Turning Movement Counts

Peak hour turning movement counts (TMCs) were conducted at the 20 study intersections using cameras. The TMCs included vehicular volume, truck volume, pedestrian volume, and bicyclist volumes. These counts were collected on Wednesday, April 26th, 2023, and were used to establish peak hour turning movement volumes for the existing conditions. The TMCs were then balanced as needed and used to establish the base year traffic volumes (**Appendix A**).

CRASH ANALYSIS

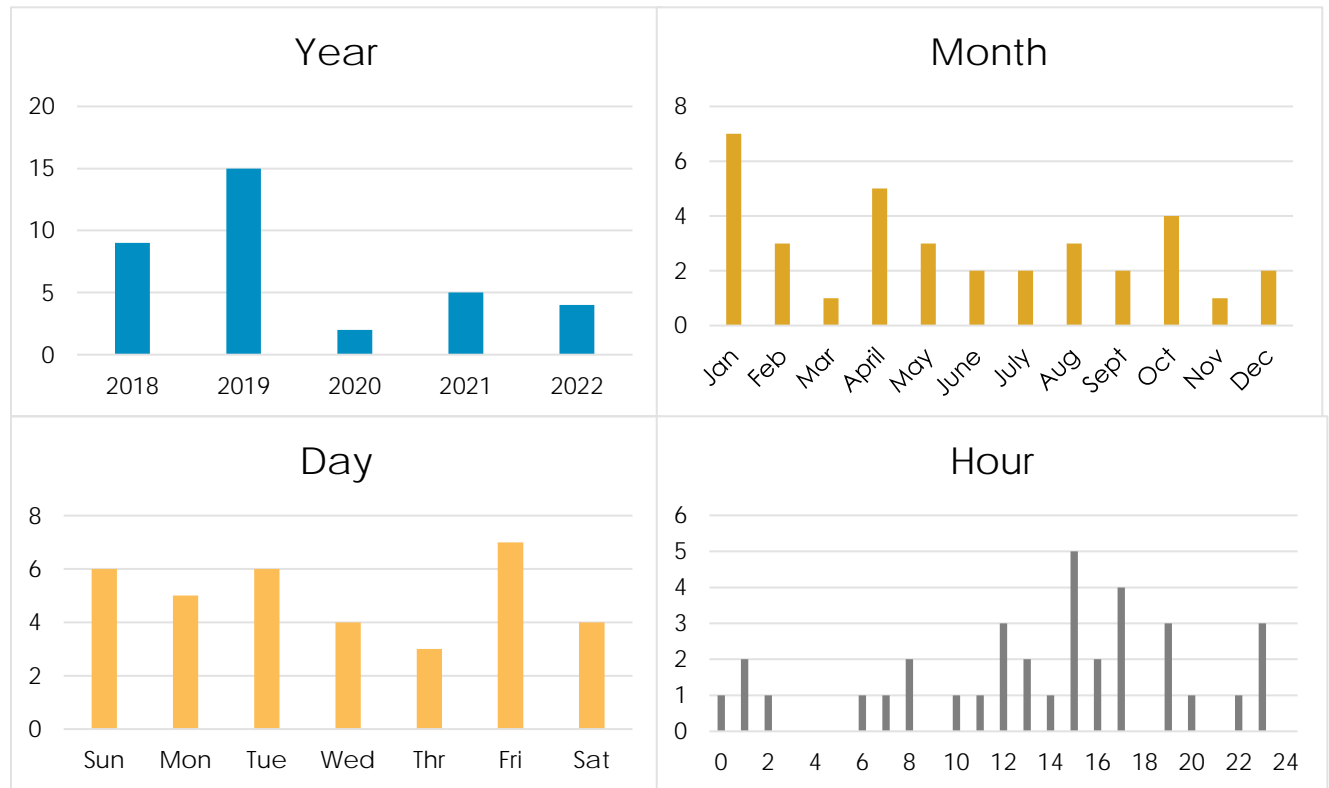
Crash data along SR 1010 in the study area was obtained from PennDOT's Pennsylvania Crash Information Tool (PCIT) for a five-year period from January 1, 2018, through December 31, 2022. Based on the PCIT data, there were a total of 35 reportable crashes within the study area during this time (**Appendix B**). Reportable crashes are those that result in an injury of fatality, or where a vehicle is required to be towed from the scene. Non-reportable crashes are not included in the PCIT database; therefore, it is possible that more crashes occurred along the corridor during the study period than are included in the data and the analysis. A summary of key stats can be found in **Figure 2**.

There were 4 reported pedestrian or bicycle crashes in the study area between January 1, 2018 and December 31, 2022, as summarized below:

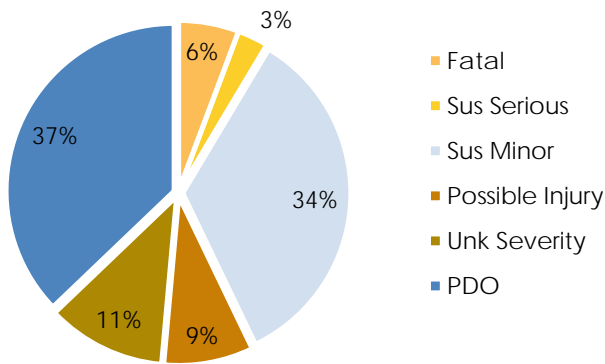
- One crash at the intersection of 5th and Walnut Street where, a vehicle was turning left on red and struck the pedestrian.

- One fatal crash at 3rd and Chestnut Street which was caused by the driver running the red light and striking the crossing pedestrian.
- One minor injury crash on Chestnut Street where an eastbound vehicle struck a crossing pedestrian.
- One fatal crash involving a pedestrian being struck by a bus adjacent to the Market Street transfer center.

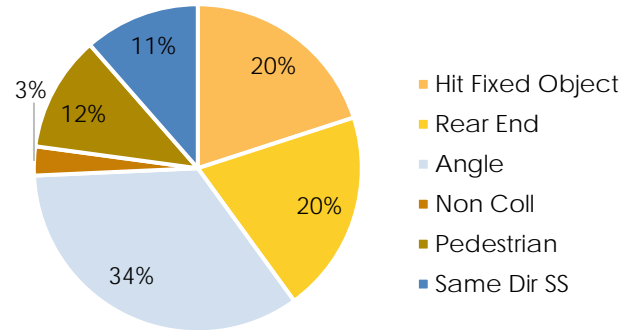
Figure 2: Study Area Crash Summary Statistics (2018-2022)



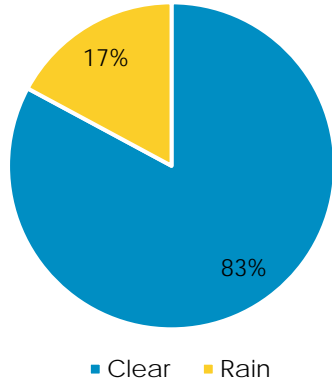
Severity Level



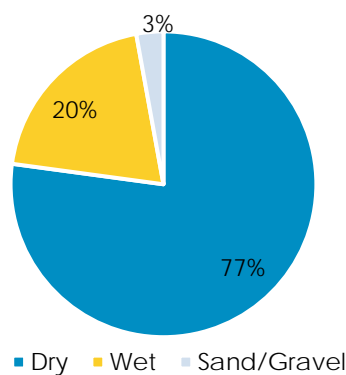
Collision Type



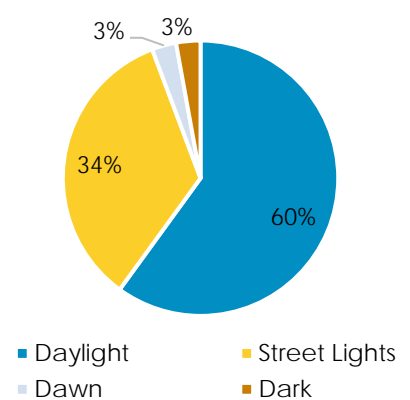
Weather



Road Condition



Illumination





Section 3 Existing Conditions Analysis

EXISTING CONDITIONS ANALYSIS

Using the data collected throughout the study area, a traffic flow and capacity analysis was completed to establish Base Year 2023 conditions. The study area was modeled using Synchro 11 software to replicate current conditions and was then calibrated for the a.m. and p.m. peak hours. Levels of Service (LOS) for the study intersections were obtained through the analyses to identify any problem areas and develop the basis for future year comparisons. LOS is a letter grade ranging from A through F with A representing the best operating conditions and F representing the worst. Generally, LOS D or better is considered an acceptable range of operations for urban areas.

The base network of existing conditions was developed in Synchro using the traffic signal permit plans provided by PennDOT coupled with project-specific data collection. A Synchro model was developed for the weekday a.m. and p.m. peak hour traffic scenarios. Additional information such as traffic volumes, traffic demand, and traffic composition used in the analysis was obtained from the turning movement counts.

SYNCHRO MODEL DEVELOPMENT

Synchro was used to analyze all signalized intersections in the study area using Highway Capacity Manual (HCM) methodology. Synchro is a macroscopic capacity analysis and signal optimization computer program. Due to limitations within HCM 6th Edition methodology such as complex controller operations; Synchro was unable to report HCM 2010 LOS. Instead HCM 2000 LOS was reported from Synchro for all intersections.

TRAFFIC OPERATIONS ANALYSIS

Analysis methods outlined in the Highway Capacity Manual (HCM) were used to evaluate existing and Build conditions in the study area. Operational concerns were identified based on the results of the analysis and potential mitigation strategies were developed. Additional details regarding how the analysis was performed are provided in the following sections.

Measures of Effectiveness

Performance measures selected for this project include delay per vehicle, level of service, and queue length. It should be noted that the analysis capabilities of the Synchro software can be limited under oversaturated conditions when queues can extend to adjacent intersections or spill out of the turn lanes. Unlike Synchro, SimTraffic is better able to reflect real-world delays and queuing under oversaturated conditions. Thus, for the queueing analysis, SimTraffic results are summarized from reported 95th percentile queue lengths in feet for each lane. These queue lengths are based on an average of 10 simulation runs. These conditions will be compared with the Build conditions later in this report.

Level-Of-Service Description

Level of service (LOS) is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or roadway segment. Six grades are used to denote the various level of service from LOS "A" to LOS "F". Most of the material in this section is adapted from the Transportation Research Board, Highway Capacity Manual, (2010).

Signalized Intersections

The six level-of-service grades are described qualitatively for signalized intersections in **Table 1**. Additionally, **Table 2** identifies the relationship between level of service and average control delay per vehicle. Control delay is defined to include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Using this definition, Level of Service "D" is generally considered to represent the minimum acceptable design standard.

Table 1. Level-of-Service Definitions (Signalized Intersections)

Level of Service	Average Delay per Vehicle
A	Very low average control delay, less than 10 seconds per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Average control delay is greater than 10 seconds per vehicle and less than or equal to 20 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for a level of service A, causing higher levels of average delay.
C	Average control delay is greater than 20 seconds per vehicle and less than or equal to 35 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Average control delay is greater than 35 seconds per vehicle and less than or equal to 55 seconds per vehicle. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle length, or high volume/capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Average control delay is greater than 55 seconds per vehicle and less than or equal to 80 seconds per vehicle. This is usually considered to be the limit of acceptable delay. These high delay values generally (but not always) indicate poor progression, long cycle lengths, and high volume/capacity ratios. Individual cycle failures are frequent occurrences.
F	Average control delay is in excess of 80 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation. It may also occur at high volume/capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also contribute to such high delay values.

Table 2. Level-of-Service Criteria for Signalized Intersections

Level of Service	Average Control Delay per Vehicle (Seconds)
A	< 10
B	> 10 and 20
C	> 20 and 35
D	> 35 and 55
E	> 55 and 80
F	> 80

Existing Intersection Capacity Analysis

Table 3 shows existing LOS and delay results for intersections within the study area. Analysis reports are included in **Appendix C**. The results indicate that all the study intersections operate at LOS D or better during all time periods.

Table 3: Existing Delay, Level of Service (LOS), Volume to Capacity (V/C) Ratios Summary (2023)

Intersection Information		AM Peak Hour			PM Peak Hour		
Intersection	Traffic Control	LOS	Delay (sec)	V/C	LOS	Delay (sec)	V/C
Market St/Front St (west)	Signalized	B	17.0	0.59	C	23.8	0.73
City Island Ramps	Unsignalized	A	0.2	0.12	A	0.7	0.18
Market St/Front St (east)	Signalized	B	19.8	0.52	B	18.2	0.69
Market St/2 nd St	Signalized	C	24.8	0.71	C	21.4	0.47
Market St/3 rd St	Signalized	B	17.6	0.32	B	15.5	0.28
Market St/4 th St	Signalized	B	18.5	0.33	C	25.0	0.27
Market St/Aberdeen St	Unsignalized	A	1.2	0.08	A	2.3	0.11
Market St/5 th St	Signalized	C	24.8	0.35	C	21.9	0.27
Market St/10 th St	Unsignalized	A	1.3	0.06	A	1.8	0.07
Market St/Cameron St	Signalized	B	17.3	0.55	C	22.9	0.65
Walnut St/Front St	Signalized	B	10.6	0.33	B	14.8	0.56
Walnut St/2 nd St	Signalized	B	12.3	0.37	B	14.6	0.42
Walnut St/3 rd St	Signalized	C	34.0	0.26	C	27.8	0.28
Walnut St/4 th St	Signalized	B	16.7	0.30	B	14.3	0.32
Walnut St/Aberdeen St	Signalized	A	6.7	0.29	C	26.1	0.27
Walnut St/5 th St	Signalized	C	22.1	0.25	B	19.9	0.28
Chestnut St/Front St	Signalized	A	8.4	0.40	B	14.2	0.69
Chestnut St/2 nd St	Signalized	C	23.9	0.66	C	28.3	0.51
Chestnut St/3 rd St	Signalized	B	15.8	0.30	C	25.3	0.25
Chestnut St/4 th St	Signalized	C	24.5	0.38	D	45.3	0.29

Existing Queuing Analysis Results

Figures 3 and **4** summarize the 95th percentile queues in feet for signalized intersections. Analysis reports are included in **Appendix C**. Modeled queue lengths are consistent with what is being observed in the field with traffic entering via 2nd Street after utilizing nearby I-83 during the AM and exiting via Front Street to return to I-83 during the PM. Signal operations are also consistent with what is being observed in the field with no intersections failing even during PM peak conditions.

Figure 3. AM Peak Hour 95th Percentile Queue Lengths



Figure 4. PM Peak Hour 95th Percentile Queue Lengths



TRAVEL DEMAND MODEL

Kittelson applied the South Central Regional Travel Demand Model (SCRM) for 2018 Base Year scenario and 2045 Future Year conditions. The model network was modified for part of the study area between Front Street and 5th Street. The travel demand model roadway network was reviewed for area type, facility type, number of lanes, and study intersection configurations (direction/orientation) within the study area. The network was modified for any observed inconsistencies, and modifications mainly consisted of adjusting the number of lanes and the lane/street configuration to match with the existing conditions observed in the

field and on aerial imagery. The model network was further modified for parts of the study area between Front Street and 5th Street and on the Market St Bridge per the future build alternatives.

Although the model has been calibrated and validated, it is likely the model will not be accurate enough in every location to reliably calculate the level of service directly from model output. The assumption used is the discrepancy between the field count and a base year assignment is likely to be of the same magnitude in the future year. Given this assumption, the future year model volumes were modified by comparing the relative ratios or differences between base year link or turning volumes. Therefore, the adjustments were applied to model results prior to traffic operations analysis.

The primary reference for model traffic volume adjustments is “Analytical Travel Forecasting Approaches for Project-Level Planning and Design” (NCHRP Research Report 765, 2014). While NCHRP 765 could also be used for link volumes, the primary purpose of this analysis focuses on turning movement volumes, which were used to perform detailed intersection operations analysis. It is often possible to create a model that estimates accurate link volumes on a majority of important road segments. However, the difficulty arises to accurately estimate individual turn movements for future years. This is primarily due to the aggregation of land uses into TAZs, which means that the model cannot represent all of the individual paths that motorists use to reach individual parcels and driveways. Therefore, an adjustment process for turn movements, based on observed traffic counts, was used.

One of three adjustment methods presented in NCHRP Report 765 gets implemented to adjust the turn movements. Kittelson have utilized engineering judgment and experience in order to select the appropriate method for each intersection and further development of turn movement volumes for all future alternatives.

Difference Method: The growth increment from the base year model to the forecast year model gets added to the base year traffic count to create the adjusted model forecast. The difference method relies on the model to properly assign traffic growth to the correct turning movement. This could sometimes result in very high forecast turn movements, especially because the model does not account for additional delay at difficult left-turn movements.

Ratio Method: A factoring process, where the observed traffic counts get factored to match the forecast link volumes in and out of each leg of the intersection. This process relies more on the relative changes in model volumes rather than the absolute values of changes. However, application of different ratios at different locations may not maintain continuity of flow between intersections.

Average Method: The average of the forecasts obtained using the Difference Method and the Ratio Method get applied.

Composite Intersection Adjustment Method: This consists of a two-step process. The peak hour link volumes on each leg of the intersection get adjusted using the Difference Method. Then the existing intersection traffic counts iteratively get factored until the total volumes in and out of each leg of the intersection closely match the adjusted forecast link volumes. The most commonly used factoring algorithm, as documented in NCHRP 255, is the Furness method.

The NCHRP Process selects a reasonable future link volume using the above-mentioned composite method to iteratively determine the future year traffic movement counts.

GROWTH RATE VALIDATION

The objective of the travel demand model effort is to appropriately develop the growth rate, which will be applied to the field counts and then used to forecast the future traffic conditions for the study area.

Kittelson reviewed the socioeconomic inputs of the TAZs surrounding Market Street and there is almost no growth in terms of population and employment within the study area. As shown in **Table 4**, the total population decreases approximately 1%; and the total employment only increases 4.1% from year 2018 to

2045 within the study area. This suggests that this study area is well-developed and lacks available land for future growth. Therefore, it is reasonable to expect a relatively stable traffic pattern within the study area.

Table 4. Land Use Comparison within Study Area

	Total Population in Study Area	Total Employment in Study Area
Year 2018	1,162	11,941
Year 2045	1,152	12,425
Difference (%)	-0.9%	4.1%

The annual traffic growth rate for the study corridor and surrounding area were determined from the model results from the base year 2018 and future year 2045. For the study corridor, Market Street, the annual traffic growth rate is 0.286%, which is close to the growth rate used by a recent effort for PennDOT's Lemoyne Bottleneck project (i.e., 0.2%). The annual traffic growth rate for the study area (bounded by S Front, Cameron, Walnut, and Chestnut Streets) is 0.367% and is consistent with the typical annual growth rate used for urban areas across District 8 (i.e., 0.35%). Given the low growth rate and no significant development within this area, applying the relative growth suggested by SCRM between the base year and future year to field counts should result in appropriate future volume forecasts. The corresponding approach is discussed in the Travel Demand Model Next Steps section above. Volumes developed using the travel demand model for the future conditions analysis can be found in **Appendix D**.



Section 4 Future Conditions Analysis

ALTERNATIVE ANALYSIS

3 potential alternatives were analyzed for the future year conditions. Summaries of the alternatives are presented in **Table 5**.

Table 5: Summary of Alternatives

Alternative	Proposed Elements
Alternative 1	<ul style="list-style-type: none"> • Conversion of Market Street from 2nd Street to 5th Street to two-way operations (2 eastbound lanes and 1 westbound lane) • Reduction to 1 westbound lane on Market Street from Front Street to 2nd Street (2 eastbound lanes and 1 westbound lane)
Alternative 2	<ul style="list-style-type: none"> • Conversion of Market Street from 2nd Street to 5th Street to two-way operations (2 eastbound lanes and 1 westbound lane) • Reduction to 1 westbound lane on Market Street from Front Street to 2nd Street (2 eastbound lanes and 1 westbound lane) • Road reconfiguration of the Market Street bridge <ul style="list-style-type: none"> ○ Bikes lanes and sidewalks in each direction ○ From the West Shore to City Island typical section includes two westbound lanes and one eastbound lane ○ From City Island to the East Shore typical section includes one westbound lane and two eastbound lanes ○ Section of bridge on City Island is to be a transition zone with one lane in each direction
Alternative 3	<ul style="list-style-type: none"> • Conversion of Market Street from 2nd Street to 5th Street to two-way operations (1 lane in each direction plus two-way left turn lane and left turn lanes where appropriate) • Reduction to 1 westbound lane on Market Street from Front Street to 2nd Street (2 eastbound lanes and 1 westbound lane) • Road reconfiguration of the Market Street bridge <ul style="list-style-type: none"> ○ Bikes lanes and sidewalks in each direction ○ From the West Shore to City Island typical section including two westbound lanes and one eastbound lane ○ From City Island to the East Shore typical section including one westbound lane and two eastbound lanes ○ Section of bridge on City Island is to be a transition zone with one lane in each direction

All alternatives also account for the following future changes from other projects:

- West Shore Market Street/Front Street intersection lane reconfiguration so NB lane configuration is now one through lane and 1 right-turn lane that has 400' of storage
- Market Street/Cameron Street EB lane configuration updated to a left turn and a thru-right lane
- Market Street from Front Street to 2nd Street updated to 2 eastbound lanes and 1 westbound lane, creating additional on-street parking
- Relocation of Market Street Transfer Center and accompanying updates to the Market Street/2nd Street traffic signal

The no-build alternative includes the future changes at Market Street/Cameron Street, West Shore Market Street/Front Street and Market Street/2nd Street mentioned above. **Figures 5, 6, 7, 8** show the summary of updates that will be made to the network for future analysis.

Figure 5. No-Build

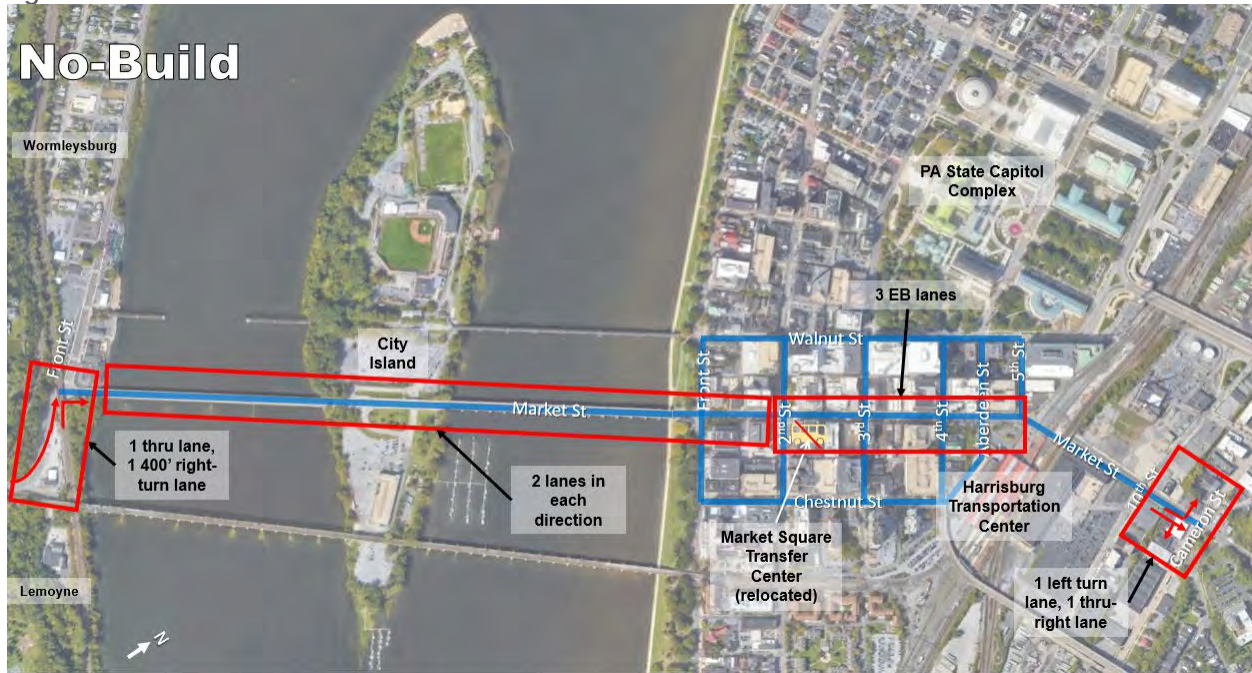


Figure 6. Alternative 1

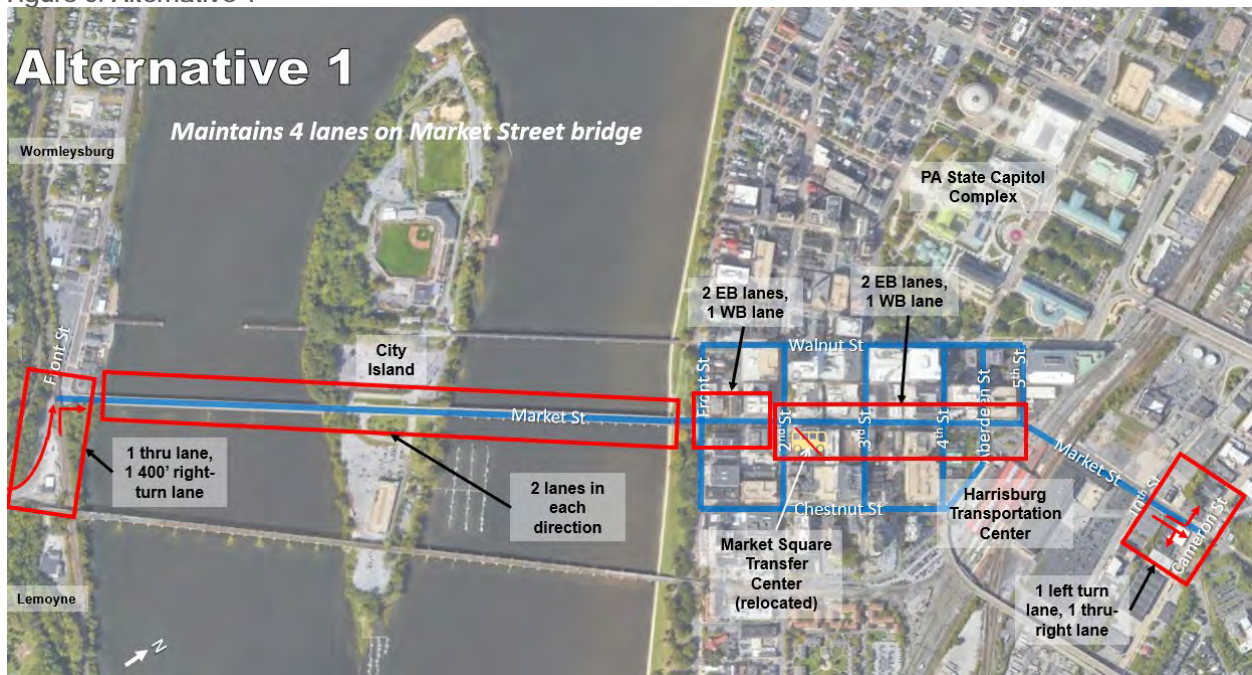
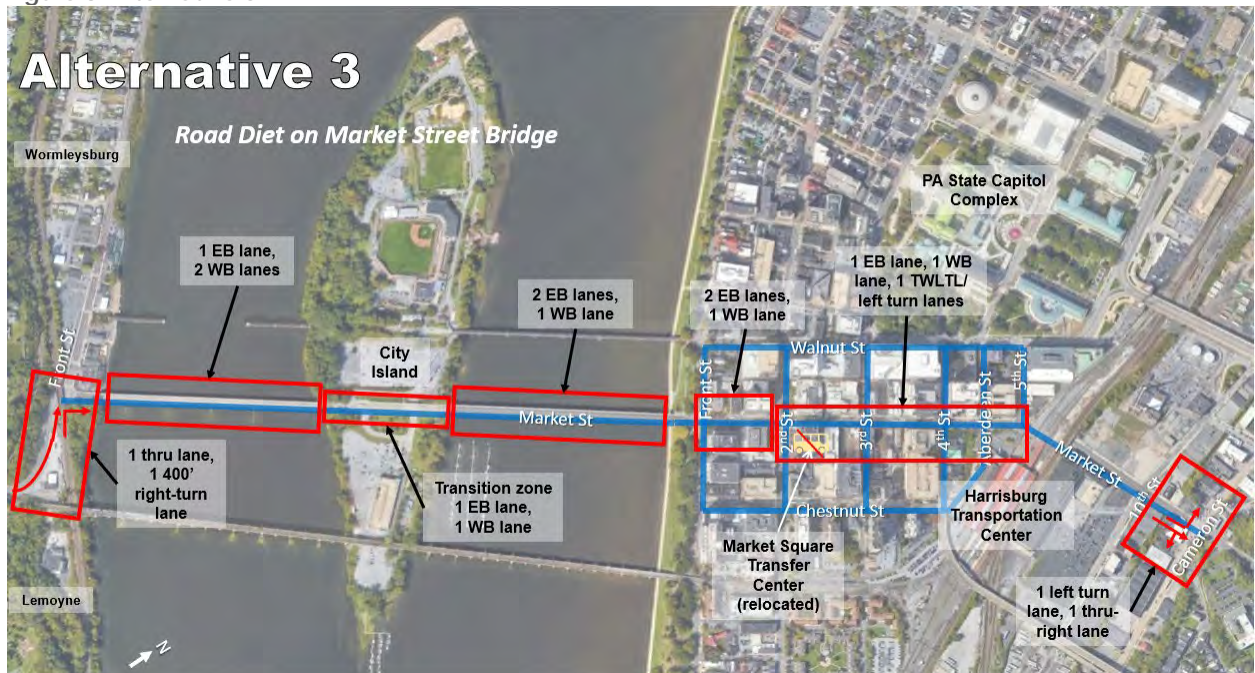


Figure 7. Alternative 2



Figure 8. Alternative 3



NO-BUILD ALTERNATIVE

Intersection Capacity Analysis-2045 Design Year

Table 6 shows projected overall intersection LOS and delay results for intersections within the study area under year 2045 no-build conditions. Analysis reports are included in **Appendix E**.

The following individual movements are forecasted to operate at LOS E or F in the no-build condition (**Appendix E**):

- Market Street at 5th Street northbound left/through/right movement is forecast to operate at LOS E during the p.m. peak hour.

Although the individual movements noted above are operating at unacceptable LOS, no overall intersection LOS is anticipated to result in unacceptable overall intersection LOS (E or F), which is the more important metric (**Table 6**).

Table 6: No-Build Delay and Level of Service (LOS) Summary (2045)

Intersection Information		AM Peak Hour			PM Peak Hour		
Intersection	Traffic Control	LOS	Delay (sec)	V/C	LOS	Delay (sec)	V/C
Market St/Front St (west)	Signalized	B	16.4	0.65	C	34.0	0.87
City Island Ramps	Unsignalized	A	0.1	0.13	A	0.5	0.22
Market St/Front St (east)	Signalized	B	15.2	0.64	B	18.2	0.69
Market St/2 nd St	Signalized	B	16.4	0.69	C	27.7	0.35
Market St/3 rd St	Signalized	B	17.0	0.35	B	11.2	0.44
Market St/4 th St	Signalized	B	13.3	0.38	C	25.0	0.27
Market St/Aberdeen St	Unsignalized	A	2.1	0.11	A	6.3	0.17
Market St/5 th St	Signalized	C	25.3	0.37	C	20.3	0.30
Market St/10 th St	Unsignalized	A	1.2	0.06	A	1.5	0.08
Market St/Cameron St	Signalized	B	17.8	0.91	C	22.0	0.94
Walnut St/Front St	Signalized	B	11.2	0.39	B	15.2	0.64
Walnut St/2 nd St	Signalized	C	21.1	0.40	C	23.0	0.48
Walnut St/3 rd St	Signalized	B	13.1	0.25	B	15.6	0.36
Walnut St/4 th St	Signalized	B	15.4	0.31	B	14.8	0.40
Walnut St/Aberdeen St	Signalized	A	6.4	0.34	A	9.4	0.37
Walnut St/5 th St	Signalized	B	16.9	0.29	B	17.1	0.33
Chestnut St/Front St	Signalized	A	6.7	0.45	B	18.2	0.89
Chestnut St/2 nd St	Signalized	C	22.4	0.70	C	25.3	0.66
Chestnut St/3 rd St	Signalized	B	13.6	0.29	B	17.6	0.32
Chestnut St/4 th St	Signalized	B	16.1	0.41	C	21.7	0.40

Queueing Analysis Results-2045 Design Year

Figures 9 and **10** summarize the 95th percentile queues in feet for signalized intersections. Analysis reports are included in **Appendix E**.

Based on the results of the analysis, queuing exceeded the available storage length or extend the full block for the following movements:

5th Street at Market Street

- EB left-turn (a.m., p.m. peak hours)

Chestnut Street at 2nd Street

- NB thru movement (a.m. peak hours)

Chestnut Street at Front Street

- SB thru movement (p.m. peak hours)
- WB left turn (p.m. peak hours)

West Shore Market Street at Front Street

- EB thru movement (p.m. peak hours)

Figure 9. No-Build AM Queue Lengths



Figure 10. No-Build PM Queue Lengths



Transit Travel Times

Since the Market Street Transfer Center will be relocated in future conditions to the east of the study area, travel times from the Cameron Street intersection to the West Shore Front Street intersection were investigated. As the bus schedule currently stands there are 49 buses that traverse at least a part of the Market Street corridor during the AM peak, and 51 buses in the PM peak. In the no-build condition, the lack of a two-way facility on Market Street results in westbound Market Street buses having to turn onto 5th Street to Walnut Street to Front Street to Market Street to traverse the downtown. Travel time results for the relevant corridors can be found in **Appendix F**. Travel times to go westbound from Cameron Street to the West Shore in the no-build condition are as follows:

- **AM Peak:** 363.8 seconds
- **PM Peak:** 875.0 seconds

ALTERNATIVE 1- MARKET STREET TWO-WAY CONVERSION (2 EB LANES, 1 WB LANE)

Intersection Capacity Analysis-2045 Design Year

Table 7 shows projected overall intersection LOS and delay results for the intersections within the study area under year 2045 Alternative 1 conditions. Analysis reports are included in **Appendix G**.

The results indicate that year 2045 individual movement delay and LOS under Build Alternative 1 are anticipated to remain at similar acceptable levels to the year 2045 No Build condition, with the following exceptions (**Appendix G**):

- Chestnut Street at 4th Street eastbound right movement is forecast to operate at LOS E under Alternative 1 conditions during the p.m. peak hour.
- Cameron Street at Market Street eastbound left-turn movement is forecast to operate at LOS F under Alternative 1 conditions during the p.m. peak hour.

Although the individual movements noted above are operating at unacceptable LOS, no overall intersection LOS is anticipated to result in unacceptable overall intersection LOS (E or F), which is the more important metric (**Table 7**).

Table 7: Alternative 1 Delay and Level of Service (LOS) Summary (2045)

Intersection Information		AM Peak Hour			PM Peak Hour		
Intersection	Traffic Control	LOS	Delay (sec)	V/C	LOS	Delay (sec)	V/C
Market St/Front St (west)	Signalized	B	15.7	0.65	C	33.6	0.87
City Island Ramps	Unsignalized	A	0.1	0.13	A	0.5	0.21
Market St/Front St (east)	Signalized	B	15.2	0.61	C	32.6	0.97
Market St/2 nd St	Signalized	A	9.8	0.70	B	14.0	0.60
Market St/3 rd St	Signalized	B	11.9	0.42	B	10.1	0.49
Market St/4 th St	Signalized	B	19.3	0.56	B	19.9	0.64
Market St/Aberdeen St	Unsignalized	A	1.2	0.10	C	6.8	0.22
Market St/5 th St	Signalized	B	17.8	0.40	B	12.8	0.47
Market St/10 th St	Unsignalized	A	1.1	0.09	A	1.5	0.12
Market St/Cameron St	Signalized	C	30.3	0.84	D	36.1	0.98
Walnut St/Front St	Signalized	B	11.7	0.33	B	14.2	0.56
Walnut St/2 nd St	Signalized	B	13.8	0.37	B	18.9	0.43
Walnut St/3 rd St	Signalized	C	22.6	0.24	C	23.9	0.22
Walnut St/4 th St	Signalized	B	12.5	0.32	B	15.9	0.43
Walnut St/Aberdeen St	Signalized	A	4.9	0.21	B	12.7	0.21
Walnut St/5 th St	Signalized	C	30.6	0.21	B	14.8	0.21
Chestnut St/Front St	Signalized	A	7.7	0.45	B	16.1	0.85
Chestnut St/2 nd St	Signalized	C	20.5	0.63	B	18.2	0.49
Chestnut St/3 rd St	Signalized	B	13.0	0.36	B	19.9	0.30
Chestnut St/4 th St	Signalized	C	23.6	0.44	C	32.4	0.40

Queueing Analysis Results-2045 Design Year

Figures 11 and **12** summarize the 95th percentile queues in feet for signalized intersections. Analysis reports are included in **Appendix G**.

Based on the results of the analysis, queueing exceeded the available storage length or extend the full block for the following movements:

Chestnut Street at 2nd Street

- NB thru movement (a.m. peak hours)

Chestnut Street at Front Street

- WB left turn (p.m. peak hours)

West Shore Market Street at Front Street

- EB thru movement (p.m. peak hours)

East Shore Market Street at Front Street

- WB thru movement (p.m. peak hours)

Market Street at Cameron Street

- NB left turn (a.m. and p.m. peak hours)

Figure 11. Alternative 1 AM Queue Lengths



Figure 12. Alternative 1 PM Queue Lengths



Transit Travel Times

Since the Market Street Transfer Center will be relocated in future conditions to the east of the network travel times from the Cameron Street intersection to the West Shore Front Street intersection were investigated. As the bus schedule currently stands there are 49 buses that traverse at least a part of the Market Street corridor during the AM peak, and 51 buses in the PM peak. The no-build route has westbound Market Street buses having to turn onto 5th Street to Walnut Street to Front Street to Market Street to traverse downtown. With the addition of a westbound lane on Market Street from 2nd Street to 5th Street buses in Alternative 1 will be able to go through downtown using Market Street the entire way, which results in decreased travel time. Additional decreases in travel time can occur if transit signal prioritization is included with the other improvements. Travel time results for the relevant corridors can be found in **Appendix H**. Travel times to go westbound from Cameron Street to the West Shore are as follows:

- **AM Peak:**
 - No-build existing route: 363.8 seconds
 - Straight WB on Market Street: 294.2 seconds
- **PM Peak:**
 - No-build existing route: 875.0 seconds
 - Straight WB on Market Street: 387.4 seconds

ALTERNATIVE 2- MARKET STREET TWO-WAY CONVERSION (2EB LANES, 1 WB LANE) W/ BRIDGE RECONFIGURATION

Intersection Capacity Analysis-2045 Design Year

Table 8 shows overall intersection LOS and delay results for the intersections within the study area for the year 2045 under Alternative 2. Analysis reports are included in **Appendix I**.

The results indicate that year 2045 intersection delays and LOS under Alternative 2 are projected to remain at similar levels anticipated in the year 2045 No Build scenario, with the following exceptions (**Appendix I**):

- Chestnut Street at 4th Street eastbound right movement is forecast to operate at LOS E under Alternative 2 conditions during the p.m. peak hour.
- Cameron Street at Market Street eastbound left-turn movement is forecast to operate at LOS F under Alternative 2 conditions during the p.m. peak hour.

Although the individual movements noted above are operating at unacceptable LOS, no overall intersection LOS is anticipated to result in unacceptable overall intersection LOS (E or F), which is the more important metric (**Table 8**).

Table 8: Alternative 2 Delay and Level of Service (LOS) Summary (2045)

Intersection Information		AM Peak Hour			PM Peak Hour		
Intersection	Traffic Control	LOS	Delay (sec)	V/C	LOS	Delay (sec)	V/C
Market St/Front St (west)	Signalized	B	14.5	0.54	C	22.2	0.69
City Island Ramps	Unsignalized	A	0.1	0.19	A	0.6	0.28
Market St/Front St (east)	Signalized	B	13.6	0.59	C	26.2	0.92
Market St/2 nd St	Signalized	B	11.3	0.72	B	15.1	0.65
Market St/3 rd St	Signalized	B	13.6	0.42	A	6.8	0.49
Market St/4 th St	Signalized	B	18.1	0.56	B	18.1	0.61
Market St/Aberdeen St	Unsignalized	A	1.3	0.12	C	7.0	0.22
Market St/5 th St	Signalized	B	17.0	0.39	B	13.8	0.47
Market St/10 th St	Unsignalized	A	1.1	0.10	A	1.5	0.12
Market St/Cameron St	Signalized	C	29.7	0.84	D	36.4	0.97
Walnut St/Front St	Signalized	B	11.0	0.34	B	13.3	0.48
Walnut St/2 nd St	Signalized	B	12.3	0.37	C	26.8	0.37
Walnut St/3 rd St	Signalized	B	20.1	0.24	B	14.9	0.19
Walnut St/4 th St	Signalized	B	14.1	0.32	B	16.5	0.37
Walnut St/Aberdeen St	Signalized	A	6.3	0.22	B	12.0	0.24
Walnut St/5 th St	Signalized	C	25.6	0.21	B	9.9	0.21
Chestnut St/Front St	Signalized	A	7.4	0.45	B	11.8	0.84
Chestnut St/2 nd St	Signalized	C	20.4	0.61	B	18.7	0.49
Chestnut St/3 rd St	Signalized	B	13.9	0.35	B	19.1	0.31
Chestnut St/4 th St	Signalized	C	21.3	0.42	C	33.2	0.41

Queueing Analysis Results-2045 Design Year

Figures 13 and **14** summarize the 95th percentile queues in feet for signalized intersections. Analysis reports are included in **Appendix I**.

Based on the results of the analysis, queuing exceeded the available storage length or extend the full block for the following movements:

Chestnut Street at 2nd Street

- NB thru movement (a.m. peak hours)

Chestnut Street at Front Street

- WB left turn (p.m. peak hours)

West Shore Market Street at Front Street

- EB thru movement (p.m. peak hours)

East Shore Market Street at Front Street

- SB thru movement (p.m. peak hours)
- WB thru movement (p.m. peak hours)

Market Street at Cameron Street

- NB left turn (a.m. and p.m. peak hours)

Figure 13. Alternative 2 AM Queue Lengths



Figure 14. Alternative 2 PM Queue Lengths



Transit Travel Times

Since the Market Street Transfer Center will be relocated in future conditions to the east of the network travel times from the Cameron Street intersection to the West Shore Front Street intersection were investigated. As the bus schedule currently stands there are 49 buses that traverse at least a part of the Market Street corridor during the AM peak, and 51 buses in the PM peak. The no-build route has westbound Market Street buses having to turn onto 5th Street to Walnut Street to Front Street to Market Street to traverse downtown. With the addition of a westbound lane on Market Street from 2nd Street to 5th Street buses in Alternative 2 will be able to go through downtown using Market Street the entire way, which results in a decreased travel time. Additional decreases in travel time can occur if transit signal prioritization is included with the other improvements. Travel time results for the relevant corridors can be found in **Appendix J**. Travel times to go westbound from Cameron Street to the West Shore are as follows:

- **AM Peak:**
 - No-build existing route: 363.8 seconds
 - Straight WB on Market Street: 337.0 seconds
- **PM Peak:**
 - No-build existing route: 875.0 seconds
 - Straight WB on Market Street: 340.4 seconds

ALTERNATIVE 3- MARKET STREET TWO-WAY CONVERSION (1 EB LANE, 1 WB LANE, 1 TWLTL) W/ BRIDGE RECONFIGURATION

Intersection Capacity Analysis-2045 Design Year

Table 9 shows overall intersection LOS and delay results for the intersections within the study area for the year 2045 under Alternative 3. Analysis reports are included in **Appendix K**.

The results indicate that year 2045 intersection delays and LOS under Alternative 3 are projected to remain at similar levels anticipated in the year 2045 No Build scenario, with the following exceptions (**Appendix K**):

- Market Street at 5th Street eastbound left movement is forecast to operate at LOS E under Alternative 3 conditions during the a.m. peak hour.
- Market Street at 5th Street northbound left/through/right movement is forecast to operate at LOS E under Alternative 3 conditions during the a.m. peak hour.
- Cameron Street at Market Street northbound left-turn movement is forecast to operate at LOS E under Alternative 3 conditions during the a.m. peak hour.
- Market Street at 5th Street eastbound left movement is forecast to operate at LOS E under Alternative 3 conditions during the p.m. peak hour.
- Chestnut Street at 4th Street eastbound right movement is forecast to operate at LOS E under Alternative 3 conditions during the p.m. peak hour.

Although the individual movements noted above are operating at unacceptable LOS, no overall intersection LOS is anticipated to result in unacceptable overall intersection LOS (E or F), which is the more important metric (**Table 9**).

Table 9: Alternative 3 Delay and Level of Service (LOS) Summary (2045)

Intersection Information		AM Peak Hour			PM Peak Hour		
Intersection	Traffic Control	LOS	Delay (sec)	V/C	LOS	Delay (sec)	V/C
Market St/Front St (west)	Signalized	B	14.3	0.66	C	24.5	0.75
City Island Ramps	Unsignalized	A	0.1	0.19	A	0.6	0.27
Market St/Front St (east)	Signalized	B	17.1	0.62	C	27.2	0.94
Market St/2 nd St	Signalized	B	13.7	0.55	B	17.1	0.50
Market St/3 rd St	Signalized	B	12.9	0.39	A	9.2	0.50
Market St/4 th St	Signalized	B	20.0	0.49	B	14.5	0.53
Market St/Aberdeen St	Unsignalized	B	1.5	0.12	C	4.1	0.19
Market St/5 th St	Signalized	C	33.8	0.51	C	24.6	0.48
Market St/10 th St	Unsignalized	A	1.2	0.08	A	1.7	0.10
Market St/Cameron St	Signalized	C	32.7	0.95	C	33.5	0.86
Walnut St/Front St	Signalized	B	10.8	0.34	B	19.7	0.49
Walnut St/2 nd St	Signalized	B	11.0	0.39	B	16.1	0.42
Walnut St/3 rd St	Signalized	C	22.4	0.25	B	14.5	0.18
Walnut St/4 th St	Signalized	B	13.0	0.31	B	13.6	0.31
Walnut St/Aberdeen St	Signalized	A	5.5	0.20	B	15.6	0.21
Walnut St/5 th St	Signalized	C	24.2	0.20	B	18.4	0.08
Chestnut St/Front St	Signalized	A	8.4	0.53	B	15.1	0.90
Chestnut St/2 nd St	Signalized	C	27.7	0.97	C	22.9	0.57
Chestnut St/3 rd St	Signalized	B	16.5	0.69	C	22.2	0.57
Chestnut St/4 th St	Signalized	C	20.6	0.60	D	38.4	0.37

Queueing Analysis Results-2045 Design Year

Figures 15 and 16 summarize the 95th percentile queues in feet for signalized intersections. Analysis reports are included in **Appendix K**.

Based on the results of the analysis, queuing exceeded the available storage length or extend the full block for the following movements:

Chestnut Street at 2nd Street

- NB thru movement (a.m. peak hour)
- EB thru movement (a.m. peak hour)

Chestnut Street at 4th Street

- SB through (a.m. peak hour)

Market Street at 5th Street

- EB left turn (a.m. peak hours)

East Shore Market Street at Front Street

- SB thru movement (p.m. peak hours)
- WB thru movement (p.m. peak hours)

Chestnut Street at Front Street

- WB left turn (p.m. peak hours)

Figure 15. Alternative 3 AM Queue Lengths



Figure 16. Alternative 3 PM Queue Lengths



Transit Travel Times

Since the Market Street Transfer Center will be relocated in future conditions to the east of the network travel times from the Cameron Street intersection to the West Shore Front Street intersection will be examined. As the bus schedule currently stands there are 49 buses that traverse at least a part of the Market Street corridor during the AM peak, and 51 buses in the PM peak. The no-build route has westbound Market Street buses having to turn onto 5th Street to Walnut Street to Front Street to Market Street to traverse downtown. With the addition of a westbound lane on Market Street from 2nd Street to 5th Street buses in Alternative 1 will be able to go through downtown using Market Street the entire way, which results in a decreased travel time. Additional decreases in travel time can occur if transit signal prioritization is included with the other improvements. Travel time results for the relevant corridors can be found in **Appendix L**. Travel times to go westbound from Cameron Street to the West Shore are as follows:

- **AM Peak:**
 - No-build existing route: 363.8 seconds
 - Straight WB on Market Street: 347.2 seconds
- **PM Peak:**
 - No-build existing route: 875.0 seconds
 - Straight WB on Market Street: 351.1 seconds



Section 5 Alternative Analysis Summary

ALTERNATIVE ANALYSIS SUMMARY

Intersection Capacity Analysis

Overall traffic operations were comparable between the No-Build condition and any of the build alternatives (**Table 10**). Overall intersection operations and LOS remain at acceptable levels for all Build alternatives and No-Build condition. Some intersections show slight improvements in LOS under the alternatives, while others show slight declines.

Though overall intersection LOS remains acceptable for all alternatives, the following individual movements at each intersection are anticipated to show failing LOS (E or F):

Market Street at 5th Street

- Northbound left/through/right movement is forecast to operate at LOS E during the p.m. peak hour for **no-build conditions, Alternative 1, and Alternative 2**.
- Northbound left/through/right movement is forecast to operate at LOS E under **Alternative 3** conditions during the a.m. peak hour.
- Eastbound left movement is forecast to operate at LOS E under **Alternative 3** conditions during the a.m. and p.m. peak hours.

Walnut Street at 5th Street

- Northbound right movement is forecast to operate at LOS E during the a.m. peak hour for **Alternative 1**.

Chestnut Street at 4th Street

- Eastbound right movement is forecast to operate at LOS E during the p.m. peak hour for **Alternative 1, Alternative 2, and Alternative 3**.

Market Street at Cameron Street

- Eastbound left-turn movement is forecast to operate at LOS F during the p.m. peak hour for **Alternative 1**.
- Eastbound left-turn movement is forecast to operate at LOS E during the p.m. peak hour for **Alternative 2**.
- Northbound left-turn movement is forecast to operate at LOS E under **Alternative 3** conditions during the a.m. peak hour.
- Westbound left/through movement is forecast to operate at LOS E under **Alternative 3** conditions during the p.m. peak hour.

Front Street at Market Street (East Shore)

- Westbound through movement is forecast to operate at LOS F during the p.m. peak hour for **Alternative 1**.

In no scenario are the proposed alternatives anticipated to result in unacceptable overall intersection LOS (E or F).

Table 10: Alternative LOS and Delay Comparison- Design Year 2045

Intersection	AM Peak Hour				PM Peak Hour			
	No-Build	Alt. 1	Alt. 2	Alt. 3	No-Build	Alt. 1	Alt. 2	Alt. 3
	Level of Service (Delay – sec)				Level of Service (Delay – sec)			
Market St/Front St (west)	B (16.4)	B (15.7)	B (14.5)	B (14.3)	C (34.0)	C (33.6)	C (22.2)	C (24.5)
City Island Ramps	A (0.1)	A (0.1)	A (0.1)	A (0.1)	A (0.5)	A (0.5)	A (0.6)	A (0.6)
Market St/Front St (east)	B (15.2)	B (15.2)	B (13.6)	B (17.1)	B (18.2)	C (32.6)	C (26.2)	C (27.2)
Market St/2 nd St	B (16.4)	A (9.8)	B (11.3)	B (13.7)	C (27.7)	B (14.0)	B (15.1)	B (17.1)
Market St/3 rd St	B (17.0)	B (11.9)	B (13.6)	B (12.9)	B (11.2)	B (10.1)	A (6.8)	A (9.2)
Market St/4 th St	B (13.3)	B (19.3)	B (18.1)	B (20.0)	C (25.0)	B (19.9)	B (18.1)	B (14.5)
Market St/Aberdeen St	A (2.1)	A (1.2)	A (1.3)	B (1.5)	A (6.3)	C (6.8)	C (7.0)	C (4.1)
Market St/5 th St	C (25.3)	B (17.8)	B (17.0)	C (33.8)	C (20.3)	B (12.8)	B (13.8)	C (24.6)
Market St/10 th St	A (1.2)	A (1.1)	A (1.1)	A (1.2)	A (1.5)	A (1.5)	A (1.5)	A (1.7)
Market St/Cameron St	B (17.8)	C (30.3)	C (29.7)	C (32.7)	C (22.0)	D (36.1)	D (36.4)	C (33.5)
Walnut St/Front St	B (11.2)	B (11.7)	B (11.0)	B (10.8)	B (15.2)	B (14.2)	B (13.3)	B (19.7)
Walnut St/2 nd St	C (21.1)	B (13.8)	B (12.3)	B (11.0)	C (23.0)	B (18.9)	C (26.8)	B (16.1)
Walnut St/3 rd St	B (13.1)	C (22.6)	B (20.1)	C (22.4)	B (15.6)	C (23.9)	B (14.9)	B (14.5)
Walnut St/4 th St	B (15.4)	B (12.5)	B (14.1)	B (13.0)	B (14.8)	B (15.9)	B (16.5)	B (13.6)
Walnut St/Aberdeen St	A (6.4)	A (4.9)	A (6.3)	A (5.5)	A (9.4)	B (12.7)	B (12.0)	B (15.6)
Walnut St/5 th St	B (16.9)	C (22.6)	C (25.6)	C (24.2)	B (17.1)	B (14.8)	B (9.9)	C (18.4)
Chestnut St/Front St	A (6.7)	A (7.7)	A (7.4)	A (8.4)	B (18.2)	B (16.1)	B (11.8)	B (15.1)
Chestnut St/2 nd St	C (22.4)	C (20.5)	C (20.4)	C (27.7)	C (25.3)	B (18.2)	B (18.7)	C (22.9)
Chestnut St/3 rd St	B (13.6)	B (13.0)	B (13.9)	B (16.5)	B (17.6)	B (19.9)	B (19.1)	C (22.2)
Chestnut St/4 th St	B (16.1)	C (23.6)	C (21.3)	C (20.6)	C (21.7)	C (32.4)	C (33.2)	D (38.4)

Queueing Analysis Results

Overall queues were comparable when comparing the No-Build condition to any of the build alternatives. In some alternatives there were notable increases in projected queue lengths for particular movements, but there are also substantial decreases anticipated as well (**Table 11**). The following movements at each intersection are anticipated to show insufficient storage length:

5th Street at Market Street

- EB left-turn (a.m. peak hour)-**No-build (also p.m. peak hour), Alternative 3**

Chestnut Street at 2nd Street

- NB thru movement (a.m. peak hour)- **No-build, Alternative 1, Alternative 2, Alternative 3**
- EB thru movement (a.m. peak hour)- **Alternative 3**

Chestnut Street at Front Street

- SB thru movement (p.m. peak hour)- **No-build, Alternative 1**
- WB left turn (p.m. peak hour)-**No-build, Alternative 1, Alternative 2, Alternative 3**

Chestnut Street at 4th Street

- SB through (a.m. peak hour)- **Alternative 3**

West Shore Market Street at Front Street

- EB thru movement (p.m. peak hour)-**No-build, Alternative 1, Alternative 2**

East Shore Market Street at Front Street

- SB thru movement (p.m. peak hour)- **Alternative 2, Alternative 3**
- WB thru movement (p.m. peak hour)- **Alternative 1, Alternative 2, Alternative 3**

Market Street at Cameron Street

- NB left turn (a.m. and p.m. peak hours)- **Alternative 1, Alternative 2**

Conclusion

Overall, the proposed alternatives operate similarly to the no-build condition in terms of LOS and queue lengths along the network. By converting Market Street to two-way operations from 2nd Street to 5th Street a consistent lane configuration can be provided along the Market Street corridor, creating a less confusion roadway network for drivers. The two-way conversion also creates a direct path for transit vehicles to traverse from Cameron Street to the West Shore without any turning movements which reduces travel times for all alternatives. Alternatives 2 and 3 also provide a road diet on the Market Street bridge which will provide an estimated crash reduction between 29 and 47%. A reduction of travel lanes will also provide room for bike lanes which will have an estimated 49% reduction in crashes. Additionally, the reductions in lanes between 5th and Aberdeen Streets provides approximately 160 feet that could be used for on-street parking, while the lane reduction between 2nd and Front Streets would provide approximately 320 feet that could also be used for on-street parking. This would account for enough space for approximately 24 additional parking spaces in the downtown area.

Table 11: Alternative Market Street Intersections 95th Percentile Queue Comparison- Design Year 2045

Movement	AM Peak Hour				PM Peak Hour			
	No-Build	Alt. 1	Alt. 2	Alt. 3	No-Build	Alt. 1	Alt. 2	Alt. 3
	Queue Length (ft)				Queue Length (ft)			
West Shore Market Street/Front Street								
EBL	304	296	348	#384	#432	#455	375	#347
EBT	93	222	212	93	50	105	118	113
WBT	86	95	106	75	#381	#396	m217	#312
SBL	136	107	133	55	#284	#242	199	137
SBR	37	52	55	61	176	183	215	166
Market Street/City Island Ramps*								
SBR	0	0	0	0	8	8	11	11
NBR	3	3	2	2	12	12	12	11
East Shore Market Street/Front Street								
EBT	251	247	162	248	265	261	182	204
WBT	44	137	176	166	140	#741	#630	#617
SBT	99	285	64	314	#362	275	#625	#584
Market Street/2nd Street								
EBT	205	108	123	113	125	m36	m130	m88
WBT	-	243	285	130	-	51	44	93
NBL	57	m14	m11	m13	188	172	144	164
NBT	243	111	82	m91	156	95	80	130
Market Street/3rd Street								
EBT	126	173	164	94	55	108	50	188
WBT	-	40	58	0	-	m21	13	74
SBT	88	170	85	183	91	203	91	192
Market Street/4th Street								
EBL	-	-	-	30	-	-	-	17
EBT	53	105	90	95	113	78	95	52
WBL	-	-	-	m0	-	-	-	m1
WBT	-	70	80	5	-	74	62	59
NBT	122	174	201	394	155	344	121	90
SBL	m9	2	14	1	19	44	22	56
SBT	86	33	73	3	58	101	50	65
Market Street/Aberdeen Street								
EBT	0	0	0	0	0	0	0	0
EBR	0	0	0	4	0	0	0	0
WBTL	0	4	4	0	1	4	4	5
NBR	0	0	0	0	0	0	0	0
SBTL	22	9	11	11	95	125	128	58
Market Street/5th Street								
EBL	#421	79	80	m#327	308	93	107	m#118
EBT	40	79	80	m60	161	93	107	172
WBT	80	m257	m249	#408	68	m372	m365	#517
WBR	74	m60	m53	69	57	m18	m18	44
NBT	13	13	13	14	14	14	14	11
Market Street/10th Street								
EBLT	1	1	1	1	0	0	0	1
EBTR	0	0	0	0	0	0	0	0
WBLT	4	4	4	4	1	1	1	0
WBTR	0	0	0	0	0	0	0	0
NBLTR	2	2	2	2	12	16	16	21
SBLTR	4	6	6	6	5	12	13	4
Market Street/Cameron Street								
EBL	71	26	21	63	144	#196	#190	86
EBTR	71	32	26	71	144	239	282	102
WBLT	110	194	195	168	#177	267	266	#294
WBR	0	1	0	0	0	0	0	0
NBL	#242	#421	#412	#434	#79	#312	#329	#285
NBTR	#352	344	336	344	#376	338	357	342
SBL	38	63	63	54	40	90	87	68
SBTR	150	#308	#308	#292	262	#525	#535	#564

*EB and WB movements had no queues
m- Volume for 95h percentile queue is metered by upstream signal
#- 95th percentile volume exceeds capacity, queue may be longer



Appendix A
Existing Turning Movement
Count Volumes



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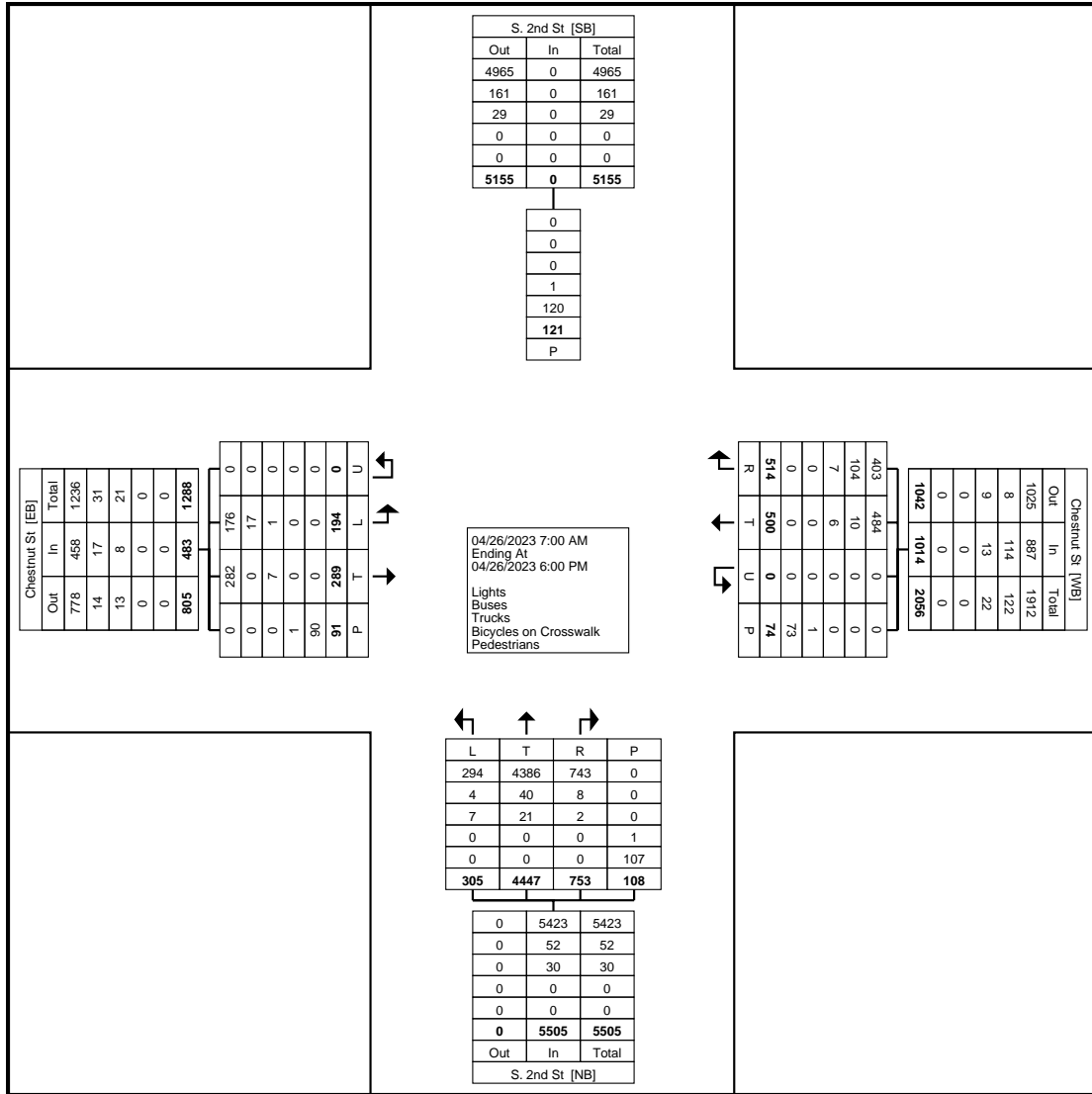
Harrisburg, PA
Chestnut St & S 2nd St
Wednesday, April 26, 2023
Location: 40.258888, -
76.880248

Count Name: Chestnut St & S.
2nd St
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Chestnut St Eastbound					Chestnut St Westbound					S. 2nd St Northbound					S. 2nd St Southbound		Int. Total		
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total		Peds	App. Total
7:00 AM	9	15	0	3	24	10	18	0	0	2	28	16	235	31	3	3	285	8	0	337
7:15 AM	14	26	0	2	40	12	35	0	0	2	47	12	250	52	4	3	318	4	0	405
7:30 AM	11	23	0	10	34	21	31	1	0	3	53	11	342	60	3	6	416	10	0	503
7:45 AM	11	30	0	9	41	21	35	0	0	6	56	20	368	71	3	7	462	7	0	559
Hourly Total	45	94	0	24	139	64	119	1	0	13	184	59	1195	214	13	19	1481	29	0	1804
8:00 AM	15	24	0	6	39	21	21	0	0	5	42	17	360	82	0	12	459	6	0	540
8:15 AM	13	28	0	6	41	16	19	0	0	3	35	19	361	81	0	7	461	8	0	537
8:30 AM	9	13	0	5	22	15	30	0	0	3	45	10	350	92	0	8	452	5	0	519
8:45 AM	9	17	0	4	26	13	28	1	0	3	42	16	304	78	0	1	398	7	0	466
Hourly Total	46	82	0	21	128	65	98	1	0	14	164	62	1375	333	0	28	1770	26	0	2062
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	10	13	0	5	23	61	38	0	0	7	99	26	259	26	1	11	312	6	0	434
4:15 PM	14	10	0	11	24	35	35	0	0	7	70	27	246	27	1	10	301	10	0	395
4:30 PM	32	19	0	10	51	56	38	0	0	3	94	25	240	27	0	10	292	11	0	437
4:45 PM	18	12	0	3	30	54	36	0	0	6	90	30	248	30	0	7	308	8	0	428
Hourly Total	74	54	0	29	128	206	147	0	0	23	353	108	993	110	2	38	1213	35	0	1694
5:00 PM	12	14	0	4	26	55	37	2	0	11	94	24	246	15	1	9	286	7	0	406
5:15 PM	4	17	0	4	21	38	35	1	0	7	74	14	233	25	2	3	274	9	0	369
5:30 PM	7	14	0	2	21	39	33	0	0	2	72	17	223	17	1	6	258	7	0	351
5:45 PM	6	14	0	7	20	33	40	0	0	4	73	21	182	18	2	5	223	8	0	316
Hourly Total	29	59	0	17	88	165	145	3	0	24	313	76	884	75	6	23	1041	31	0	1442
Grand Total	194	289	0	91	483	500	509	5	0	74	1014	305	4447	732	21	108	5505	121	0	7002
Approach %	40.2	59.8	0.0	-	-	49.3	50.2	0.5	0.0	-	-	5.5	80.8	13.3	0.4	-	-	-	-	-
Total %	2.8	4.1	0.0	-	6.9	7.1	7.3	0.1	0.0	-	14.5	4.4	63.5	10.5	0.3	-	78.6	-	0.0	-
Lights	176	282	0	-	458	484	399	4	0	-	887	294	4386	723	20	-	5423	-	0	6768
% Lights	90.7	97.6	-	-	94.8	96.8	78.4	80.0	-	-	87.5	96.4	98.6	98.8	95.2	-	98.5	-	-	96.7
Buses	17	0	0	-	17	10	103	1	0	-	114	4	40	7	1	-	52	-	0	183
% Buses	8.8	0.0	-	-	3.5	2.0	20.2	20.0	-	-	11.2	1.3	0.9	1.0	4.8	-	0.9	-	-	2.6
Trucks	1	7	0	-	8	6	7	0	0	-	13	7	21	2	0	-	30	-	0	51
% Trucks	0.5	2.4	-	-	1.7	1.2	1.4	0.0	-	-	1.3	2.3	0.5	0.3	0.0	-	0.5	-	-	0.7
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	1	-	1	-	-
% Bicycles on Crosswalk	-	-	-	1.1	-	-	-	-	-	1.4	-	-	-	-	-	0.9	-	0.8	-	-
Pedestrians	-	-	-	90	-	-	-	-	-	73	-	-	-	-	-	107	-	120	-	-
% Pedestrians	-	-	-	98.9	-	-	-	-	-	98.6	-	-	-	-	-	99.1	-	99.2	-	-

Harrisburg, PA
Chestnut St & S 2nd St
Wednesday, April 26, 2023
Location: 40.258888, -
76.880248



Turning Movement Data Plot



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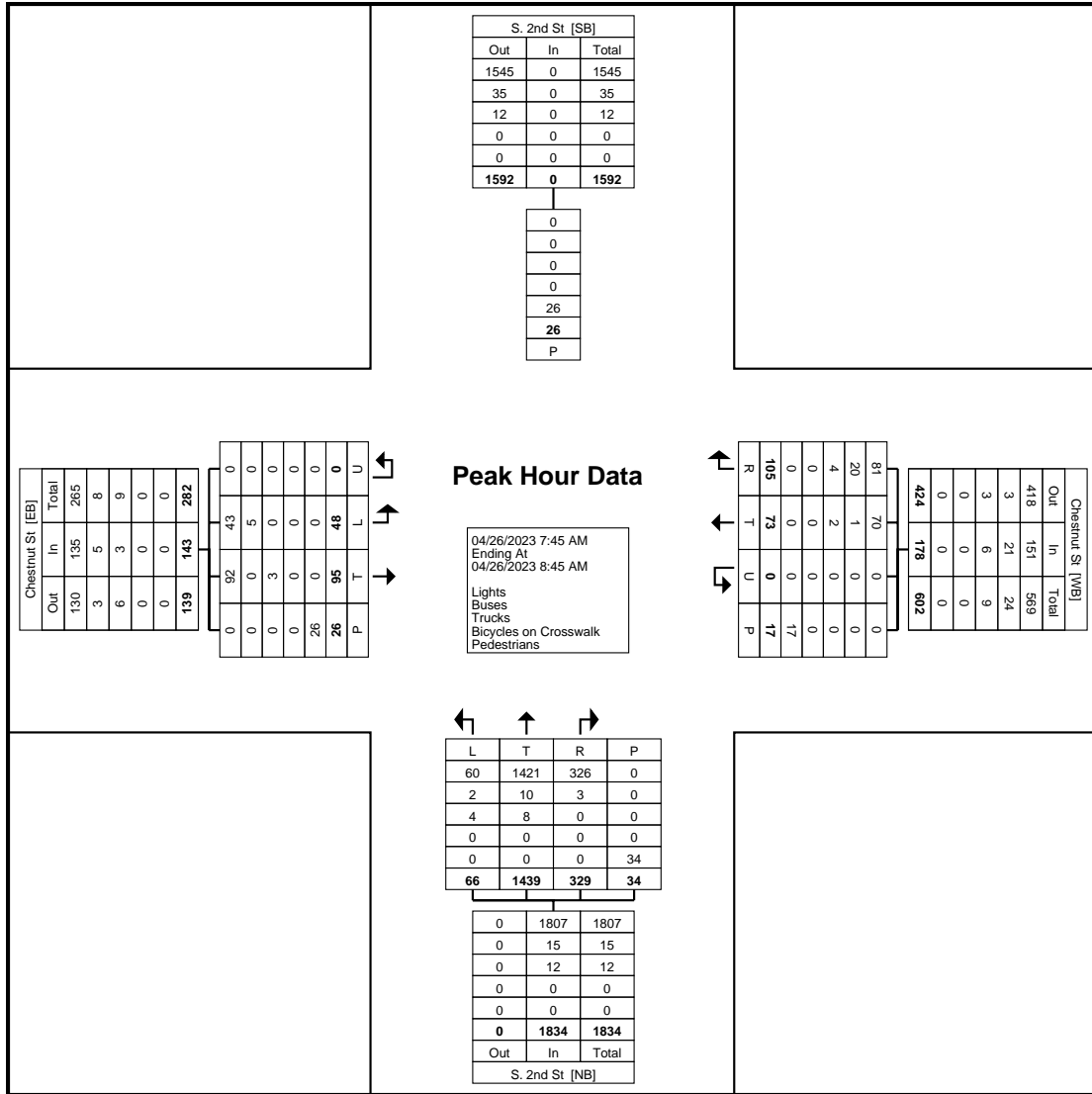
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Harrisburg, PA
Chestnut St & S 2nd St
Wednesday, April 26, 2023
Location: 40.258888, -
76.880248

Count Name: Chestnut St & S.
2nd St
Site Code:
Start Date: 04/26/2023
Page No: 3

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Chestnut St Eastbound					Chestnut St Westbound					S. 2nd St Northbound					S. 2nd St Southbound		Int. Total		
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total		Peds	App. Total
7:45 AM	11	30	0	9	41	21	35	0	0	6	56	20	368	71	3	7	462	7	0	559
8:00 AM	15	24	0	6	39	21	21	0	0	5	42	17	360	82	0	12	459	6	0	540
8:15 AM	13	28	0	6	41	16	19	0	0	3	35	19	361	81	0	7	461	8	0	537
8:30 AM	9	13	0	5	22	15	30	0	0	3	45	10	350	92	0	8	452	5	0	519
Total	48	95	0	26	143	73	105	0	0	17	178	66	1439	326	3	34	1834	26	0	2155
Approach %	33.6	66.4	0.0	-	-	41.0	59.0	0.0	0.0	-	-	3.6	78.5	17.8	0.2	-	-	-	-	-
Total %	2.2	4.4	0.0	-	6.6	3.4	4.9	0.0	0.0	-	8.3	3.1	66.8	15.1	0.1	-	85.1	-	0.0	-
PHF	0.800	0.792	0.000	-	0.872	0.869	0.750	0.000	0.000	-	0.795	0.825	0.978	0.886	0.250	-	0.992	-	0.000	0.964
Lights	43	92	0	-	135	70	81	0	0	-	151	60	1421	323	3	-	1807	-	0	2093
% Lights	89.6	96.8	-	-	94.4	95.9	77.1	-	-	-	84.8	90.9	98.7	99.1	100.0	-	98.5	-	-	97.1
Buses	5	0	0	-	5	1	20	0	0	-	21	2	10	3	0	-	15	-	0	41
% Buses	10.4	0.0	-	-	3.5	1.4	19.0	-	-	-	11.8	3.0	0.7	0.9	0.0	-	0.8	-	-	1.9
Trucks	0	3	0	-	3	2	4	0	0	-	6	4	8	0	0	-	12	-	0	21
% Trucks	0.0	3.2	-	-	2.1	2.7	3.8	-	-	-	3.4	6.1	0.6	0.0	0.0	-	0.7	-	-	1.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	0.0	-	-
Pedestrians	-	-	-	26	-	-	-	-	-	17	-	-	-	-	-	34	-	26	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	100.0	-	-



Turning Movement Peak Hour Data Plot (7:45 AM)



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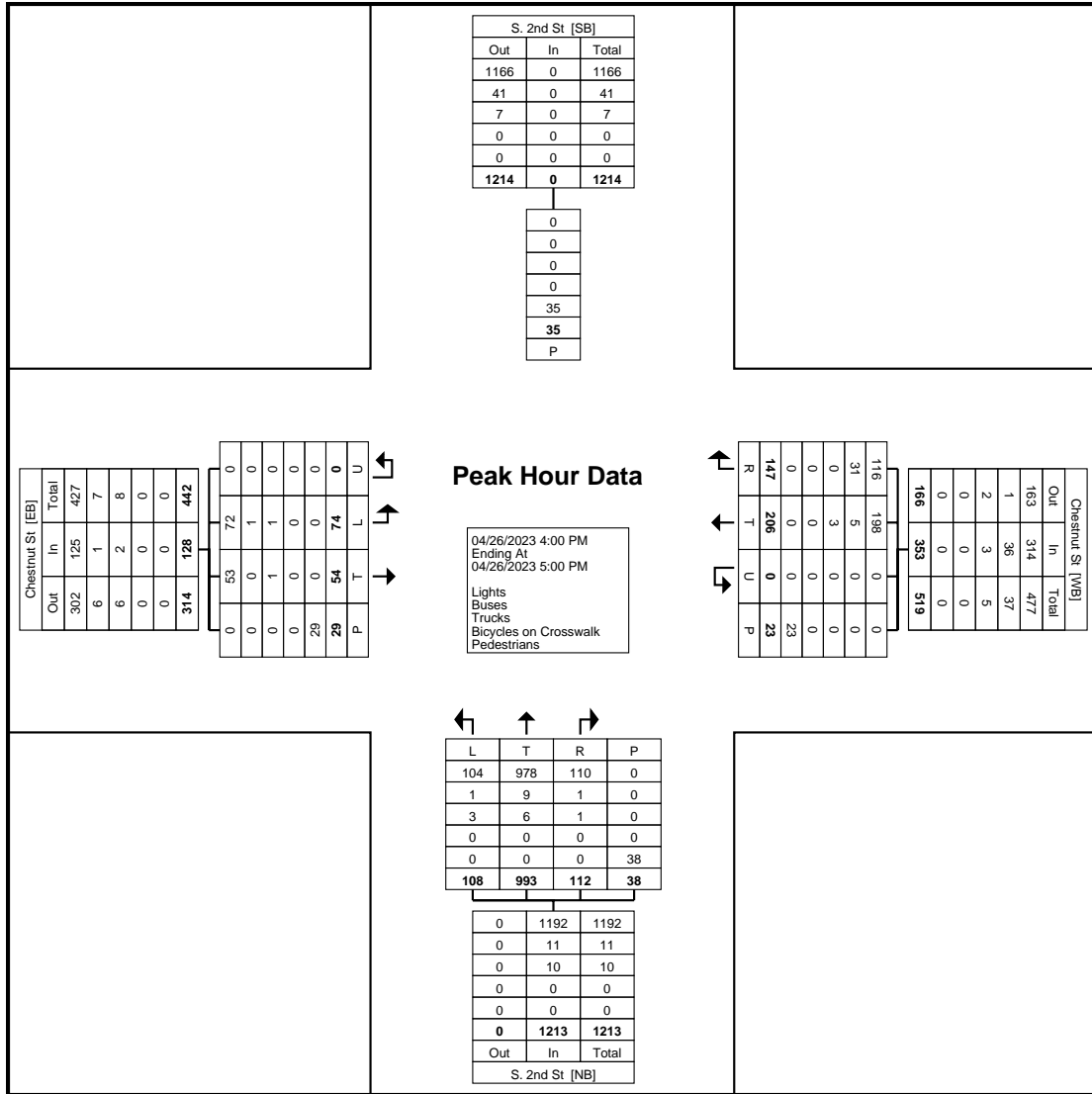
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Count Name: Chestnut St & S.
2nd St
Site Code:
Start Date: 04/26/2023
Page No: 5

Harrisburg, PA
Chestnut St & S 2nd St
Wednesday, April 26, 2023
Location: 40.258888, -
76.880248

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Chestnut St Eastbound					Chestnut St Westbound					S. 2nd St Northbound					S. 2nd St Southbound		Int. Total		
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total		Peds	App. Total
4:00 PM	10	13	0	5	23	61	38	0	0	7	99	26	259	26	1	11	312	6	0	434
4:15 PM	14	10	0	11	24	35	35	0	0	7	70	27	246	27	1	10	301	10	0	395
4:30 PM	32	19	0	10	51	56	38	0	0	3	94	25	240	27	0	10	292	11	0	437
4:45 PM	18	12	0	3	30	54	36	0	0	6	90	30	248	30	0	7	308	8	0	428
Total	74	54	0	29	128	206	147	0	0	23	353	108	993	110	2	38	1213	35	0	1694
Approach %	57.8	42.2	0.0	-	-	58.4	41.6	0.0	0.0	-	-	8.9	81.9	9.1	0.2	-	-	-	-	-
Total %	4.4	3.2	0.0	-	7.6	12.2	8.7	0.0	0.0	-	20.8	6.4	58.6	6.5	0.1	-	71.6	-	0.0	-
PHF	0.578	0.711	0.000	-	0.627	0.844	0.967	0.000	0.000	-	0.891	0.900	0.958	0.917	0.500	-	0.972	-	0.000	0.969
Lights	72	53	0	-	125	198	116	0	0	-	314	104	978	108	2	-	1192	-	0	1631
% Lights	97.3	98.1	-	-	97.7	96.1	78.9	-	-	-	89.0	96.3	98.5	98.2	100.0	-	98.3	-	-	96.3
Buses	1	0	0	-	1	5	31	0	0	-	36	1	9	1	0	-	11	-	0	48
% Buses	1.4	0.0	-	-	0.8	2.4	21.1	-	-	-	10.2	0.9	0.9	0.9	0.0	-	0.9	-	-	2.8
Trucks	1	1	0	-	2	3	0	0	0	-	3	3	6	1	0	-	10	-	0	15
% Trucks	1.4	1.9	-	-	1.6	1.5	0.0	-	-	-	0.8	2.8	0.6	0.9	0.0	-	0.8	-	-	0.9
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	0.0	-	-
Pedestrians	-	-	-	29	-	-	-	-	-	23	-	-	-	-	-	38	-	35	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	100.0	-	-



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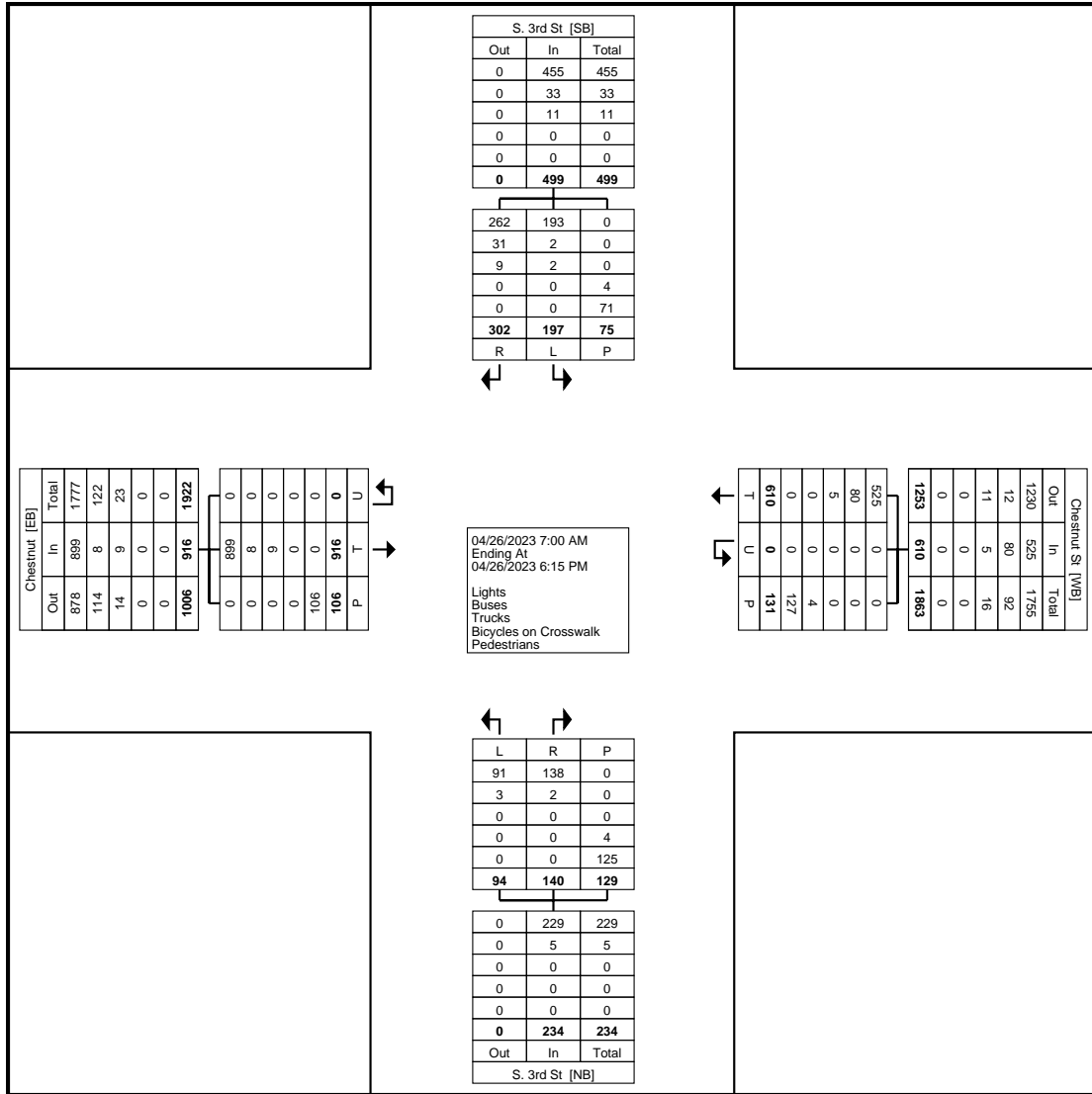
Count Name: Chestnut St & S.
3rd St
Site Code:
Start Date: 04/26/2023
Page No: 1

Harrisburg, PA
Chestnut St & S 3rd St
Wednesday, April 26, 2023
Location: 40.260024, -76.87921

Turning Movement Data

Start Time	Chestnut Eastbound				Chestnut St Westbound				S. 3rd St Northbound					S. 3rd St Southbound					Int. Total
	Thru	U-Turn	Peds	App. Total	Thru	U-Turn	Peds	App. Total	Left	Right	Right on Red	Peds	App. Total	Left	Right	Right on Red	Peds	App. Total	
7:00 AM	47	0	10	47	20	0	6	20	4	7	0	3	11	5	7	0	7	12	90
7:15 AM	72	0	8	72	21	0	4	21	6	6	0	3	12	8	15	4	4	27	132
7:30 AM	67	0	10	67	47	0	3	47	3	8	1	4	12	14	17	1	0	32	158
7:45 AM	89	0	5	89	41	0	9	41	4	7	0	10	11	20	24	0	2	44	185
Hourly Total	275	0	33	275	129	0	22	129	17	28	1	20	46	47	63	5	13	115	565
8:00 AM	87	0	5	87	26	0	6	26	5	9	0	4	14	16	17	0	3	33	160
8:15 AM	77	0	3	77	20	0	3	20	3	5	1	6	9	12	15	1	3	28	134
8:30 AM	89	0	5	89	21	0	6	21	8	5	0	9	13	10	19	0	21	29	152
8:45 AM	81	0	4	81	25	0	5	25	6	8	1	5	15	3	19	1	1	23	144
Hourly Total	334	0	17	334	92	0	20	92	22	27	2	24	51	41	70	2	28	113	590
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	45	0	9	45	51	0	11	51	11	9	2	11	22	14	18	0	3	32	150
4:15 PM	36	0	4	36	54	0	8	54	4	10	1	12	15	17	18	0	4	35	140
4:30 PM	44	0	11	44	47	0	17	47	5	12	2	19	19	12	27	0	4	39	149
4:45 PM	42	0	7	42	47	0	6	47	11	8	0	9	19	18	27	0	8	45	153
Hourly Total	167	0	31	167	199	0	42	199	31	39	5	51	75	61	90	0	19	151	592
5:00 PM	33	0	5	33	51	0	9	51	5	9	0	10	14	10	15	1	2	26	124
5:15 PM	42	0	1	42	44	0	14	44	5	10	2	6	17	10	16	1	2	27	130
5:30 PM	31	0	3	31	38	0	10	38	6	5	0	10	11	16	16	1	4	33	113
5:45 PM	34	0	16	34	57	0	14	57	8	11	1	8	20	12	21	1	7	34	145
Hourly Total	140	0	25	140	190	0	47	190	24	35	3	34	62	48	68	4	15	120	512
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	916	0	106	916	610	0	131	610	94	129	11	129	234	197	291	11	75	499	2259
Approach %	100.0	0.0	-	-	100.0	0.0	-	-	40.2	55.1	4.7	-	-	39.5	58.3	2.2	-	-	-
Total %	40.5	0.0	-	40.5	27.0	0.0	-	27.0	4.2	5.7	0.5	-	10.4	8.7	12.9	0.5	-	22.1	-
Lights	899	0	-	899	525	0	-	525	91	127	11	-	229	193	255	7	-	455	2108
% Lights	98.1	-	-	98.1	86.1	-	-	86.1	96.8	98.4	100.0	-	97.9	98.0	87.6	63.6	-	91.2	93.3
Buses	8	0	-	8	80	0	-	80	3	2	0	-	5	2	27	4	-	33	126
% Buses	0.9	-	-	0.9	13.1	-	-	13.1	3.2	1.6	0.0	-	2.1	1.0	9.3	36.4	-	6.6	5.6
Trucks	9	0	-	9	5	0	-	5	0	0	0	-	0	2	9	0	-	11	25
% Trucks	1.0	-	-	1.0	0.8	-	-	0.8	0.0	0.0	0.0	-	0.0	1.0	3.1	0.0	-	2.2	1.1
Bicycles on Crosswalk	-	-	0	-	-	-	4	-	-	-	-	4	-	-	-	-	4	-	-
% Bicycles on Crosswalk	-	-	0.0	-	-	-	3.1	-	-	-	-	3.1	-	-	-	-	5.3	-	-
Pedestrians	-	-	106	-	-	-	127	-	-	-	-	125	-	-	-	-	71	-	-
% Pedestrians	-	-	100.0	-	-	-	96.9	-	-	-	-	96.9	-	-	-	-	94.7	-	-

Harrisburg, PA
Chestnut St & S 3rd St
Wednesday, April 26, 2023
Location: 40.260024, -76.87921



Turning Movement Data Plot



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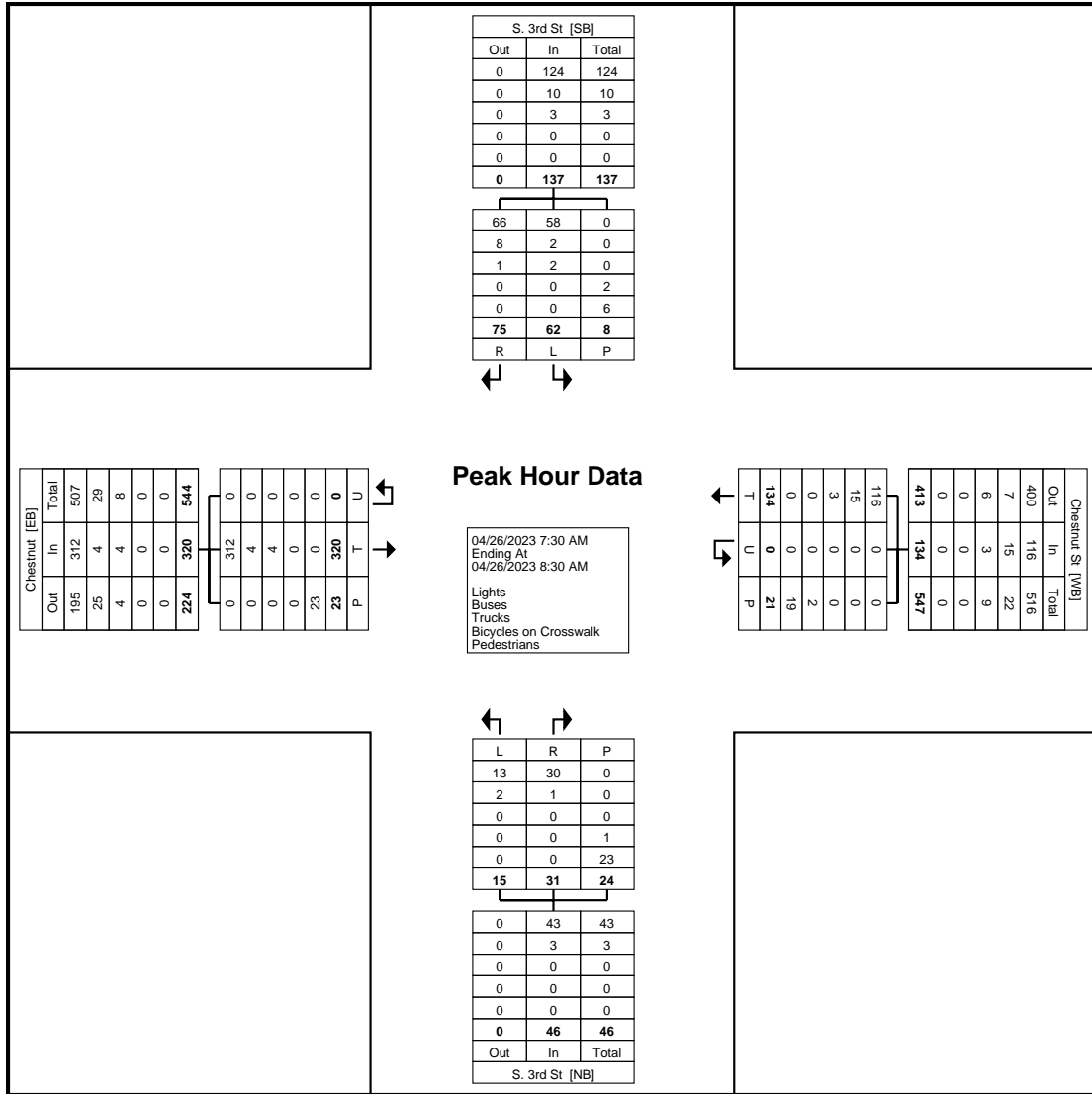
Count Name: Chestnut St & S.
3rd St
Site Code:
Start Date: 04/26/2023
Page No: 3

Harrisburg, PA
Chestnut St & S 3rd St
Wednesday, April 26, 2023
Location: 40.260024, -76.87921

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Chestnut Eastbound				Chestnut St Westbound				S. 3rd St Northbound					S. 3rd St Southbound					Int. Total
	Thru	U-Turn	Peds	App. Total	Thru	U-Turn	Peds	App. Total	Left	Right	Right on Red	Peds	App. Total	Left	Right	Right on Red	Peds	App. Total	
7:30 AM	67	0	10	67	47	0	3	47	3	8	1	4	12	14	17	1	0	32	158
7:45 AM	89	0	5	89	41	0	9	41	4	7	0	10	11	20	24	0	2	44	185
8:00 AM	87	0	5	87	26	0	6	26	5	9	0	4	14	16	17	0	3	33	160
8:15 AM	77	0	3	77	20	0	3	20	3	5	1	6	9	12	15	1	3	28	134
Total	320	0	23	320	134	0	21	134	15	29	2	24	46	62	73	2	8	137	637
Approach %	100.0	0.0	-	-	100.0	0.0	-	-	32.6	63.0	4.3	-	-	45.3	53.3	1.5	-	-	-
Total %	50.2	0.0	-	50.2	21.0	0.0	-	21.0	2.4	4.6	0.3	-	7.2	9.7	11.5	0.3	-	21.5	-
PHF	0.899	0.000	-	0.899	0.713	0.000	-	0.713	0.750	0.806	0.500	-	0.821	0.775	0.760	0.500	-	0.778	0.861
Lights	312	0	-	312	116	0	-	116	13	28	2	-	43	58	64	2	-	124	595
% Lights	97.5	-	-	97.5	86.6	-	-	86.6	86.7	96.6	100.0	-	93.5	93.5	87.7	100.0	-	90.5	93.4
Buses	4	0	-	4	15	0	-	15	2	1	0	-	3	2	8	0	-	10	32
% Buses	1.3	-	-	1.3	11.2	-	-	11.2	13.3	3.4	0.0	-	6.5	3.2	11.0	0.0	-	7.3	5.0
Trucks	4	0	-	4	3	0	-	3	0	0	0	-	0	2	1	0	-	3	10
% Trucks	1.3	-	-	1.3	2.2	-	-	2.2	0.0	0.0	0.0	-	0.0	3.2	1.4	0.0	-	2.2	1.6
Bicycles on Crosswalk	-	-	0	-	-	-	2	-	-	-	-	1	-	-	-	-	2	-	-
% Bicycles on Crosswalk	-	-	0.0	-	-	-	9.5	-	-	-	-	4.2	-	-	-	-	25.0	-	-
Pedestrians	-	-	23	-	-	-	19	-	-	-	-	23	-	-	-	-	6	-	-
% Pedestrians	-	-	100.0	-	-	-	90.5	-	-	-	-	95.8	-	-	-	-	75.0	-	-

Harrisburg, PA
Chestnut St & S 3rd St
Wednesday, April 26, 2023
Location: 40.260024, -76.87921



Turning Movement Peak Hour Data Plot (7:30 AM)



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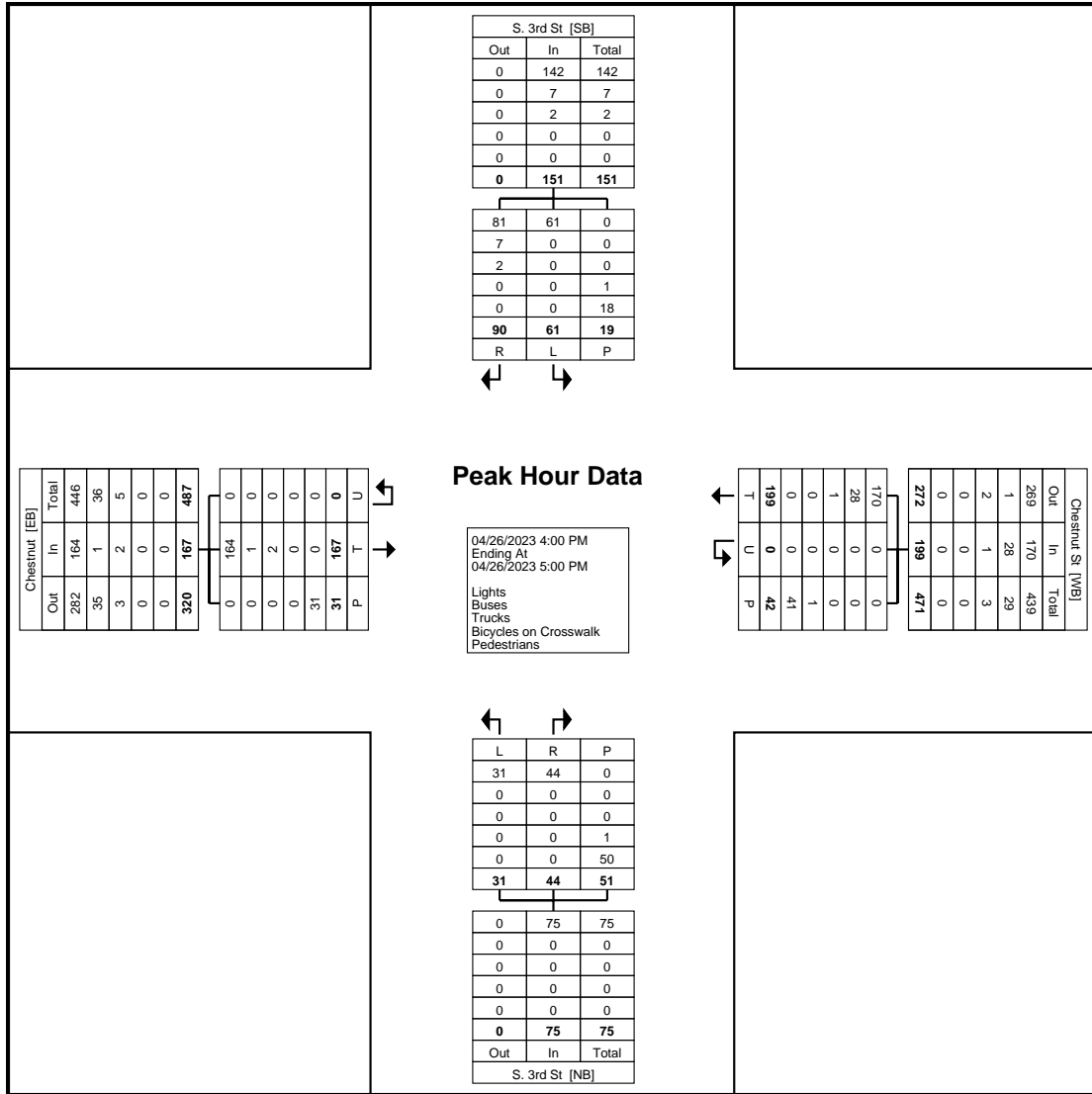
Count Name: Chestnut St & S.
3rd St
Site Code:
Start Date: 04/26/2023
Page No: 5

Harrisburg, PA
Chestnut St & S 3rd St
Wednesday, April 26, 2023
Location: 40.260024, -76.87921

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Chestnut Eastbound				Chestnut St Westbound				S. 3rd St Northbound					S. 3rd St Southbound					Int. Total
	Thru	U-Turn	Peds	App. Total	Thru	U-Turn	Peds	App. Total	Left	Right	Right on Red	Peds	App. Total	Left	Right	Right on Red	Peds	App. Total	
4:00 PM	45	0	9	45	51	0	11	51	11	9	2	11	22	14	18	0	3	32	150
4:15 PM	36	0	4	36	54	0	8	54	4	10	1	12	15	17	18	0	4	35	140
4:30 PM	44	0	11	44	47	0	17	47	5	12	2	19	19	12	27	0	4	39	149
4:45 PM	42	0	7	42	47	0	6	47	11	8	0	9	19	18	27	0	8	45	153
Total	167	0	31	167	199	0	42	199	31	39	5	51	75	61	90	0	19	151	592
Approach %	100.0	0.0	-	-	100.0	0.0	-	-	41.3	52.0	6.7	-	-	40.4	59.6	0.0	-	-	-
Total %	28.2	0.0	-	28.2	33.6	0.0	-	33.6	5.2	6.6	0.8	-	12.7	10.3	15.2	0.0	-	25.5	-
PHF	0.928	0.000	-	0.928	0.921	0.000	-	0.921	0.705	0.813	0.625	-	0.852	0.847	0.833	0.000	-	0.839	0.967
Lights	164	0	-	164	170	0	-	170	31	39	5	-	75	61	81	0	-	142	551
% Lights	98.2	-	-	98.2	85.4	-	-	85.4	100.0	100.0	100.0	-	100.0	100.0	90.0	-	-	94.0	93.1
Buses	1	0	-	1	28	0	-	28	0	0	0	-	0	0	7	0	-	7	36
% Buses	0.6	-	-	0.6	14.1	-	-	14.1	0.0	0.0	0.0	-	0.0	0.0	7.8	-	-	4.6	6.1
Trucks	2	0	-	2	1	0	-	1	0	0	0	-	0	0	2	0	-	2	5
% Trucks	1.2	-	-	1.2	0.5	-	-	0.5	0.0	0.0	0.0	-	0.0	0.0	2.2	-	-	1.3	0.8
Bicycles on Crosswalk	-	-	0	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	0.0	-	-	-	2.4	-	-	-	-	2.0	-	-	-	-	5.3	-	-
Pedestrians	-	-	31	-	-	-	41	-	-	-	-	50	-	-	-	-	18	-	-
% Pedestrians	-	-	100.0	-	-	-	97.6	-	-	-	-	98.0	-	-	-	-	94.7	-	-

Harrisburg, PA
Chestnut St & S 3rd St
Wednesday, April 26, 2023
Location: 40.260024, -76.87921



Turning Movement Peak Hour Data Plot (4:00 PM)



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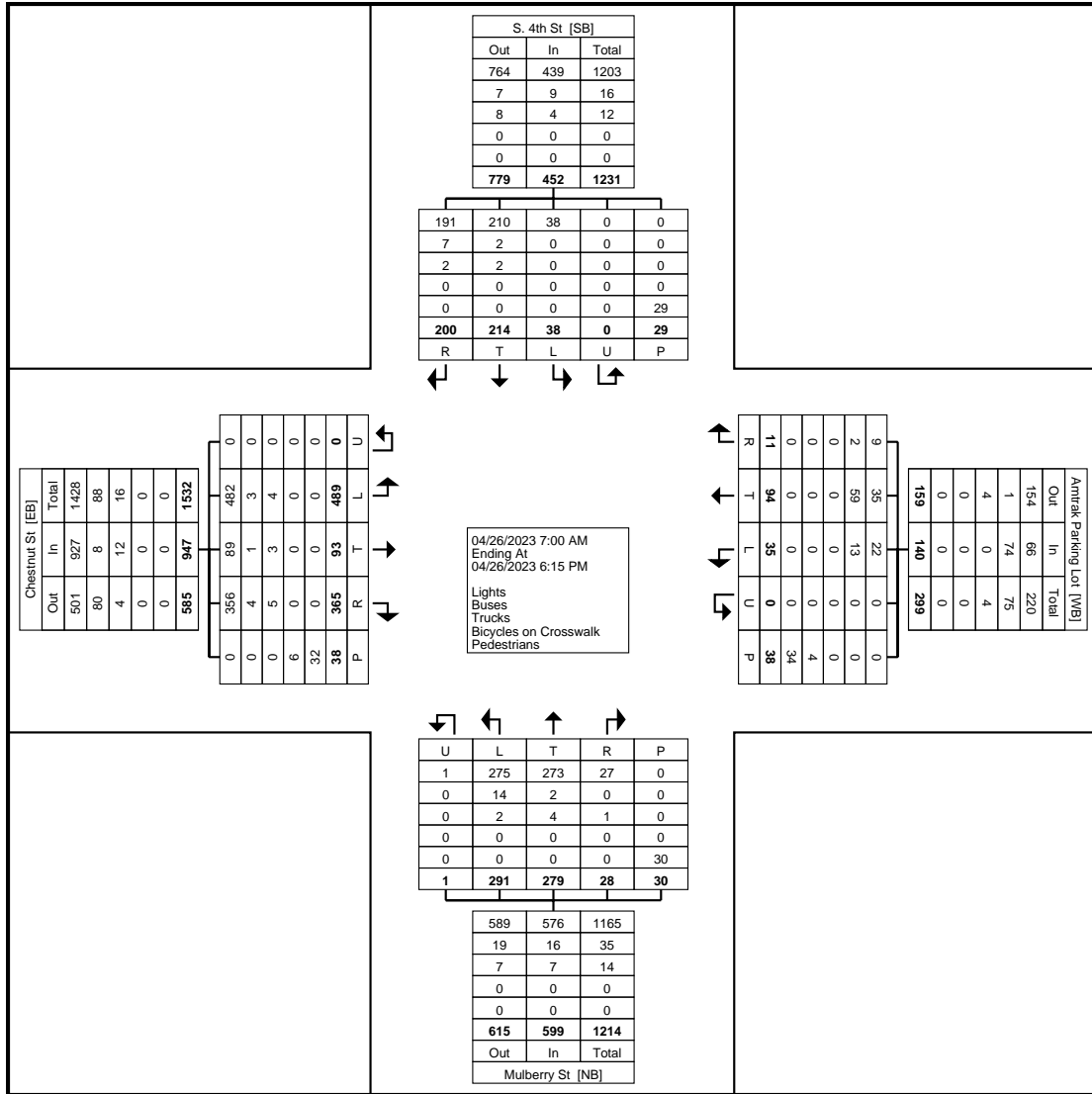
Harrisburg, PA
Chestnut St & 4th St/Amtrak
Wednesday, April 26, 2023
Location: 40.261146, -
76.878225

Coatesville, Pennsylvania, United States 19320
610-466-1469
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Count Name: Chestnut St & S.
4th St/Amtrak Parking Lot
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Chestnut St Eastbound							Amtrak Parking Lot Westbound							Mulberry St Northbound							S. 4th St Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
7:00 AM	13	3	14	5	0	1	35	2	3	0	0	0	0	5	16	11	2	0	0	2	29	2	6	0	6	0	0	14	83
7:15 AM	28	8	11	7	0	1	54	3	6	0	0	0	1	9	14	7	0	1	0	0	22	0	7	5	4	0	4	16	101
7:30 AM	36	5	12	13	0	3	66	3	5	2	0	0	0	10	33	15	1	0	0	2	49	2	10	8	7	0	6	27	152
7:45 AM	48	7	18	13	0	0	86	3	6	0	0	0	2	9	29	30	2	0	0	0	61	4	12	8	5	0	3	29	185
Hourly Total	125	23	55	38	0	5	241	11	20	2	0	0	3	33	92	63	5	1	0	4	161	8	35	21	22	0	13	86	521
8:00 AM	39	5	9	14	0	1	67	4	3	0	0	0	5	7	21	30	1	1	0	5	53	1	7	9	1	0	2	18	145
8:15 AM	46	7	5	3	0	1	61	2	7	0	0	0	1	9	17	21	3	3	0	0	44	2	10	7	2	0	2	21	135
8:30 AM	53	7	6	8	0	1	74	3	7	0	0	0	2	10	15	17	0	0	0	2	32	5	8	4	2	0	3	19	135
8:45 AM	40	6	11	4	0	4	61	3	4	1	0	0	4	8	18	11	1	0	1	5	31	4	5	7	4	0	4	20	120
Hourly Total	178	25	31	29	0	7	263	12	21	1	0	0	12	34	71	79	5	4	1	12	160	12	30	27	9	0	11	78	535
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4:00 PM	30	4	4	25	0	3	63	2	7	0	0	0	4	9	8	14	1	1	0	3	24	4	19	15	0	0	1	38	134
4:15 PM	25	7	2	23	0	6	57	2	10	0	1	0	3	13	15	17	1	0	0	0	33	1	17	12	1	0	0	31	134
4:30 PM	30	8	9	19	0	3	66	2	7	0	0	0	2	9	10	22	2	0	0	2	34	2	41	23	1	0	0	67	176
4:45 PM	18	8	7	23	0	1	56	1	10	1	0	0	1	12	20	14	2	0	0	1	36	4	17	10	0	0	1	31	135
Hourly Total	103	27	22	90	0	13	242	7	34	1	1	0	10	43	53	67	6	1	0	6	127	11	94	60	2	0	2	167	579
5:00 PM	27	1	5	21	0	3	54	1	3	0	0	0	1	4	16	13	1	0	0	0	30	2	14	10	3	0	0	29	117
5:15 PM	19	5	13	18	0	4	55	2	7	2	0	0	3	11	20	13	1	0	0	3	34	1	16	7	6	0	2	30	130
5:30 PM	17	5	7	13	0	4	42	1	6	3	0	0	4	10	17	26	3	0	0	4	46	3	10	10	2	0	0	25	123
5:45 PM	20	7	5	18	0	2	50	1	3	1	0	0	5	5	22	18	1	0	0	1	41	1	15	17	4	0	1	37	133
Hourly Total	83	18	30	70	0	13	201	5	19	6	0	0	13	30	75	70	6	0	0	8	151	7	55	44	15	0	3	121	503
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Grand Total	489	93	138	227	0	38	947	35	94	10	1	0	38	140	291	279	22	6	1	30	599	38	214	152	48	0	29	452	2138
Approach %	51.6	9.8	14.6	24.0	0.0	-	-	25.0	67.1	7.1	0.7	0.0	-	-	48.6	46.6	3.7	1.0	0.2	-	-	8.4	47.3	33.6	10.6	0.0	-	-	-
Total %	22.9	4.3	6.5	10.6	0.0	-	44.3	1.6	4.4	0.5	0.0	0.0	-	6.5	13.6	13.0	1.0	0.3	0.0	-	28.0	1.8	10.0	7.1	2.2	0.0	-	21.1	-
Lights	482	89	131	225	0	-	927	22	35	8	1	0	-	66	275	273	21	6	1	-	576	38	210	143	48	0	-	439	2008
% Lights	98.6	95.7	94.9	99.1	-	-	97.9	62.9	37.2	80.0	100.0	-	-	47.1	94.5	97.8	95.5	100.0	100.0	-	96.2	100.0	98.1	94.1	100.0	-	-	97.1	93.9
Buses	3	1	4	0	0	-	8	13	59	2	0	0	-	74	14	2	0	0	0	-	16	0	2	7	0	0	-	9	107
% Buses	0.6	1.1	2.9	0.0	-	-	0.8	37.1	62.8	20.0	0.0	-	-	52.9	4.8	0.7	0.0	0.0	0.0	-	2.7	0.0	0.9	4.6	0.0	-	-	2.0	5.0
Trucks	4	3	3	2	0	-	12	0	0	0	0	0	-	0	2	4	1	0	0	-	7	0	2	2	0	0	-	4	23
% Trucks	0.8	3.2	2.2	0.9	-	-	1.3	0.0	0.0	0.0	0.0	-	-	0.0	0.7	1.4	4.5	0.0	0.0	-	1.2	0.0	0.9	1.3	0.0	-	-	0.9	1.1
Bicycles on Crosswalk	-	-	-	-	-	6	-	-	-	-	-	-	4	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	15.8	-	-	-	-	-	-	10.5	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	-	32	-	-	-	-	-	-	34	-	-	-	-	-	-	30	-	-	-	-	-	-	29	-	-
% Pedestrians	-	-	-	-	-	84.2	-	-	-	-	-	-	89.5	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-



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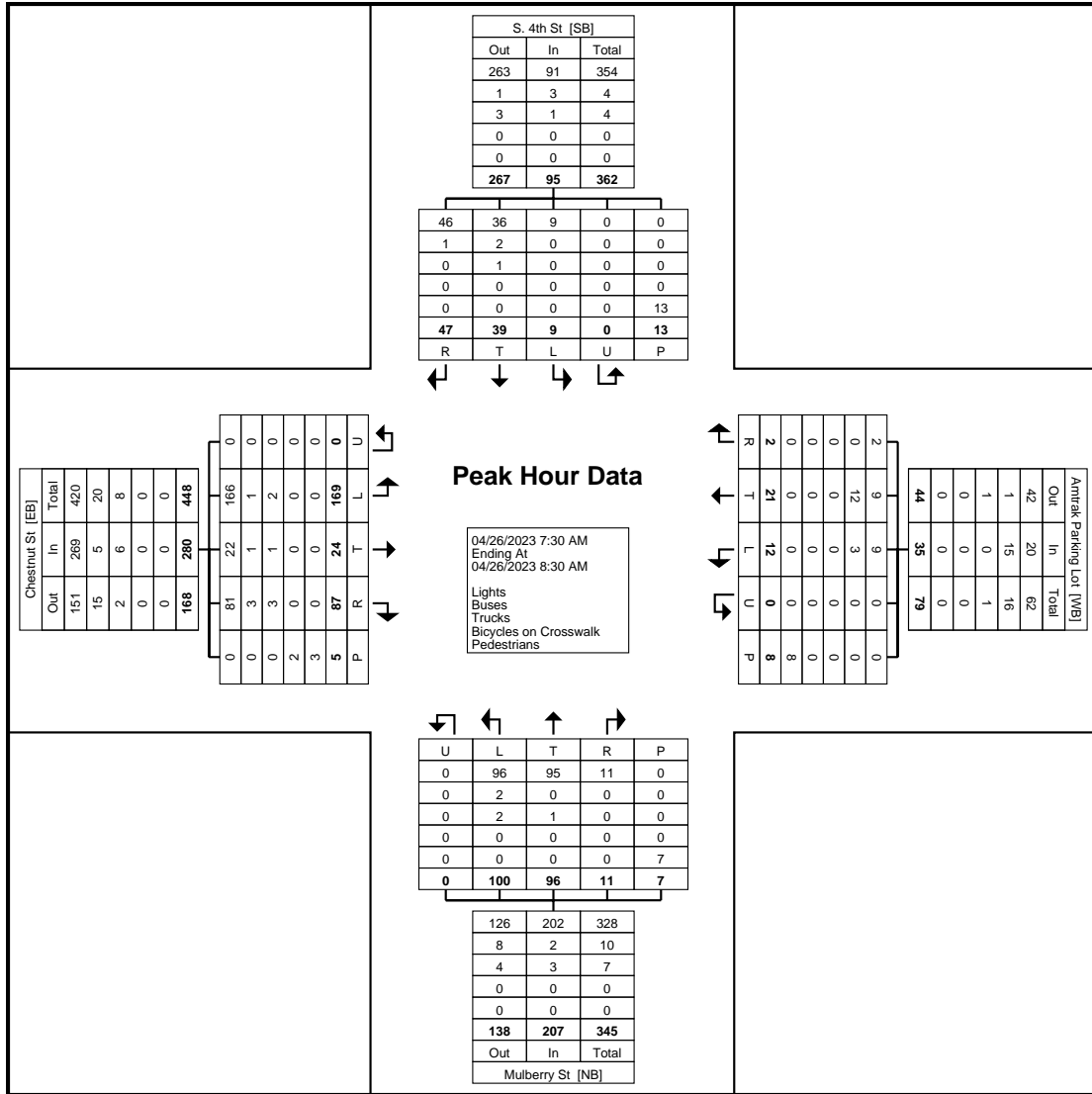
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Harrisburg, PA
Chestnut St & 4th St/Amtrak
Wednesday, April 26, 2023
Location: 40.261146, -
76.878225

Count Name: Chestnut St & S.
4th St/Amtrak Parking Lot
Site Code:
Start Date: 04/26/2023
Page No: 3

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Chestnut St Eastbound							Amtrak Parking Lot Westbound							Mulberry St Northbound							S. 4th St Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
7:30 AM	36	5	12	13	0	3	66	3	5	2	0	0	0	10	33	15	1	0	0	2	49	2	10	8	7	0	6	27	152
7:45 AM	48	7	18	13	0	0	86	3	6	0	0	0	2	9	29	30	2	0	0	0	61	4	12	8	5	0	3	29	185
8:00 AM	39	5	9	14	0	1	67	4	3	0	0	0	5	7	21	30	1	1	0	5	53	1	7	9	1	0	2	18	145
8:15 AM	46	7	5	3	0	1	61	2	7	0	0	0	1	9	17	21	3	3	0	0	44	2	10	7	2	0	2	21	135
Total	169	24	44	43	0	5	280	12	21	2	0	0	8	35	100	96	7	4	0	7	207	9	39	32	15	0	13	95	617
Approach %	60.4	8.6	15.7	15.4	0.0	-	-	34.3	60.0	5.7	0.0	0.0	-	-	48.3	46.4	3.4	1.9	0.0	-	-	9.5	41.1	33.7	15.8	0.0	-	-	-
Total %	27.4	3.9	7.1	7.0	0.0	-	45.4	1.9	3.4	0.3	0.0	0.0	-	5.7	16.2	15.6	1.1	0.6	0.0	-	33.5	1.5	6.3	5.2	2.4	0.0	-	15.4	-
PHF	0.880	0.857	0.611	0.768	0.000	-	0.814	0.750	0.750	0.250	0.000	0.000	-	0.875	0.758	0.800	0.583	0.333	0.000	-	0.848	0.563	0.813	0.889	0.536	0.000	-	0.819	0.834
Lights	166	22	38	43	0	-	269	9	9	2	0	0	-	20	96	95	7	4	0	-	202	9	36	31	15	0	-	91	582
% Lights	98.2	91.7	86.4	100.0	-	-	96.1	75.0	42.9	100.0	-	-	-	57.1	96.0	99.0	100.0	100.0	-	-	97.6	100.0	92.3	96.9	100.0	-	-	95.8	94.3
Buses	1	1	3	0	0	-	5	3	12	0	0	0	-	15	2	0	0	0	0	-	2	0	2	1	0	0	-	3	25
% Buses	0.6	4.2	6.8	0.0	-	-	1.8	25.0	57.1	0.0	-	-	-	42.9	2.0	0.0	0.0	0.0	-	-	1.0	0.0	5.1	3.1	0.0	-	-	3.2	4.1
Trucks	2	1	3	0	0	-	6	0	0	0	0	0	-	0	2	1	0	0	0	-	3	0	1	0	0	0	-	1	10
% Trucks	1.2	4.2	6.8	0.0	-	-	2.1	0.0	0.0	0.0	-	-	-	0.0	2.0	1.0	0.0	0.0	-	-	1.4	0.0	2.6	0.0	0.0	-	-	1.1	1.6
Bicycles on Crosswalk	-	-	-	-	-	2	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	40.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	-	3	-	-	-	-	-	-	8	-	-	-	-	-	-	7	-	-	-	-	-	-	13	-	-
% Pedestrians	-	-	-	-	-	60.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (7:30 AM)



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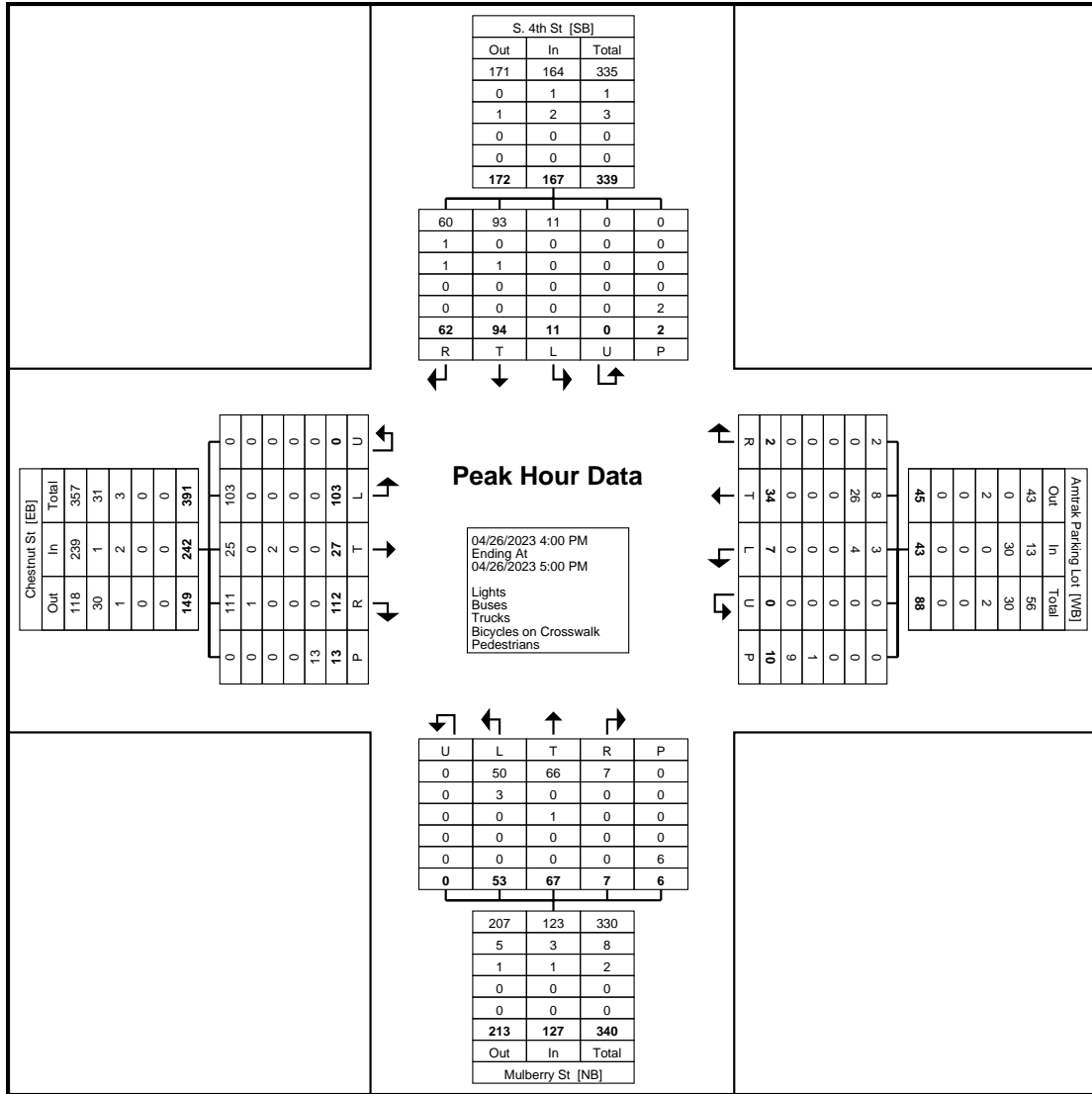
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Harrisburg, PA
Chestnut St & 4th St/Amtrak
Wednesday, April 26, 2023
Location: 40.261146, -
76.878225

Count Name: Chestnut St & S.
4th St/Amtrak Parking Lot
Site Code:
Start Date: 04/26/2023
Page No: 5

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Chestnut St Eastbound							Amtrak Parking Lot Westbound							Mulberry St Northbound							S. 4th St Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
4:00 PM	30	4	4	25	0	3	63	2	7	0	0	0	4	9	8	14	1	1	0	3	24	4	19	15	0	0	1	38	134
4:15 PM	25	7	2	23	0	6	57	2	10	0	1	0	3	13	15	17	1	0	0	0	33	1	17	12	1	0	0	31	134
4:30 PM	30	8	9	19	0	3	66	2	7	0	0	0	2	9	10	22	2	0	0	2	34	2	41	23	1	0	0	67	176
4:45 PM	18	8	7	23	0	1	56	1	10	1	0	0	1	12	20	14	2	0	0	1	36	4	17	10	0	0	1	31	135
Total	103	27	22	90	0	13	242	7	34	1	1	0	10	43	53	67	6	1	0	6	127	11	94	60	2	0	2	167	579
Approach %	42.6	11.2	9.1	37.2	0.0	-	-	16.3	79.1	2.3	2.3	0.0	-	-	41.7	52.8	4.7	0.8	0.0	-	-	6.6	56.3	35.9	1.2	0.0	-	-	-
Total %	17.8	4.7	3.8	15.5	0.0	-	41.8	1.2	5.9	0.2	0.2	0.0	-	7.4	9.2	11.6	1.0	0.2	0.0	-	21.9	1.9	16.2	10.4	0.3	0.0	-	28.8	-
PHF	0.858	0.844	0.611	0.900	0.000	-	0.917	0.875	0.850	0.250	0.250	0.000	-	0.827	0.663	0.761	0.750	0.250	0.000	-	0.882	0.688	0.573	0.652	0.500	0.000	-	0.623	0.822
Lights	103	25	21	90	0	-	239	3	8	1	1	0	-	13	50	66	6	1	0	-	123	11	93	58	2	0	-	164	539
% Lights	100.0	92.6	95.5	100.0	-	-	98.8	42.9	23.5	100.0	100.0	-	-	30.2	94.3	98.5	100.0	100.0	-	-	96.9	100.0	98.9	96.7	100.0	-	-	98.2	93.1
Buses	0	0	1	0	0	-	1	4	26	0	0	0	-	30	3	0	0	0	0	-	3	0	0	1	0	0	-	1	35
% Buses	0.0	0.0	4.5	0.0	-	-	0.4	57.1	76.5	0.0	0.0	-	-	69.8	5.7	0.0	0.0	0.0	-	-	2.4	0.0	0.0	1.7	0.0	-	-	0.6	6.0
Trucks	0	2	0	0	0	-	2	0	0	0	0	0	-	0	0	1	0	0	0	-	1	0	1	1	0	0	-	2	5
% Trucks	0.0	7.4	0.0	0.0	-	-	0.8	0.0	0.0	0.0	0.0	-	-	0.0	0.0	1.5	0.0	0.0	-	-	0.8	0.0	1.1	1.7	0.0	-	-	1.2	0.9
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	0.0	-	-	-	-	-	-	10.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	-	13	-	-	-	-	-	-	9	-	-	-	-	-	-	6	-	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	-	-	90.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)



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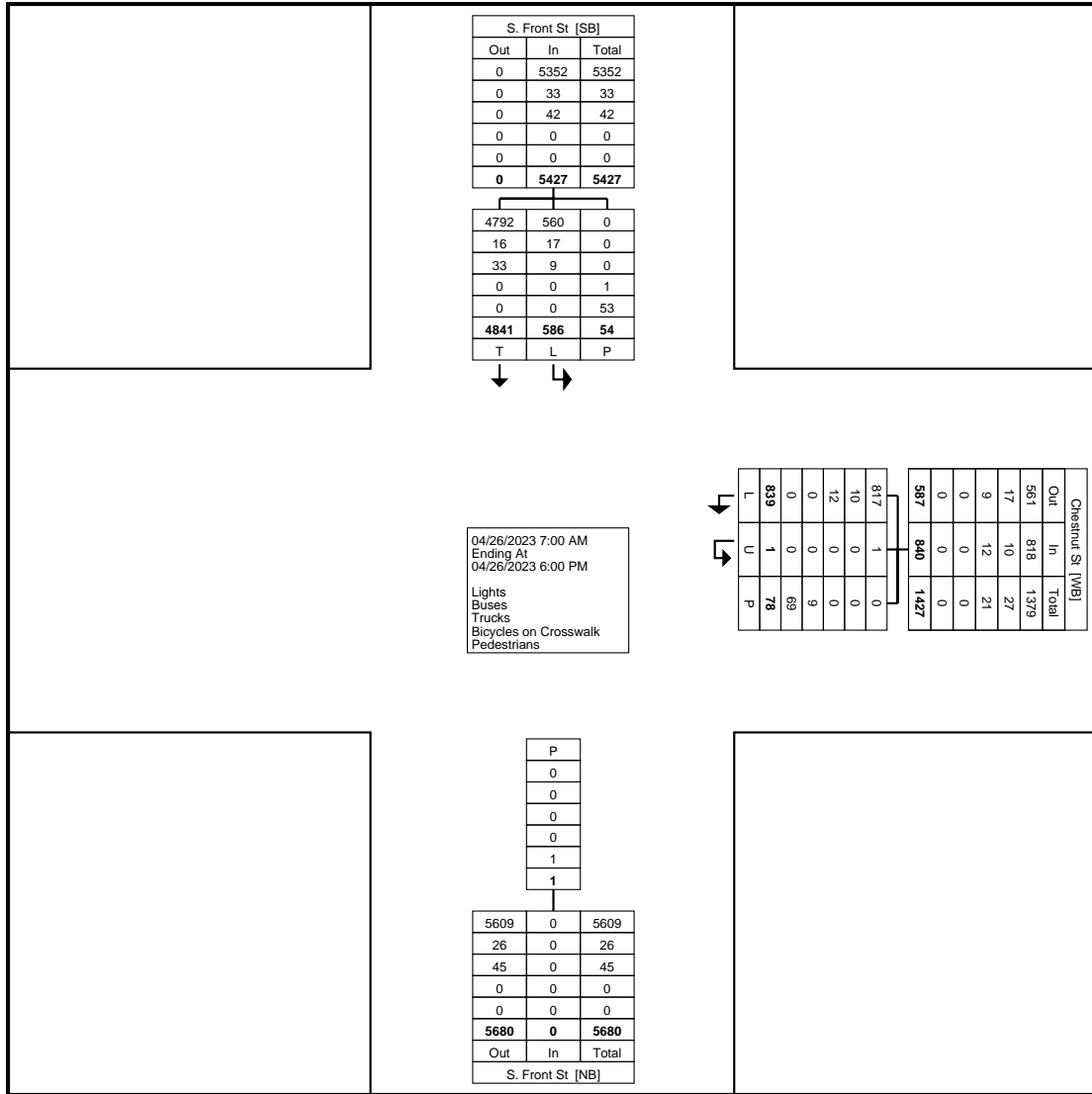
Coatesville, Pennsylvania, United States 19320
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Count Name: Chestnut St & S.
Front St
Site Code:
Start Date: 04/26/2023
Page No: 1

Harrisburg, PA
Chestnut St & S Front St
Wednesday, April 26, 2023
Location: 40.257753, -
76.881282

Turning Movement Data

Start Time	Chestnut St Westbound				S. Front St Northbound		S. Front St Southbound				Int. Total
	Left	U-Turn	Peds	App. Total	Peds	App. Total	Left	Thru	Peds	App. Total	
7:00 AM	32	0	0	32	0	0	28	200	1	228	260
7:15 AM	23	0	2	23	0	0	49	229	4	278	301
7:30 AM	26	0	7	26	0	0	56	232	3	288	314
7:45 AM	33	0	13	33	0	0	61	260	4	321	354
Hourly Total	114	0	22	114	0	0	194	921	12	1115	1229
8:00 AM	35	0	5	35	0	0	56	279	3	335	370
8:15 AM	39	0	3	39	0	0	50	219	2	269	308
8:30 AM	29	0	2	29	0	0	33	215	3	248	277
8:45 AM	24	1	4	25	0	0	39	226	1	265	290
Hourly Total	127	1	14	128	0	0	178	939	9	1117	1245
9:00 AM	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	96	0	5	96	0	0	22	431	5	453	549
4:15 PM	73	0	1	73	0	0	25	373	7	398	471
4:30 PM	81	0	17	81	0	0	49	455	9	504	585
4:45 PM	95	0	3	95	0	0	32	435	1	467	562
Hourly Total	345	0	26	345	0	0	128	1694	22	1822	2167
5:00 PM	79	0	3	79	1	0	26	442	3	468	547
5:15 PM	61	0	3	61	0	0	21	297	2	318	379
5:30 PM	50	0	5	50	0	0	20	326	0	346	396
5:45 PM	63	0	5	63	0	0	19	222	6	241	304
Hourly Total	253	0	16	253	1	0	86	1287	11	1373	1626
Grand Total	839	1	78	840	1	0	586	4841	54	5427	6267
Approach %	99.9	0.1	-	-	-	-	10.8	89.2	-	-	-
Total %	13.4	0.0	-	13.4	-	0.0	9.4	77.2	-	86.6	-
Lights	817	1	-	818	-	0	560	4792	-	5352	6170
% Lights	97.4	100.0	-	97.4	-	-	95.6	99.0	-	98.6	98.5
Buses	10	0	-	10	-	0	17	16	-	33	43
% Buses	1.2	0.0	-	1.2	-	-	2.9	0.3	-	0.6	0.7
Trucks	12	0	-	12	-	0	9	33	-	42	54
% Trucks	1.4	0.0	-	1.4	-	-	1.5	0.7	-	0.8	0.9
Bicycles on Crosswalk	-	-	9	-	0	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	11.5	-	0.0	-	-	-	1.9	-	-
Pedestrians	-	-	69	-	1	-	-	-	53	-	-
% Pedestrians	-	-	88.5	-	100.0	-	-	-	98.1	-	-



Turning Movement Data Plot



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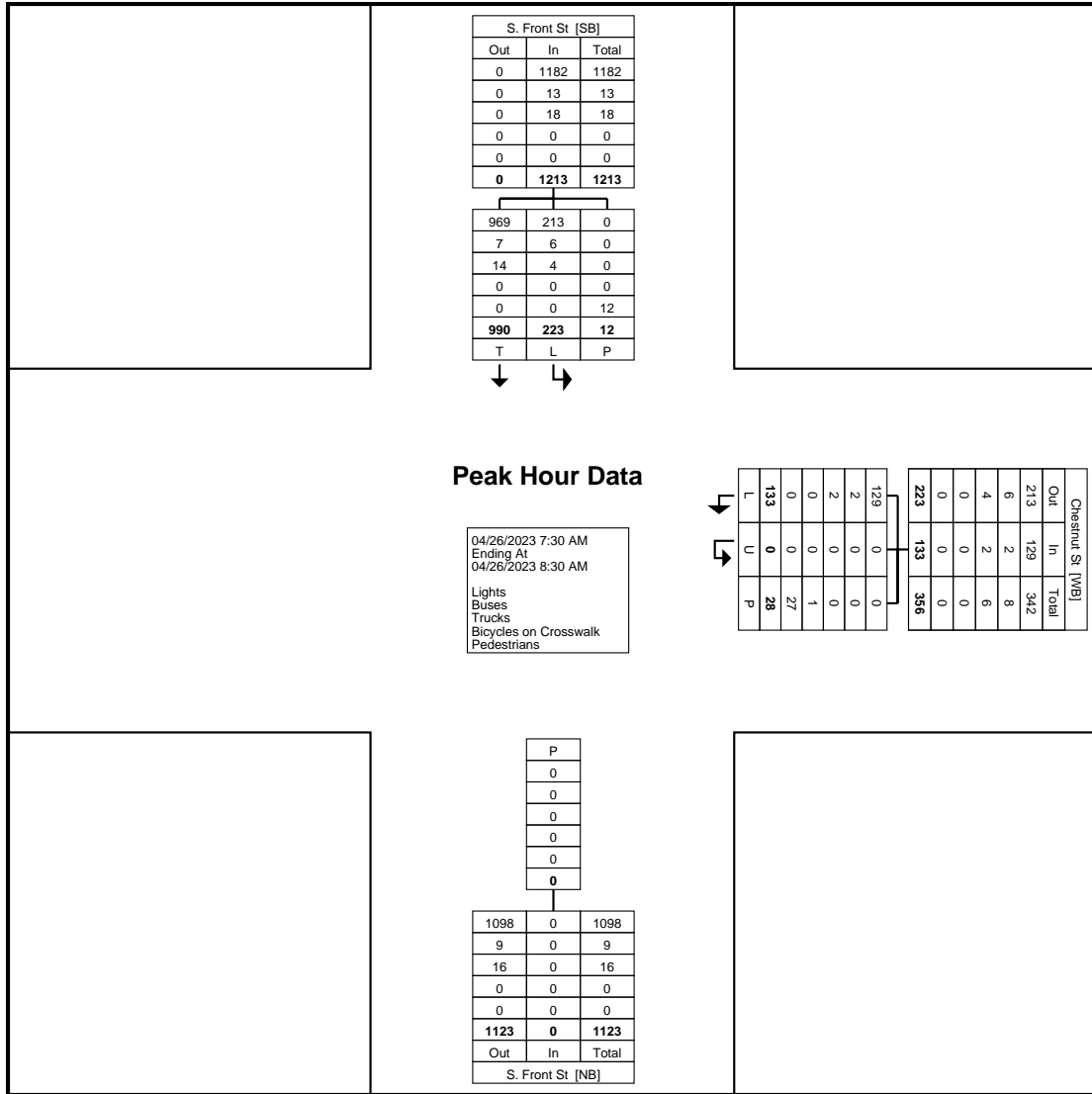
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Count Name: Chestnut St & S.
Front St
Site Code:
Start Date: 04/26/2023
Page No: 3

Harrisburg, PA
Chestnut St & S Front St
Wednesday, April 26, 2023
Location: 40.257753, -
76.881282

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Chestnut St Westbound				S. Front St Northbound		S. Front St Southbound				Int. Total
	Left	U-Turn	Peds	App. Total	Peds	App. Total	Left	Thru	Peds	App. Total	
7:30 AM	26	0	7	26	0	0	56	232	3	288	314
7:45 AM	33	0	13	33	0	0	61	260	4	321	354
8:00 AM	35	0	5	35	0	0	56	279	3	335	370
8:15 AM	39	0	3	39	0	0	50	219	2	269	308
Total	133	0	28	133	0	0	223	990	12	1213	1346
Approach %	100.0	0.0	-	-	-	-	18.4	81.6	-	-	-
Total %	9.9	0.0	-	9.9	-	0.0	16.6	73.6	-	90.1	-
PHF	0.853	0.000	-	0.853	-	0.000	0.914	0.887	-	0.905	0.909
Lights	129	0	-	129	-	0	213	969	-	1182	1311
% Lights	97.0	-	-	97.0	-	-	95.5	97.9	-	97.4	97.4
Buses	2	0	-	2	-	0	6	7	-	13	15
% Buses	1.5	-	-	1.5	-	-	2.7	0.7	-	1.1	1.1
Trucks	2	0	-	2	-	0	4	14	-	18	20
% Trucks	1.5	-	-	1.5	-	-	1.8	1.4	-	1.5	1.5
Bicycles on Crosswalk	-	-	1	-	0	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	3.6	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	27	-	0	-	-	-	12	-	-
% Pedestrians	-	-	96.4	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (7:30 AM)



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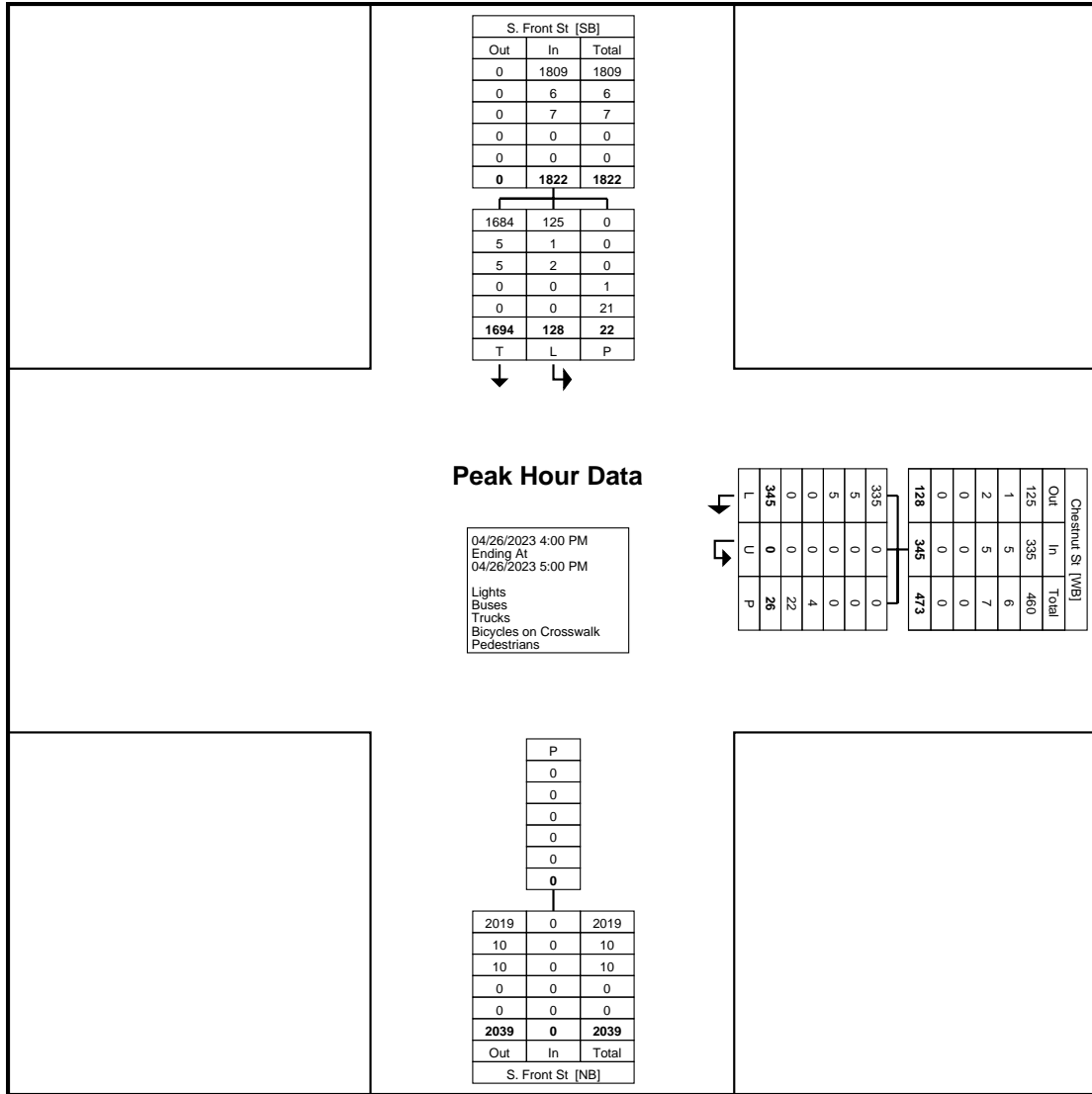
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Count Name: Chestnut St & S.
Front St
Site Code:
Start Date: 04/26/2023
Page No: 5

Harrisburg, PA
Chestnut St & S Front St
Wednesday, April 26, 2023
Location: 40.257753, -
76.881282

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Chestnut St Westbound				S. Front St Northbound		S. Front St Southbound				Int. Total
	Left	U-Turn	Peds	App. Total	Peds	App. Total	Left	Thru	Peds	App. Total	
4:00 PM	96	0	5	96	0	0	22	431	5	453	549
4:15 PM	73	0	1	73	0	0	25	373	7	398	471
4:30 PM	81	0	17	81	0	0	49	455	9	504	585
4:45 PM	95	0	3	95	0	0	32	435	1	467	562
Total	345	0	26	345	0	0	128	1694	22	1822	2167
Approach %	100.0	0.0	-	-	-	-	7.0	93.0	-	-	-
Total %	15.9	0.0	-	15.9	-	0.0	5.9	78.2	-	84.1	-
PHF	0.898	0.000	-	0.898	-	0.000	0.653	0.931	-	0.904	0.926
Lights	335	0	-	335	-	0	125	1684	-	1809	2144
% Lights	97.1	-	-	97.1	-	-	97.7	99.4	-	99.3	98.9
Buses	5	0	-	5	-	0	1	5	-	6	11
% Buses	1.4	-	-	1.4	-	-	0.8	0.3	-	0.3	0.5
Trucks	5	0	-	5	-	0	2	5	-	7	12
% Trucks	1.4	-	-	1.4	-	-	1.6	0.3	-	0.4	0.6
Bicycles on Crosswalk	-	-	4	-	0	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	15.4	-	-	-	-	-	4.5	-	-
Pedestrians	-	-	22	-	0	-	-	-	21	-	-
% Pedestrians	-	-	84.6	-	-	-	-	-	95.5	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)



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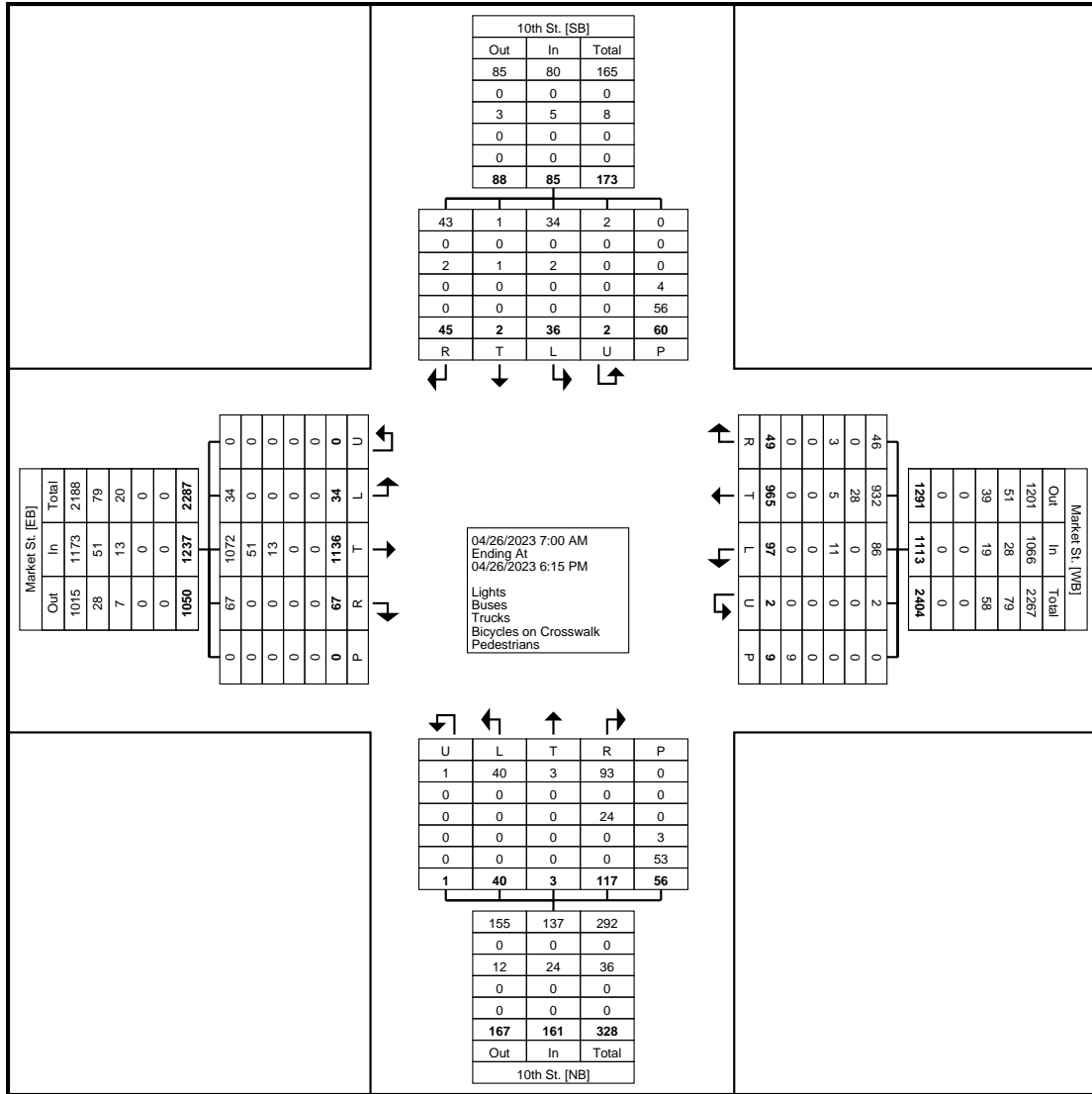
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Harrisburg, PA
Market St & 10th St
Wednesday, April 26, 2023
Location: 40.264118, -
76.875937

Count Name: Market St. & 10th St.
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Market St. Eastbound						Market St. Westbound						10th St. Northbound						10th St. Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	2	33	4	0	0	39	7	61	4	0	1	72	1	0	2	0	4	3	2	0	2	0	2	4	118
7:15 AM	2	50	11	0	0	63	19	75	2	0	0	96	0	0	3	0	1	3	0	0	2	0	3	2	164
7:30 AM	1	58	5	0	0	64	11	93	1	0	1	105	1	0	4	0	5	5	1	1	5	1	5	8	182
7:45 AM	4	69	11	0	0	84	12	96	4	0	0	112	1	0	2	0	3	3	1	0	6	0	2	7	206
Hourly Total	9	210	31	0	0	250	49	325	11	0	2	385	3	0	11	0	13	14	4	1	15	1	12	21	670
8:00 AM	3	46	3	0	0	52	9	95	3	0	2	107	0	0	1	0	5	1	2	1	0	0	3	3	163
8:15 AM	4	35	7	0	0	46	10	96	4	0	0	110	1	0	1	0	2	2	1	0	1	0	2	2	160
8:30 AM	0	49	9	0	0	58	8	88	1	0	0	97	2	1	6	0	4	9	1	0	0	0	3	1	165
8:45 AM	1	40	3	0	0	44	4	66	2	0	2	72	1	0	3	0	4	4	0	0	6	0	5	6	126
Hourly Total	8	170	22	0	0	200	31	345	10	0	4	386	4	1	11	0	15	16	4	1	7	0	13	12	614
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	3	108	5	0	0	116	4	37	1	0	0	42	5	0	16	0	4	21	1	0	4	0	4	5	184
4:15 PM	1	95	1	0	0	97	1	37	1	0	0	39	6	0	16	0	4	22	3	0	4	0	7	7	165
4:30 PM	0	123	2	0	0	125	4	39	2	0	0	45	6	1	10	0	4	17	6	0	0	1	7	7	194
4:45 PM	3	93	0	0	0	96	0	42	3	0	2	45	2	0	7	0	8	9	6	0	5	0	6	11	161
Hourly Total	7	419	8	0	0	434	9	155	7	0	2	171	19	1	49	0	20	69	16	0	13	1	24	30	704
5:00 PM	3	112	1	0	0	116	1	35	5	2	0	43	4	1	8	0	3	13	3	0	5	0	2	8	180
5:15 PM	3	89	1	0	0	93	3	33	5	0	0	41	2	0	8	0	1	10	3	0	4	0	2	7	151
5:30 PM	3	71	1	0	0	75	2	44	3	0	0	49	6	0	19	0	2	25	3	0	1	0	4	4	153
5:45 PM	1	65	3	0	0	69	2	28	8	0	1	38	2	0	11	1	2	14	3	0	0	0	3	3	124
Hourly Total	10	337	6	0	0	353	8	140	21	2	1	171	14	1	46	1	8	62	12	0	10	0	11	22	608
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	34	1136	67	0	0	1237	97	965	49	2	9	1113	40	3	117	1	56	161	36	2	45	2	60	85	2596
Approach %	2.7	91.8	5.4	0.0	-	-	8.7	86.7	4.4	0.2	-	-	24.8	1.9	72.7	0.6	-	-	42.4	2.4	52.9	2.4	-	-	-
Total %	1.3	43.8	2.6	0.0	-	47.7	3.7	37.2	1.9	0.1	-	42.9	1.5	0.1	4.5	0.0	-	6.2	1.4	0.1	1.7	0.1	-	3.3	-
Lights	34	1072	67	0	-	1173	86	932	46	2	-	1066	40	3	93	1	-	137	34	1	43	2	-	80	2456
% Lights	100.0	94.4	100.0	-	-	94.8	88.7	96.6	93.9	100.0	-	95.8	100.0	100.0	79.5	100.0	-	85.1	94.4	50.0	95.6	100.0	-	94.1	94.6
Buses	0	51	0	0	-	51	0	28	0	0	-	28	0	0	0	0	-	0	0	0	0	0	-	0	79
% Buses	0.0	4.5	0.0	-	-	4.1	0.0	2.9	0.0	0.0	-	2.5	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	3.0
Trucks	0	13	0	0	-	13	11	5	3	0	-	19	0	0	24	0	-	24	2	1	2	0	-	5	61
% Trucks	0.0	1.1	0.0	-	-	1.1	11.3	0.5	6.1	0.0	-	1.7	0.0	0.0	20.5	0.0	-	14.9	5.6	50.0	4.4	0.0	-	5.9	2.3
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	4	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	5.4	-	-	-	-	-	6.7	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	9	-	-	-	-	-	53	-	-	-	-	-	56	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	94.6	-	-	-	-	-	93.3	-	-



Turning Movement Data Plot



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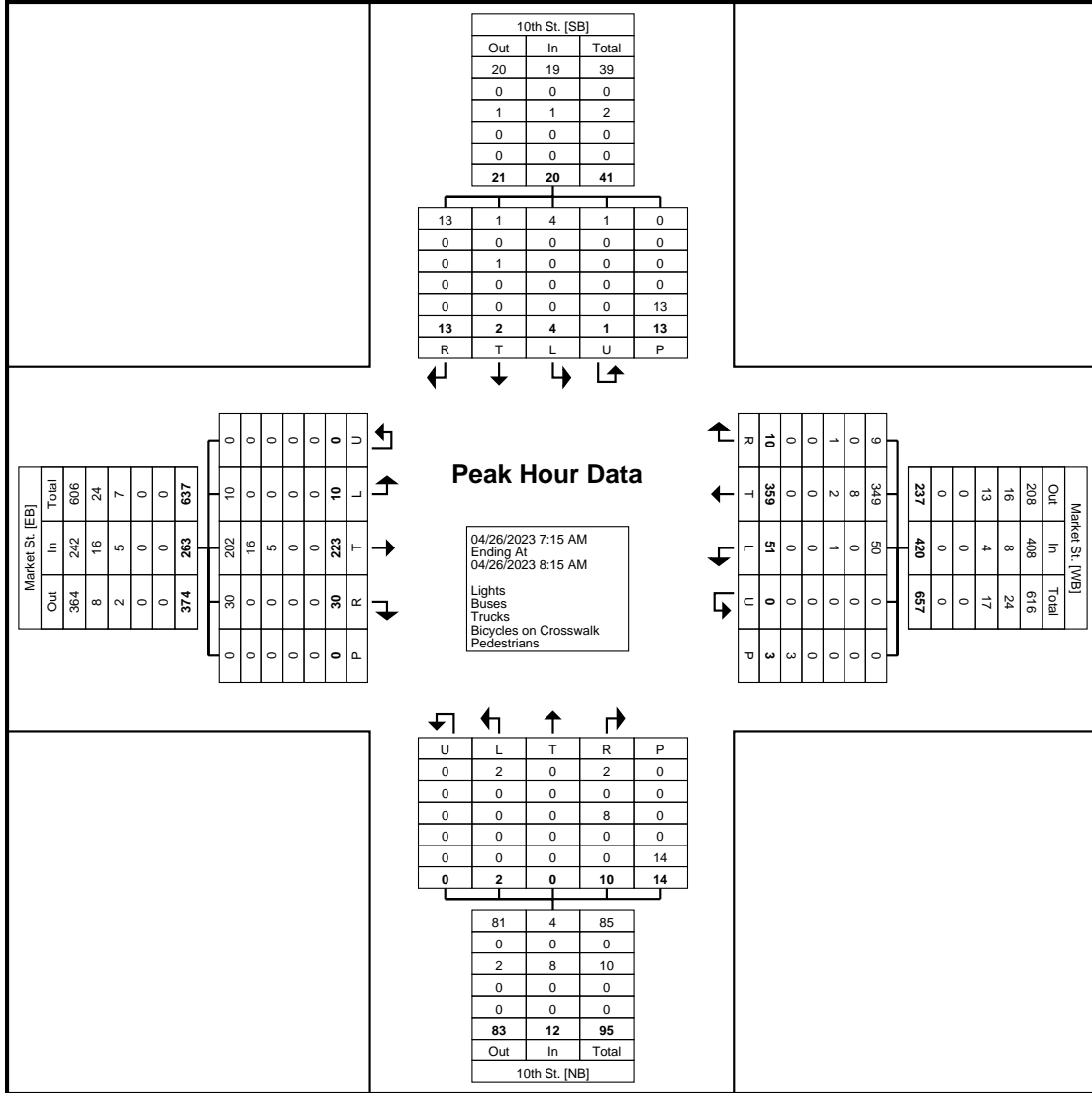
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Harrisburg, PA
Market St & 10th St
Wednesday, April 26, 2023
Location: 40.264118, -
76.875937

Count Name: Market St. & 10th St.
Site Code:
Start Date: 04/26/2023
Page No: 3

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Market St. Eastbound						Market St. Westbound						10th St. Northbound						10th St. Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:15 AM	2	50	11	0	0	63	19	75	2	0	0	96	0	0	3	0	1	3	0	0	2	0	3	2	164
7:30 AM	1	58	5	0	0	64	11	93	1	0	1	105	1	0	4	0	5	5	1	1	5	1	5	8	182
7:45 AM	4	69	11	0	0	84	12	96	4	0	0	112	1	0	2	0	3	3	1	0	6	0	2	7	206
8:00 AM	3	46	3	0	0	52	9	95	3	0	2	107	0	0	1	0	5	1	2	1	0	0	3	3	163
Total	10	223	30	0	0	263	51	359	10	0	3	420	2	0	10	0	14	12	4	2	13	1	13	20	715
Approach %	3.8	84.8	11.4	0.0	-	-	12.1	85.5	2.4	0.0	-	-	16.7	0.0	83.3	0.0	-	-	20.0	10.0	65.0	5.0	-	-	-
Total %	1.4	31.2	4.2	0.0	-	36.8	7.1	50.2	1.4	0.0	-	58.7	0.3	0.0	1.4	0.0	-	1.7	0.6	0.3	1.8	0.1	-	2.8	-
PHF	0.625	0.808	0.682	0.000	-	0.783	0.671	0.935	0.625	0.000	-	0.938	0.500	0.000	0.625	0.000	-	0.600	0.500	0.500	0.542	0.250	-	0.625	0.868
Lights	10	202	30	0	-	242	50	349	9	0	-	408	2	0	2	0	-	4	4	1	13	1	-	19	673
% Lights	100.0	90.6	100.0	-	-	92.0	98.0	97.2	90.0	-	-	97.1	100.0	-	20.0	-	-	33.3	100.0	50.0	100.0	100.0	-	95.0	94.1
Buses	0	16	0	0	-	16	0	8	0	0	-	8	0	0	0	0	-	0	0	0	0	0	-	0	24
% Buses	0.0	7.2	0.0	-	-	6.1	0.0	2.2	0.0	-	-	1.9	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	3.4
Trucks	0	5	0	0	-	5	1	2	1	0	-	4	0	0	8	0	-	8	0	1	0	0	-	1	18
% Trucks	0.0	2.2	0.0	-	-	1.9	2.0	0.6	10.0	-	-	1.0	0.0	-	80.0	-	-	66.7	0.0	50.0	0.0	0.0	-	5.0	2.5
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	14	-	-	-	-	-	13	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (7:15 AM)



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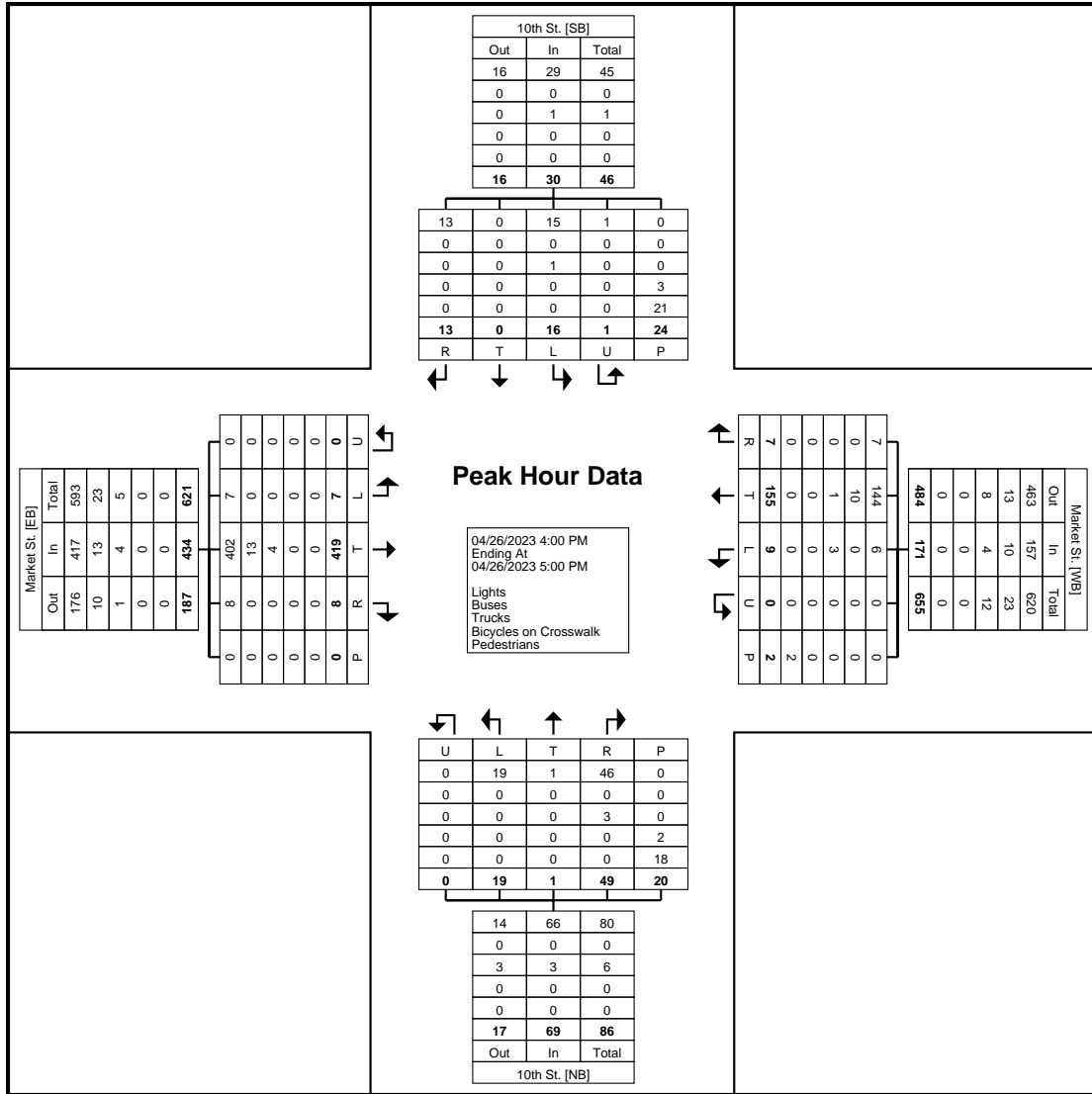
Coatesville, Pennsylvania, United States 19320
610-466-1469
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Harrisburg, PA
Market St & 10th St
Wednesday, April 26, 2023
Location: 40.264118, -
76.875937

Count Name: Market St. & 10th St.
Site Code:
Start Date: 04/26/2023
Page No: 5

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Market St. Eastbound						Market St. Westbound						10th St. Northbound						10th St. Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:00 PM	3	108	5	0	0	116	4	37	1	0	0	42	5	0	16	0	4	21	1	0	4	0	4	5	184
4:15 PM	1	95	1	0	0	97	1	37	1	0	0	39	6	0	16	0	4	22	3	0	4	0	7	7	165
4:30 PM	0	123	2	0	0	125	4	39	2	0	0	45	6	1	10	0	4	17	6	0	0	1	7	7	194
4:45 PM	3	93	0	0	0	96	0	42	3	0	2	45	2	0	7	0	8	9	6	0	5	0	6	11	161
Total	7	419	8	0	0	434	9	155	7	0	2	171	19	1	49	0	20	69	16	0	13	1	24	30	704
Approach %	1.6	96.5	1.8	0.0	-	-	5.3	90.6	4.1	0.0	-	-	27.5	1.4	71.0	0.0	-	-	53.3	0.0	43.3	3.3	-	-	-
Total %	1.0	59.5	1.1	0.0	-	61.6	1.3	22.0	1.0	0.0	-	24.3	2.7	0.1	7.0	0.0	-	9.8	2.3	0.0	1.8	0.1	-	4.3	-
PHF	0.583	0.852	0.400	0.000	-	0.868	0.563	0.923	0.583	0.000	-	0.950	0.792	0.250	0.766	0.000	-	0.784	0.667	0.000	0.650	0.250	-	0.682	0.907
Lights	7	402	8	0	-	417	6	144	7	0	-	157	19	1	46	0	-	66	15	0	13	1	-	29	669
% Lights	100.0	95.9	100.0	-	-	96.1	66.7	92.9	100.0	-	-	91.8	100.0	100.0	93.9	-	-	95.7	93.8	-	100.0	100.0	-	96.7	95.0
Buses	0	13	0	0	-	13	0	10	0	0	-	10	0	0	0	0	-	0	0	0	0	0	-	0	23
% Buses	0.0	3.1	0.0	-	-	3.0	0.0	6.5	0.0	-	-	5.8	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	-	0.0	3.3
Trucks	0	4	0	0	-	4	3	1	0	0	-	4	0	0	3	0	-	3	1	0	0	0	-	1	12
% Trucks	0.0	1.0	0.0	-	-	0.9	33.3	0.6	0.0	-	-	2.3	0.0	0.0	6.1	-	-	4.3	6.3	-	0.0	0.0	-	3.3	1.7
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	3	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	10.0	-	-	-	-	-	12.5	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	18	-	-	-	-	-	21	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	90.0	-	-	-	-	-	87.5	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)



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Harrisburg, PA
Market St & Cameron St
Wednesday, April 26, 2023
Location: 40.264503, -
76.874582

Count Name: Market St. &
Cameron St.
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Market St. Eastbound						Market St. Westbound						Cameron St. Northbound						Cameron St. Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	9	15	9	0	0	33	4	7	8	0	0	19	40	179	10	0	1	229	10	103	24	0	4	137	418
7:15 AM	20	20	16	0	0	56	11	14	14	0	0	39	39	157	3	0	0	199	10	90	42	0	2	142	436
7:30 AM	30	18	11	0	0	59	10	29	15	0	1	54	39	189	5	0	3	233	7	106	38	0	4	151	497
7:45 AM	25	35	16	0	0	76	14	19	24	0	0	57	64	232	9	0	2	305	19	105	33	0	3	157	595
Hourly Total	84	88	52	0	0	224	39	69	61	0	1	169	182	757	27	0	6	966	46	404	137	0	13	587	1946
8:00 AM	15	20	9	0	0	44	10	18	22	0	1	50	54	240	8	0	1	302	18	122	28	0	4	168	564
8:15 AM	15	15	10	0	0	40	9	20	19	0	0	48	60	184	3	0	1	247	15	115	33	0	0	163	498
8:30 AM	26	21	6	0	0	53	3	15	15	0	2	33	56	198	5	0	4	259	18	123	18	0	7	159	504
8:45 AM	20	19	5	0	0	44	8	20	15	0	0	43	37	178	7	0	0	222	16	90	18	0	4	124	433
Hourly Total	76	75	30	0	0	181	30	73	71	0	3	174	207	800	23	0	6	1030	67	450	97	0	15	614	1999
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	47	53	31	0	0	131	9	17	33	0	0	59	15	198	29	0	5	242	23	178	7	0	7	208	640
4:15 PM	43	45	27	0	0	115	7	12	18	0	1	37	11	206	16	0	5	233	22	174	11	0	9	207	592
4:30 PM	40	52	45	0	0	137	14	11	24	0	4	49	17	199	15	0	2	231	31	157	12	0	10	200	617
4:45 PM	36	49	27	0	0	112	5	24	17	0	3	46	13	203	16	0	7	232	28	171	5	0	8	204	594
Hourly Total	166	199	130	0	0	495	35	64	92	0	8	191	56	806	76	0	19	938	104	680	35	0	34	819	2443
5:00 PM	48	38	38	0	2	124	8	12	17	0	0	37	21	171	17	0	2	209	22	171	8	0	3	201	571
5:15 PM	39	38	29	0	2	106	8	14	22	0	0	44	18	172	17	0	2	207	25	149	13	0	0	187	544
5:30 PM	26	37	25	0	2	88	7	22	17	0	0	46	17	183	18	0	1	218	21	106	12	0	3	139	491
5:45 PM	19	40	22	0	0	81	9	18	11	0	1	38	16	157	12	0	0	185	24	118	3	0	4	145	449
Hourly Total	132	153	114	0	6	399	32	66	67	0	1	165	72	683	64	0	5	819	92	544	36	0	10	672	2055
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	458	515	326	0	6	1299	136	272	291	0	13	699	517	3046	190	0	36	3753	309	2078	305	0	72	2692	8443
Approach %	35.3	39.6	25.1	0.0	-	-	19.5	38.9	41.6	0.0	-	-	13.8	81.2	5.1	0.0	-	-	11.5	77.2	11.3	0.0	-	-	-
Total %	5.4	6.1	3.9	0.0	-	15.4	1.6	3.2	3.4	0.0	-	8.3	6.1	36.1	2.3	0.0	-	44.5	3.7	24.6	3.6	0.0	-	31.9	-
Lights	428	490	298	0	-	1216	134	257	284	0	-	675	506	2807	185	0	-	3498	301	1873	287	0	-	2461	7850
% Lights	93.4	95.1	91.4	-	-	93.6	98.5	94.5	97.6	-	-	96.6	97.9	92.2	97.4	-	-	93.2	97.4	90.1	94.1	-	-	91.4	93.0
Buses	23	16	4	0	-	43	1	14	2	0	-	17	2	16	0	0	-	18	2	11	7	0	-	20	98
% Buses	5.0	3.1	1.2	-	-	3.3	0.7	5.1	0.7	-	-	2.4	0.4	0.5	0.0	-	-	0.5	0.6	0.5	2.3	-	-	0.7	1.2
Trucks	7	9	24	0	-	40	1	1	5	0	-	7	9	223	5	0	-	237	6	194	11	0	-	211	495
% Trucks	1.5	1.7	7.4	-	-	3.1	0.7	0.4	1.7	-	-	1.0	1.7	7.3	2.6	-	-	6.3	1.9	9.3	3.6	-	-	7.8	5.9
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	5	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	23.1	-	-	-	-	-	2.8	-	-	-	-	-	6.9	-	-
Pedestrians	-	-	-	-	6	-	-	-	-	-	10	-	-	-	-	-	35	-	-	-	-	-	67	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	76.9	-	-	-	-	-	97.2	-	-	-	-	-	93.1	-	-



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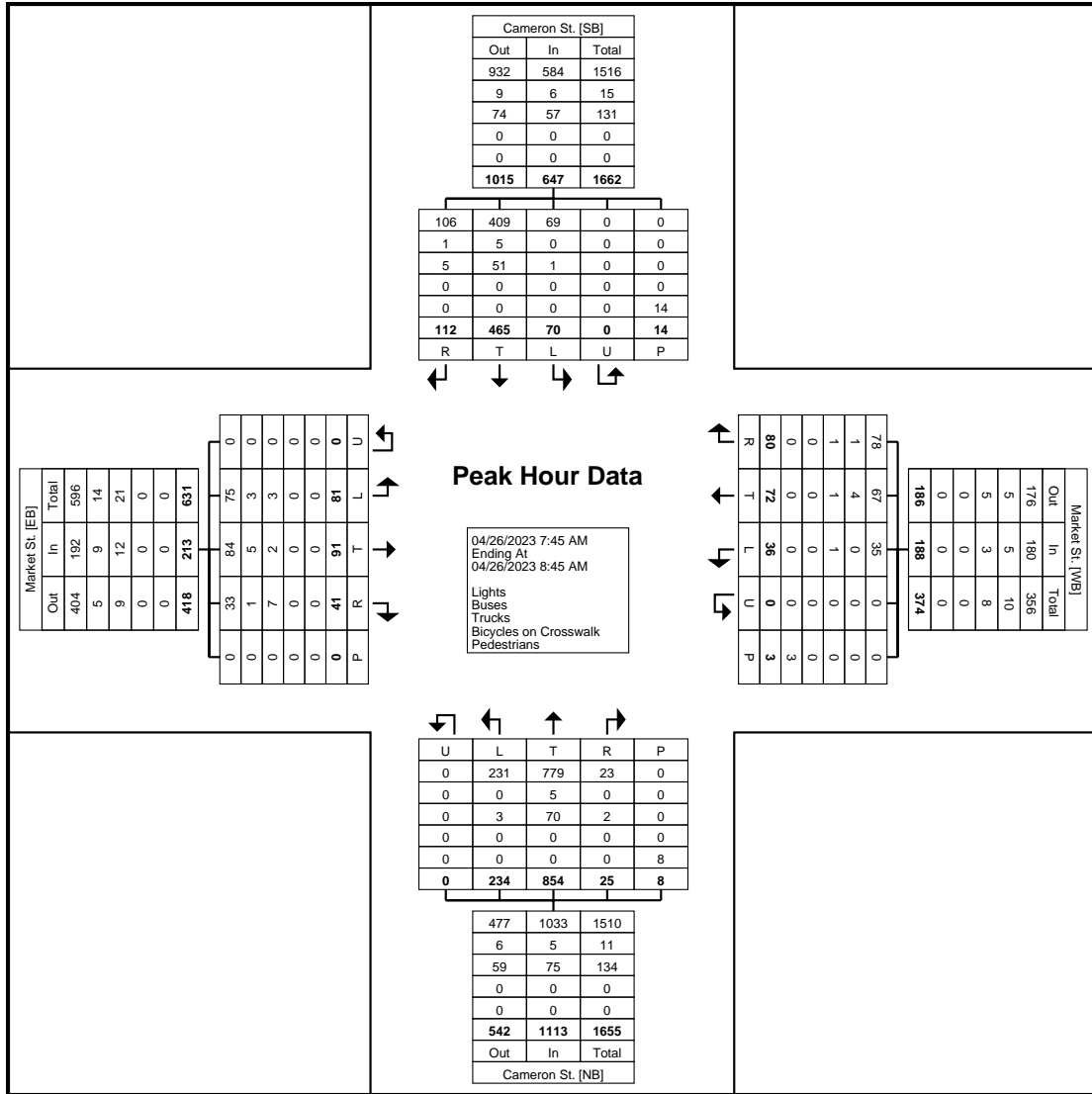
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610-466-1469
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Harrisburg, PA
Market St & Cameron St
Wednesday, April 26, 2023
Location: 40.264503, -
76.874582

Count Name: Market St. &
Cameron St.
Site Code:
Start Date: 04/26/2023
Page No: 3

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Market St. Eastbound						Market St. Westbound						Cameron St. Northbound						Cameron St. Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:45 AM	25	35	16	0	0	76	14	19	24	0	0	57	64	232	9	0	2	305	19	105	33	0	3	157	595
8:00 AM	15	20	9	0	0	44	10	18	22	0	1	50	54	240	8	0	1	302	18	122	28	0	4	168	564
8:15 AM	15	15	10	0	0	40	9	20	19	0	0	48	60	184	3	0	1	247	15	115	33	0	0	163	498
8:30 AM	26	21	6	0	0	53	3	15	15	0	2	33	56	198	5	0	4	259	18	123	18	0	7	159	504
Total	81	91	41	0	0	213	36	72	80	0	3	188	234	854	25	0	8	1113	70	465	112	0	14	647	2161
Approach %	38.0	42.7	19.2	0.0	-	-	19.1	38.3	42.6	0.0	-	-	21.0	76.7	2.2	0.0	-	-	10.8	71.9	17.3	0.0	-	-	-
Total %	3.7	4.2	1.9	0.0	-	9.9	1.7	3.3	3.7	0.0	-	8.7	10.8	39.5	1.2	0.0	-	51.5	3.2	21.5	5.2	0.0	-	29.9	-
PHF	0.779	0.650	0.641	0.000	-	0.701	0.643	0.900	0.833	0.000	-	0.825	0.914	0.890	0.694	0.000	-	0.912	0.921	0.945	0.848	0.000	-	0.963	0.908
Lights	75	84	33	0	-	192	35	67	78	0	-	180	231	779	23	0	-	1033	69	409	106	0	-	584	1989
% Lights	92.6	92.3	80.5	-	-	90.1	97.2	93.1	97.5	-	-	95.7	98.7	91.2	92.0	-	-	92.8	98.6	88.0	94.6	-	-	90.3	92.0
Buses	3	5	1	0	-	9	0	4	1	0	-	5	0	5	0	0	-	5	0	5	1	0	-	6	25
% Buses	3.7	5.5	2.4	-	-	4.2	0.0	5.6	1.3	-	-	2.7	0.0	0.6	0.0	-	-	0.4	0.0	1.1	0.9	-	-	0.9	1.2
Trucks	3	2	7	0	-	12	1	1	1	0	-	3	3	70	2	0	-	75	1	51	5	0	-	57	147
% Trucks	3.7	2.2	17.1	-	-	5.6	2.8	1.4	1.3	-	-	1.6	1.3	8.2	8.0	-	-	6.7	1.4	11.0	4.5	-	-	8.8	6.8
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	8	-	-	-	-	-	14	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (7:45 AM)



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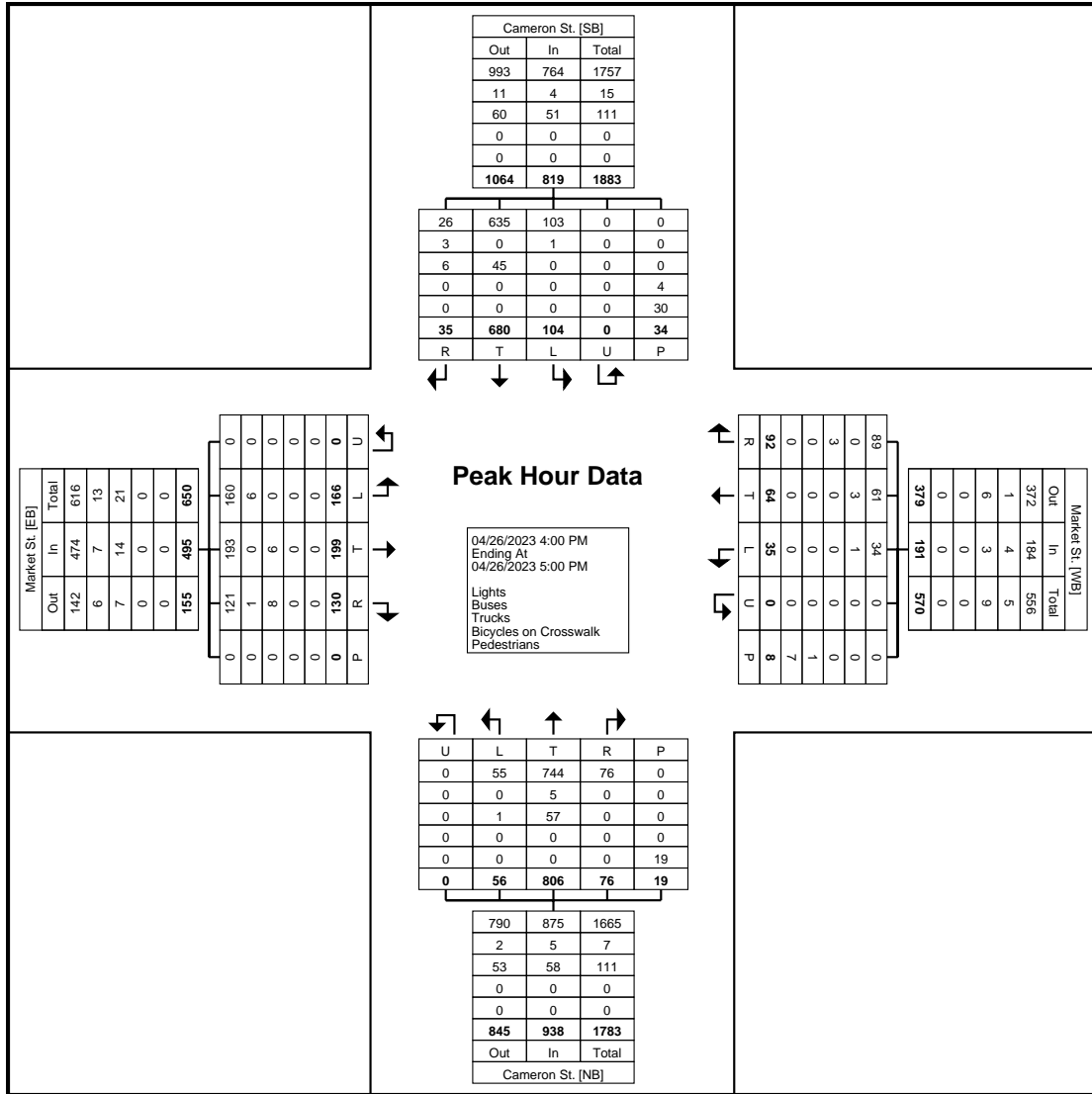
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Harrisburg, PA
Market St & Cameron St
Wednesday, April 26, 2023
Location: 40.264503, -
76.874582

Count Name: Market St. &
Cameron St.
Site Code:
Start Date: 04/26/2023
Page No: 5

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Market St. Eastbound						Market St. Westbound						Cameron St. Northbound						Cameron St. Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:00 PM	47	53	31	0	0	131	9	17	33	0	0	59	15	198	29	0	5	242	23	178	7	0	7	208	640
4:15 PM	43	45	27	0	0	115	7	12	18	0	1	37	11	206	16	0	5	233	22	174	11	0	9	207	592
4:30 PM	40	52	45	0	0	137	14	11	24	0	4	49	17	199	15	0	2	231	31	157	12	0	10	200	617
4:45 PM	36	49	27	0	0	112	5	24	17	0	3	46	13	203	16	0	7	232	28	171	5	0	8	204	594
Total	166	199	130	0	0	495	35	64	92	0	8	191	56	806	76	0	19	938	104	680	35	0	34	819	2443
Approach %	33.5	40.2	26.3	0.0	-	-	18.3	33.5	48.2	0.0	-	-	6.0	85.9	8.1	0.0	-	-	12.7	83.0	4.3	0.0	-	-	-
Total %	6.8	8.1	5.3	0.0	-	20.3	1.4	2.6	3.8	0.0	-	7.8	2.3	33.0	3.1	0.0	-	38.4	4.3	27.8	1.4	0.0	-	33.5	-
PHF	0.883	0.939	0.722	0.000	-	0.903	0.625	0.667	0.697	0.000	-	0.809	0.824	0.978	0.655	0.000	-	0.969	0.839	0.955	0.729	0.000	-	0.984	0.954
Lights	160	193	121	0	-	474	34	61	89	0	-	184	55	744	76	0	-	875	103	635	26	0	-	764	2297
% Lights	96.4	97.0	93.1	-	-	95.8	97.1	95.3	96.7	-	-	96.3	98.2	92.3	100.0	-	-	93.3	99.0	93.4	74.3	-	-	93.3	94.0
Buses	6	0	1	0	-	7	1	3	0	0	-	4	0	5	0	0	-	5	1	0	3	0	-	4	20
% Buses	3.6	0.0	0.8	-	-	1.4	2.9	4.7	0.0	-	-	2.1	0.0	0.6	0.0	-	-	0.5	1.0	0.0	8.6	-	-	0.5	0.8
Trucks	0	6	8	0	-	14	0	0	3	0	-	3	1	57	0	0	-	58	0	45	6	0	-	51	126
% Trucks	0.0	3.0	6.2	-	-	2.8	0.0	0.0	3.3	-	-	1.6	1.8	7.1	0.0	-	-	6.2	0.0	6.6	17.1	-	-	6.2	5.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	4	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	12.5	-	-	-	-	-	0.0	-	-	-	-	-	11.8	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	7	-	-	-	-	-	19	-	-	-	-	-	30	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	87.5	-	-	-	-	-	100.0	-	-	-	-	-	88.2	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)



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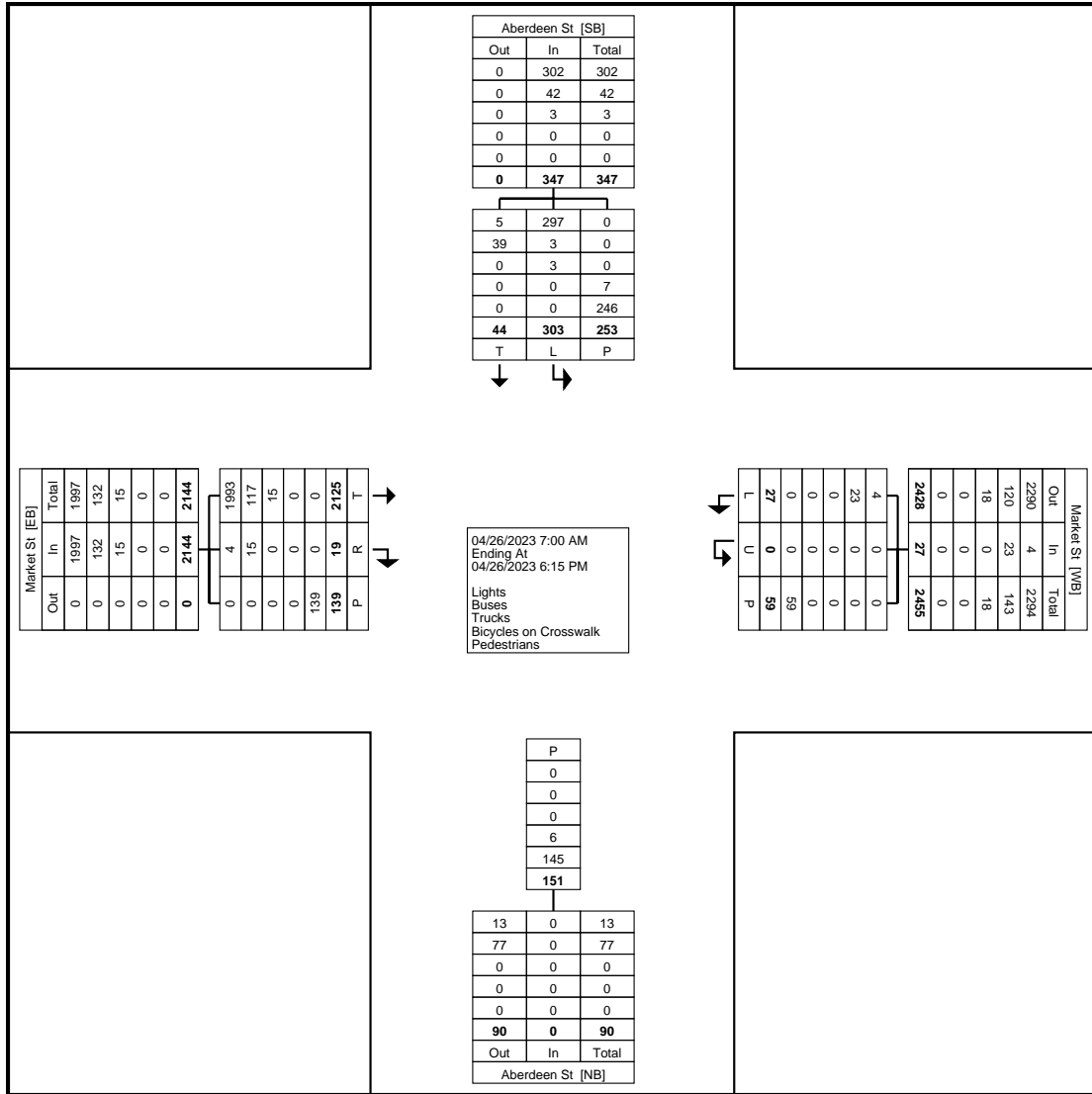
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Harrisburg, PA
Market St & Aberdeen St
Wednesday, April 26, 2023
Location: 40.262497, -
76.879202

Count Name: Market St &
Aberdeen St
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Market St Eastbound				Market St Westbound				Aberdeen St Northbound		Aberdeen St Southbound				Int. Total
	Thru	Right	Peds	App. Total	Left	U-Turn	Peds	App. Total	Peds	App. Total	Left	Thru	Peds	App. Total	
7:00 AM	92	2	16	94	0	0	13	0	5	0	7	3	7	10	104
7:15 AM	110	2	5	112	3	0	2	3	9	0	12	1	17	13	128
7:30 AM	141	2	3	143	1	0	3	1	5	0	5	4	29	9	153
7:45 AM	163	0	3	163	1	0	0	1	13	0	20	2	28	22	186
Hourly Total	506	6	27	512	5	0	18	5	32	0	44	10	81	54	571
8:00 AM	145	2	31	147	1	0	15	1	8	0	17	1	18	18	166
8:15 AM	139	1	3	140	1	0	3	1	3	0	16	3	23	19	160
8:30 AM	148	2	0	150	2	0	2	2	9	0	14	2	20	16	168
8:45 AM	134	1	3	135	2	0	0	2	8	0	9	2	6	11	148
Hourly Total	566	6	37	572	6	0	20	6	28	0	56	8	67	64	642
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	143	1	18	144	3	0	3	3	19	0	40	2	19	42	189
4:15 PM	135	0	30	135	3	0	10	3	18	0	30	7	11	37	175
4:30 PM	171	1	8	172	5	0	0	5	15	0	37	4	17	41	218
4:45 PM	157	1	8	158	1	0	1	1	11	0	21	7	13	28	187
Hourly Total	606	3	64	609	12	0	14	12	63	0	128	20	60	148	769
5:00 PM	139	2	7	141	0	0	1	0	8	0	25	1	14	26	167
5:15 PM	110	2	3	112	2	0	4	2	10	0	24	2	10	26	140
5:30 PM	97	0	0	97	1	0	2	1	5	0	14	2	13	16	114
5:45 PM	101	0	1	101	1	0	0	1	5	0	12	1	8	13	115
Hourly Total	447	4	11	451	4	0	7	4	28	0	75	6	45	81	536
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	2125	19	139	2144	27	0	59	27	151	0	303	44	253	347	2518
Approach %	99.1	0.9	-	-	100.0	0.0	-	-	-	-	87.3	12.7	-	-	-
Total %	84.4	0.8	-	85.1	1.1	0.0	-	1.1	-	0.0	12.0	1.7	-	13.8	-
Lights	1993	4	-	1997	4	0	-	4	-	0	297	5	-	302	2303
% Lights	93.8	21.1	-	93.1	14.8	-	-	14.8	-	-	98.0	11.4	-	87.0	91.5
Buses	117	15	-	132	23	0	-	23	-	0	3	39	-	42	197
% Buses	5.5	78.9	-	6.2	85.2	-	-	85.2	-	-	1.0	88.6	-	12.1	7.8
Trucks	15	0	-	15	0	0	-	0	-	0	3	0	-	3	18
% Trucks	0.7	0.0	-	0.7	0.0	-	-	0.0	-	-	1.0	0.0	-	0.9	0.7
Bicycles on Crosswalk	-	-	0	-	-	-	0	-	6	-	-	-	7	-	-
% Bicycles on Crosswalk	-	-	0.0	-	-	-	0.0	-	4.0	-	-	-	2.8	-	-
Pedestrians	-	-	139	-	-	-	59	-	145	-	-	-	246	-	-
% Pedestrians	-	-	100.0	-	-	-	100.0	-	96.0	-	-	-	97.2	-	-



Turning Movement Data Plot



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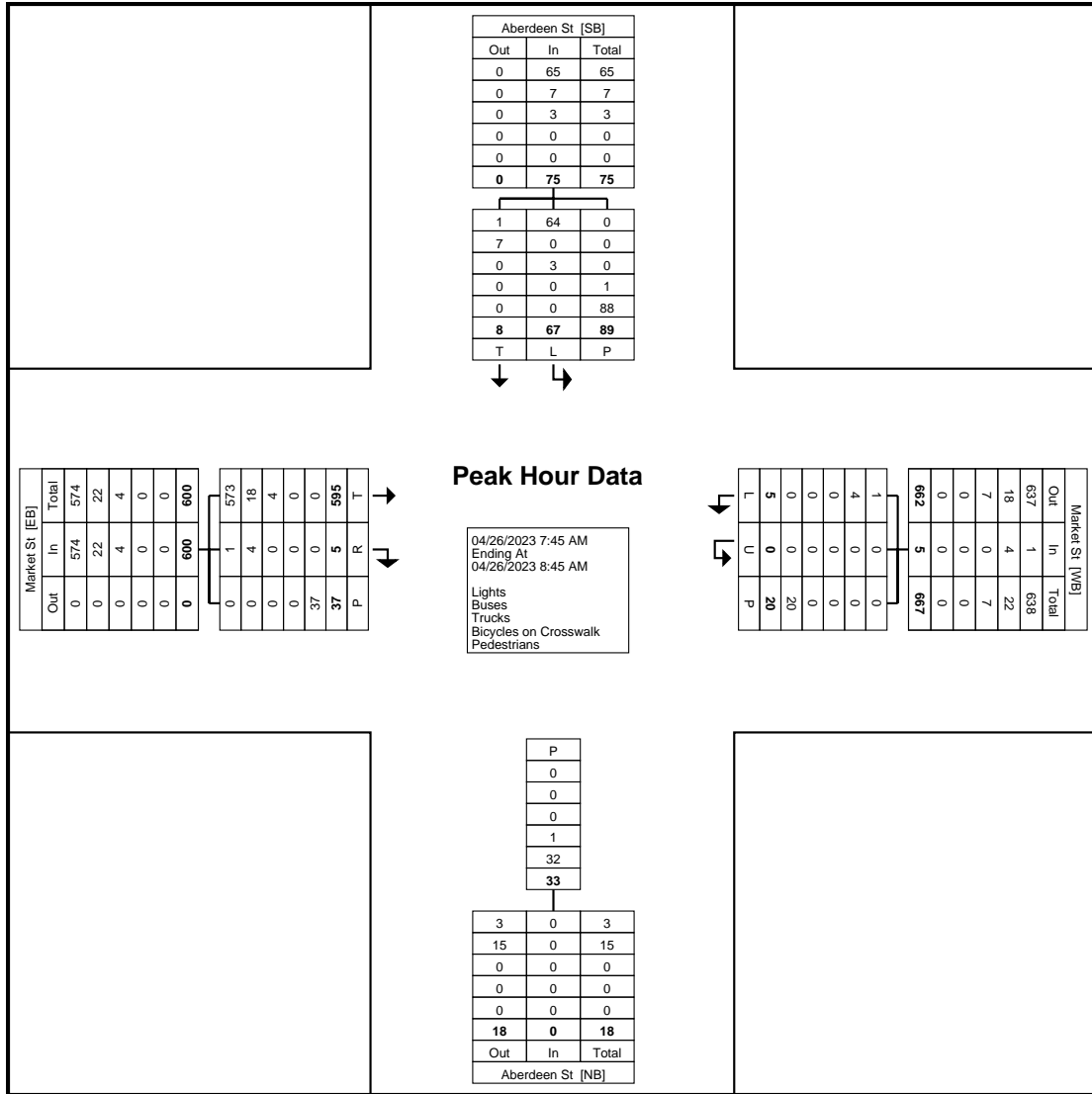
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Count Name: Market St &
Aberdeen St
Site Code:
Start Date: 04/26/2023
Page No: 3

Harrisburg, PA
Market St & Aberdeen St
Wednesday, April 26, 2023
Location: 40.262497, -
76.879202

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Market St Eastbound				Market St Westbound				Aberdeen St Northbound		Aberdeen St Southbound				Int. Total
	Thru	Right	Peds	App. Total	Left	U-Turn	Peds	App. Total	Peds	App. Total	Left	Thru	Peds	App. Total	
7:45 AM	163	0	3	163	1	0	0	1	13	0	20	2	28	22	186
8:00 AM	145	2	31	147	1	0	15	1	8	0	17	1	18	18	166
8:15 AM	139	1	3	140	1	0	3	1	3	0	16	3	23	19	160
8:30 AM	148	2	0	150	2	0	2	2	9	0	14	2	20	16	168
Total	595	5	37	600	5	0	20	5	33	0	67	8	89	75	680
Approach %	99.2	0.8	-	-	100.0	0.0	-	-	-	-	89.3	10.7	-	-	-
Total %	87.5	0.7	-	88.2	0.7	0.0	-	0.7	-	0.0	9.9	1.2	-	11.0	-
PHF	0.913	0.625	-	0.920	0.625	0.000	-	0.625	-	0.000	0.838	0.667	-	0.852	0.914
Lights	573	1	-	574	1	0	-	1	-	0	64	1	-	65	640
% Lights	96.3	20.0	-	95.7	20.0	-	-	20.0	-	-	95.5	12.5	-	86.7	94.1
Buses	18	4	-	22	4	0	-	4	-	0	0	7	-	7	33
% Buses	3.0	80.0	-	3.7	80.0	-	-	80.0	-	-	0.0	87.5	-	9.3	4.9
Trucks	4	0	-	4	0	0	-	0	-	0	3	0	-	3	7
% Trucks	0.7	0.0	-	0.7	0.0	-	-	0.0	-	-	4.5	0.0	-	4.0	1.0
Bicycles on Crosswalk	-	-	0	-	-	-	0	-	1	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	0.0	-	-	-	0.0	-	3.0	-	-	-	1.1	-	-
Pedestrians	-	-	37	-	-	-	20	-	32	-	-	-	88	-	-
% Pedestrians	-	-	100.0	-	-	-	100.0	-	97.0	-	-	-	98.9	-	-



Turning Movement Peak Hour Data Plot (7:45 AM)



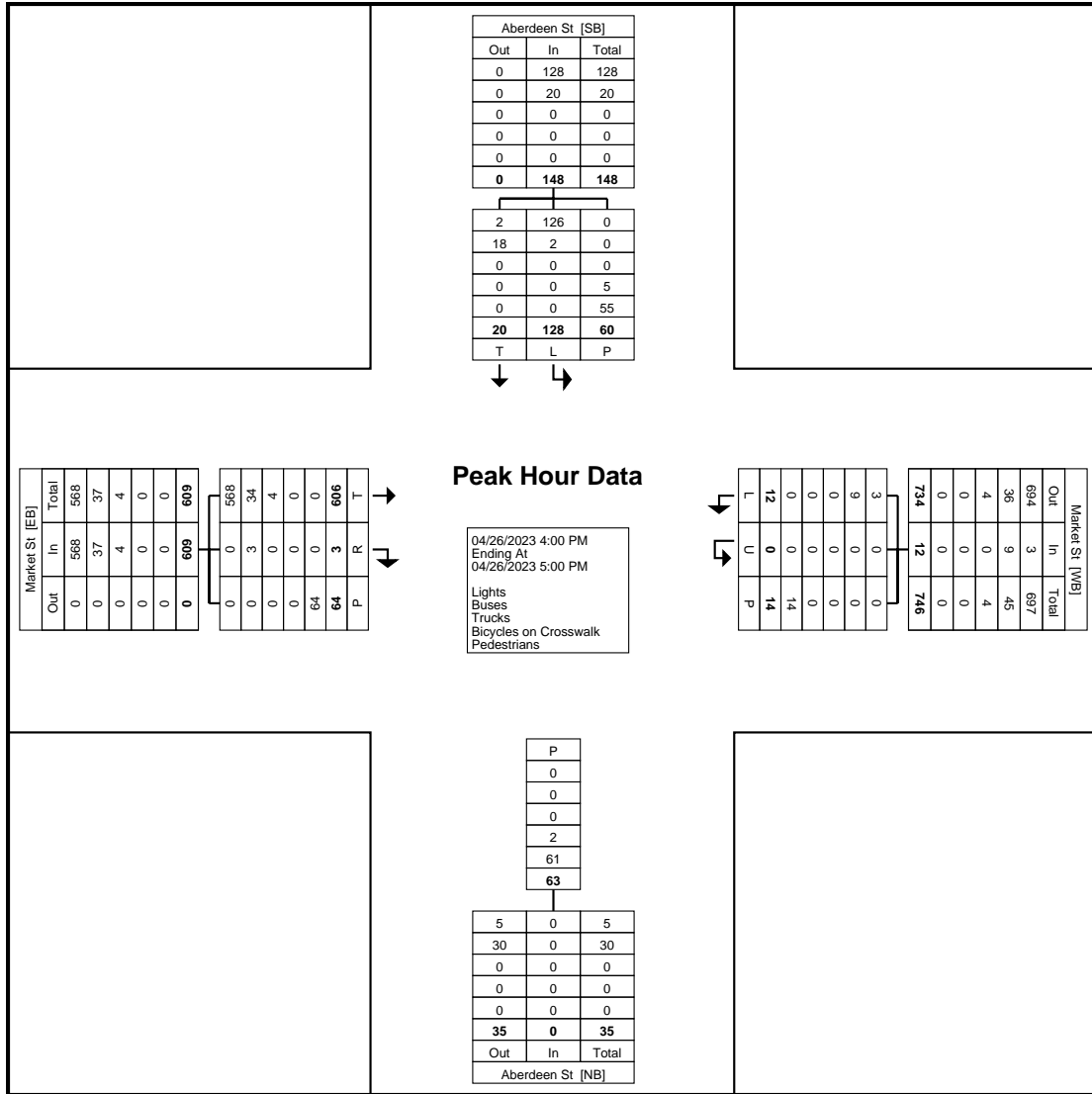
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Count Name: Market St &
Aberdeen St
Site Code:
Start Date: 04/26/2023
Page No: 5

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Market St Eastbound				Market St Westbound				Aberdeen St Northbound		Aberdeen St Southbound				Int. Total
	Thru	Right	Peds	App. Total	Left	U-Turn	Peds	App. Total	Peds	App. Total	Left	Thru	Peds	App. Total	
4:00 PM	143	1	18	144	3	0	3	3	19	0	40	2	19	42	189
4:15 PM	135	0	30	135	3	0	10	3	18	0	30	7	11	37	175
4:30 PM	171	1	8	172	5	0	0	5	15	0	37	4	17	41	218
4:45 PM	157	1	8	158	1	0	1	1	11	0	21	7	13	28	187
Total	606	3	64	609	12	0	14	12	63	0	128	20	60	148	769
Approach %	99.5	0.5	-	-	100.0	0.0	-	-	-	-	86.5	13.5	-	-	-
Total %	78.8	0.4	-	79.2	1.6	0.0	-	1.6	-	0.0	16.6	2.6	-	19.2	-
PHF	0.886	0.750	-	0.885	0.600	0.000	-	0.600	-	0.000	0.800	0.714	-	0.881	0.882
Lights	568	0	-	568	3	0	-	3	-	0	126	2	-	128	699
% Lights	93.7	0.0	-	93.3	25.0	-	-	25.0	-	-	98.4	10.0	-	86.5	90.9
Buses	34	3	-	37	9	0	-	9	-	0	2	18	-	20	66
% Buses	5.6	100.0	-	6.1	75.0	-	-	75.0	-	-	1.6	90.0	-	13.5	8.6
Trucks	4	0	-	4	0	0	-	0	-	0	0	0	-	0	4
% Trucks	0.7	0.0	-	0.7	0.0	-	-	0.0	-	-	0.0	0.0	-	0.0	0.5
Bicycles on Crosswalk	-	-	0	-	-	-	0	-	2	-	-	-	5	-	-
% Bicycles on Crosswalk	-	-	0.0	-	-	-	0.0	-	3.2	-	-	-	8.3	-	-
Pedestrians	-	-	64	-	-	-	14	-	61	-	-	-	55	-	-
% Pedestrians	-	-	100.0	-	-	-	100.0	-	96.8	-	-	-	91.7	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)



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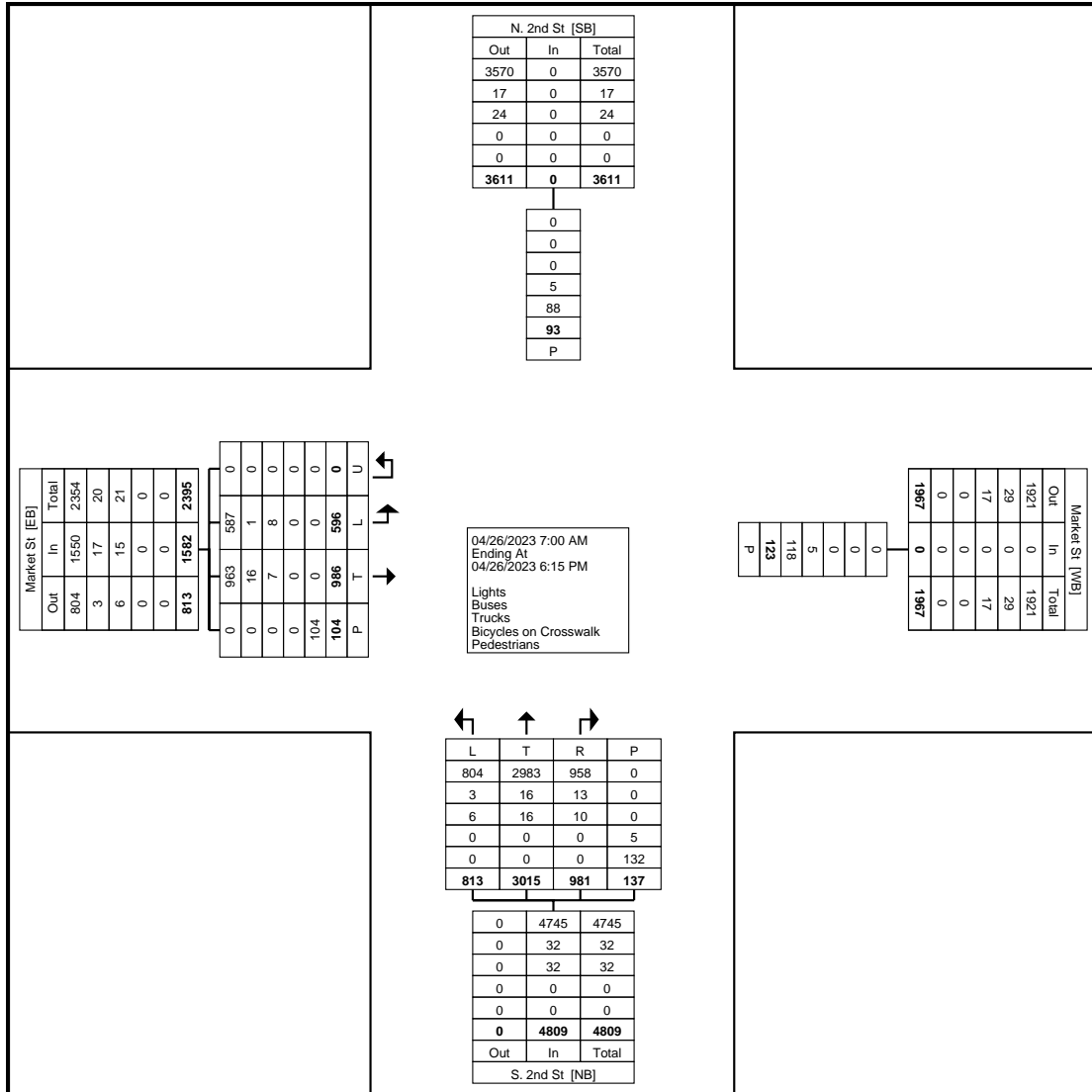
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Harrisburg, PA
Market St & N 2nd St
Wednesday, April 26, 2023
Location: 40.259617, -
76.881855

Count Name: Market St & N.
2nd St
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Market St Eastbound					Market St Westbound		S. 2nd St Northbound					N. 2nd St Southbound		Int. Total	
	Left	Thru	U-Turn	Peds	App. Total	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Peds		App. Total
7:00 AM	26	44	0	1	70	2	0	23	161	52	0	6	236	3	0	306
7:15 AM	37	62	0	5	99	2	0	26	186	51	0	8	263	4	0	362
7:30 AM	44	68	0	8	112	10	0	34	226	69	0	8	329	3	0	441
7:45 AM	55	78	0	15	133	5	0	36	249	92	0	9	377	4	0	510
Hourly Total	162	252	0	29	414	19	0	119	822	264	0	31	1205	14	0	1619
8:00 AM	48	67	0	12	115	5	0	27	236	77	0	5	340	3	0	455
8:15 AM	36	82	0	9	118	4	0	34	240	75	0	5	349	5	0	467
8:30 AM	37	76	0	7	113	5	0	28	250	68	0	6	346	4	0	459
8:45 AM	47	48	0	6	95	2	0	30	207	80	0	9	317	7	0	412
Hourly Total	168	273	0	34	441	16	0	119	933	300	0	25	1352	19	0	1793
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	38	52	0	4	90	11	0	91	157	54	0	14	302	10	0	392
4:15 PM	30	60	0	14	90	15	0	83	169	50	0	13	302	9	0	392
4:30 PM	35	66	0	3	101	14	0	77	168	58	0	26	303	5	0	404
4:45 PM	34	62	0	7	96	11	0	91	172	50	0	2	313	12	0	409
Hourly Total	137	240	0	28	377	51	0	342	666	212	0	55	1220	36	0	1597
5:00 PM	33	65	0	7	98	17	0	69	158	53	0	12	280	5	0	378
5:15 PM	24	46	0	1	70	5	0	81	154	40	0	1	275	5	0	345
5:30 PM	30	61	0	2	91	4	0	42	143	55	0	6	240	6	0	331
5:45 PM	42	49	0	3	91	11	0	41	139	57	0	7	237	8	0	328
Hourly Total	129	221	0	13	350	37	0	233	594	205	0	26	1032	24	0	1382
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	596	986	0	104	1582	123	0	813	3015	981	0	137	4809	93	0	6391
Approach %	37.7	62.3	0.0	-	-	-	-	16.9	62.7	20.4	0.0	-	-	-	-	-
Total %	9.3	15.4	0.0	-	24.8	-	0.0	12.7	47.2	15.3	0.0	-	75.2	-	0.0	-
Lights	587	963	0	-	1550	-	0	804	2983	958	0	-	4745	-	0	6295
% Lights	98.5	97.7	-	-	98.0	-	-	98.9	98.9	97.7	-	-	98.7	-	-	98.5
Buses	1	16	0	-	17	-	0	3	16	13	0	-	32	-	0	49
% Buses	0.2	1.6	-	-	1.1	-	-	0.4	0.5	1.3	-	-	0.7	-	-	0.8
Trucks	8	7	0	-	15	-	0	6	16	10	0	-	32	-	0	47
% Trucks	1.3	0.7	-	-	0.9	-	-	0.7	0.5	1.0	-	-	0.7	-	-	0.7
Bicycles on Crosswalk	-	-	-	0	-	5	-	-	-	-	-	5	-	5	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	4.1	-	-	-	-	-	3.6	-	5.4	-	-
Pedestrians	-	-	-	104	-	118	-	-	-	-	-	132	-	88	-	-
% Pedestrians	-	-	-	100.0	-	95.9	-	-	-	-	-	96.4	-	94.6	-	-



Turning Movement Data Plot



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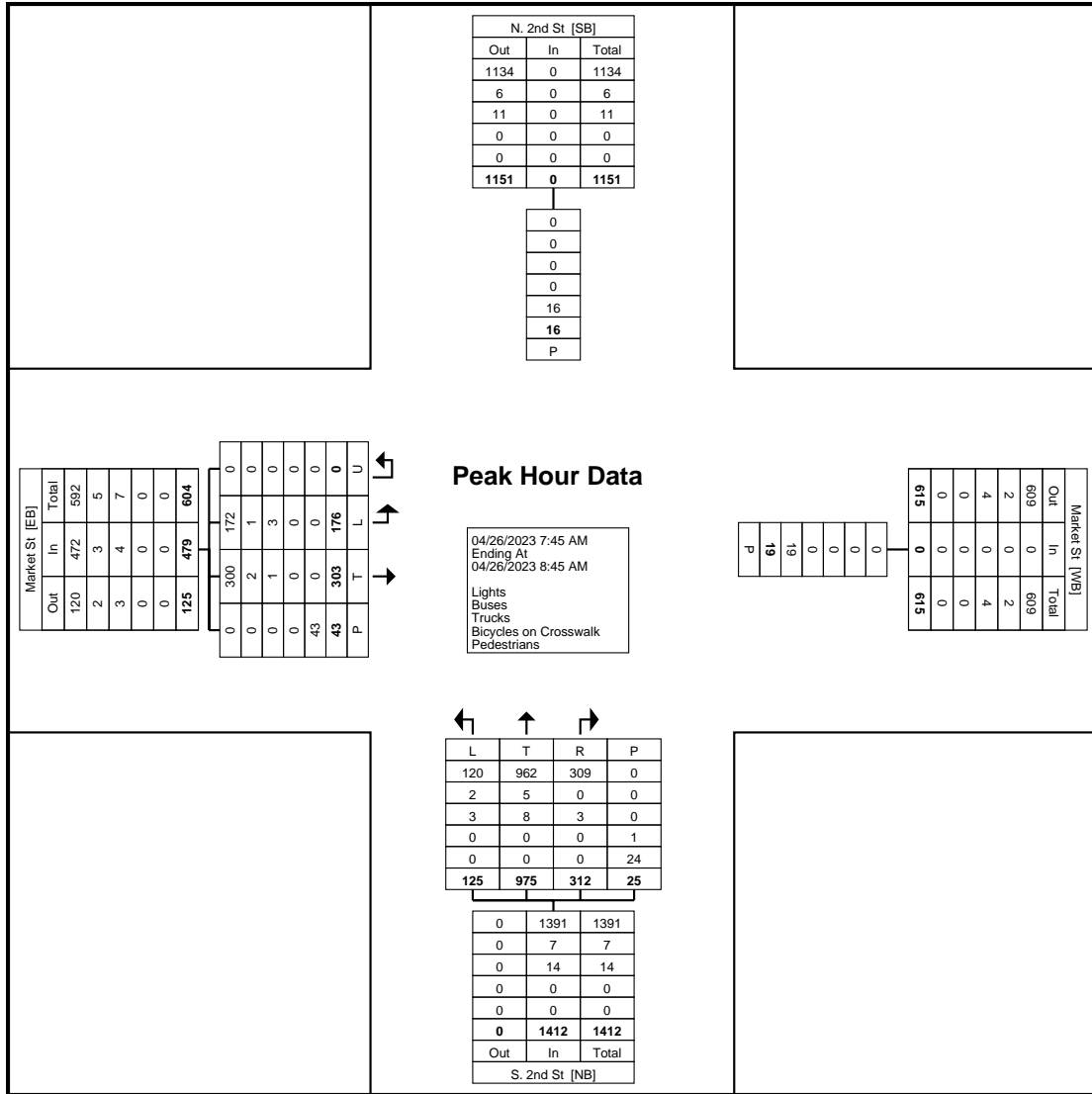
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Count Name: Market St & N.
2nd St
Site Code:
Start Date: 04/26/2023
Page No: 3

Harrisburg, PA
Market St & N 2nd St
Wednesday, April 26, 2023
Location: 40.259617, -
76.881855

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Market St Eastbound					Market St Westbound		S. 2nd St Northbound					N. 2nd St Southbound		Int. Total	
	Left	Thru	U-Turn	Peds	App. Total	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Peds		App. Total
7:45 AM	55	78	0	15	133	5	0	36	249	92	0	9	377	4	0	510
8:00 AM	48	67	0	12	115	5	0	27	236	77	0	5	340	3	0	455
8:15 AM	36	82	0	9	118	4	0	34	240	75	0	5	349	5	0	467
8:30 AM	37	76	0	7	113	5	0	28	250	68	0	6	346	4	0	459
Total	176	303	0	43	479	19	0	125	975	312	0	25	1412	16	0	1891
Approach %	36.7	63.3	0.0	-	-	-	-	8.9	69.1	22.1	0.0	-	-	-	-	-
Total %	9.3	16.0	0.0	-	25.3	-	0.0	6.6	51.6	16.5	0.0	-	74.7	-	0.0	-
PHF	0.800	0.924	0.000	-	0.900	-	0.000	0.868	0.975	0.848	0.000	-	0.936	-	0.000	0.927
Lights	172	300	0	-	472	-	0	120	962	309	0	-	1391	-	0	1863
% Lights	97.7	99.0	-	-	98.5	-	-	96.0	98.7	99.0	-	-	98.5	-	-	98.5
Buses	1	2	0	-	3	-	0	2	5	0	0	-	7	-	0	10
% Buses	0.6	0.7	-	-	0.6	-	-	1.6	0.5	0.0	-	-	0.5	-	-	0.5
Trucks	3	1	0	-	4	-	0	3	8	3	0	-	14	-	0	18
% Trucks	1.7	0.3	-	-	0.8	-	-	2.4	0.8	1.0	-	-	1.0	-	-	1.0
Bicycles on Crosswalk	-	-	-	0	-	0	-	-	-	-	-	1	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	0.0	-	-	-	-	-	4.0	-	0.0	-	-
Pedestrians	-	-	-	43	-	19	-	-	-	-	-	24	-	16	-	-
% Pedestrians	-	-	-	100.0	-	100.0	-	-	-	-	-	96.0	-	100.0	-	-



Turning Movement Peak Hour Data Plot (7:45 AM)



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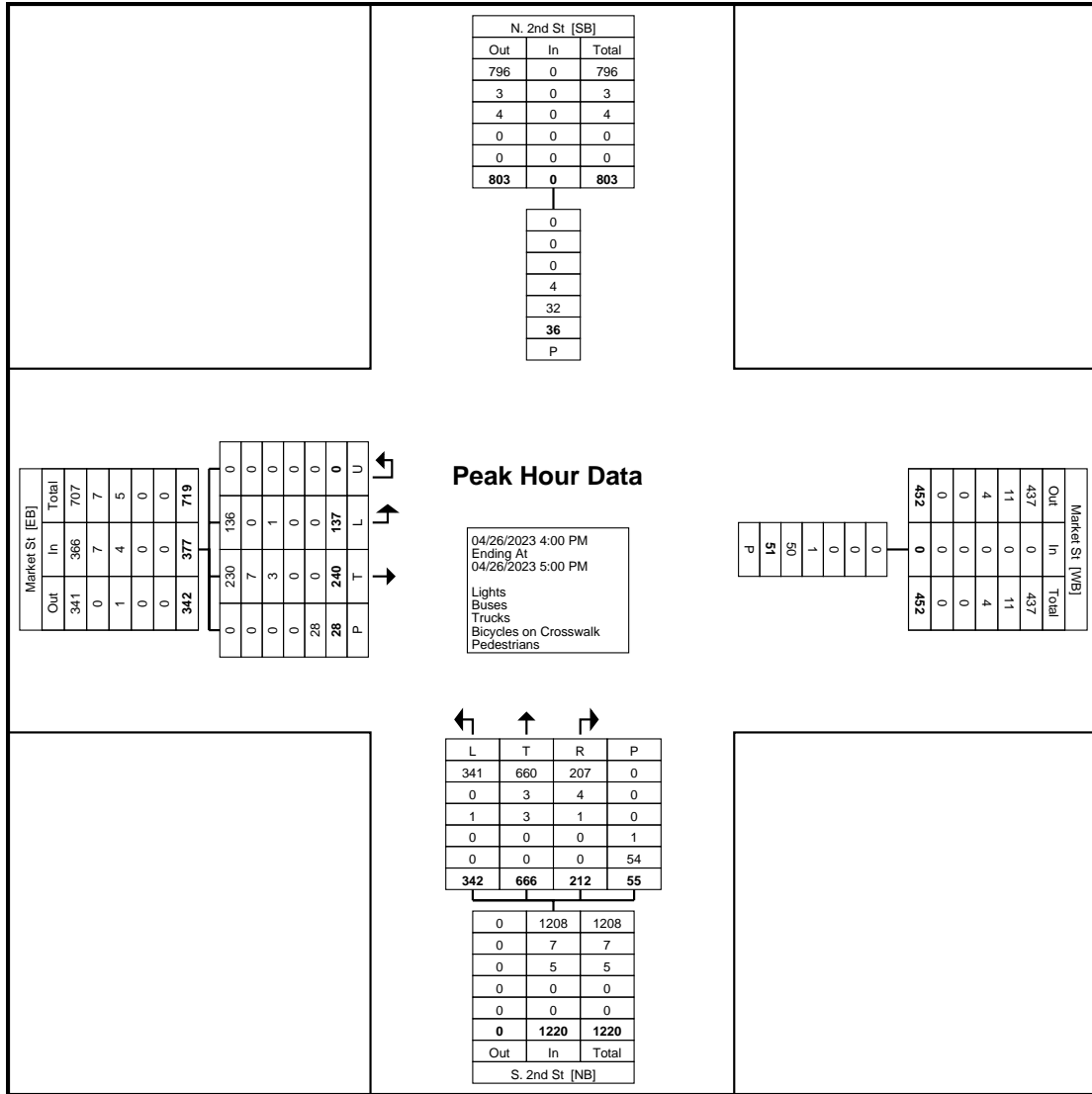
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Harrisburg, PA
Market St & N 2nd St
Wednesday, April 26, 2023
Location: 40.259617, -
76.881855

Count Name: Market St & N.
2nd St
Site Code:
Start Date: 04/26/2023
Page No: 5

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Market St Eastbound					Market St Westbound		S. 2nd St Northbound					N. 2nd St Southbound		Int. Total	
	Left	Thru	U-Turn	Peds	App. Total	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Peds		App. Total
4:00 PM	38	52	0	4	90	11	0	91	157	54	0	14	302	10	0	392
4:15 PM	30	60	0	14	90	15	0	83	169	50	0	13	302	9	0	392
4:30 PM	35	66	0	3	101	14	0	77	168	58	0	26	303	5	0	404
4:45 PM	34	62	0	7	96	11	0	91	172	50	0	2	313	12	0	409
Total	137	240	0	28	377	51	0	342	666	212	0	55	1220	36	0	1597
Approach %	36.3	63.7	0.0	-	-	-	-	28.0	54.6	17.4	0.0	-	-	-	-	-
Total %	8.6	15.0	0.0	-	23.6	-	0.0	21.4	41.7	13.3	0.0	-	76.4	-	0.0	-
PHF	0.901	0.909	0.000	-	0.933	-	0.000	0.940	0.968	0.914	0.000	-	0.974	-	0.000	0.976
Lights	136	230	0	-	366	-	0	341	660	207	0	-	1208	-	0	1574
% Lights	99.3	95.8	-	-	97.1	-	-	99.7	99.1	97.6	-	-	99.0	-	-	98.6
Buses	0	7	0	-	7	-	0	0	3	4	0	-	7	-	0	14
% Buses	0.0	2.9	-	-	1.9	-	-	0.0	0.5	1.9	-	-	0.6	-	-	0.9
Trucks	1	3	0	-	4	-	0	1	3	1	0	-	5	-	0	9
% Trucks	0.7	1.3	-	-	1.1	-	-	0.3	0.5	0.5	-	-	0.4	-	-	0.6
Bicycles on Crosswalk	-	-	-	0	-	1	-	-	-	-	-	1	-	4	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	2.0	-	-	-	-	-	1.8	-	11.1	-	-
Pedestrians	-	-	-	28	-	50	-	-	-	-	-	54	-	32	-	-
% Pedestrians	-	-	-	100.0	-	98.0	-	-	-	-	-	98.2	-	88.9	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)



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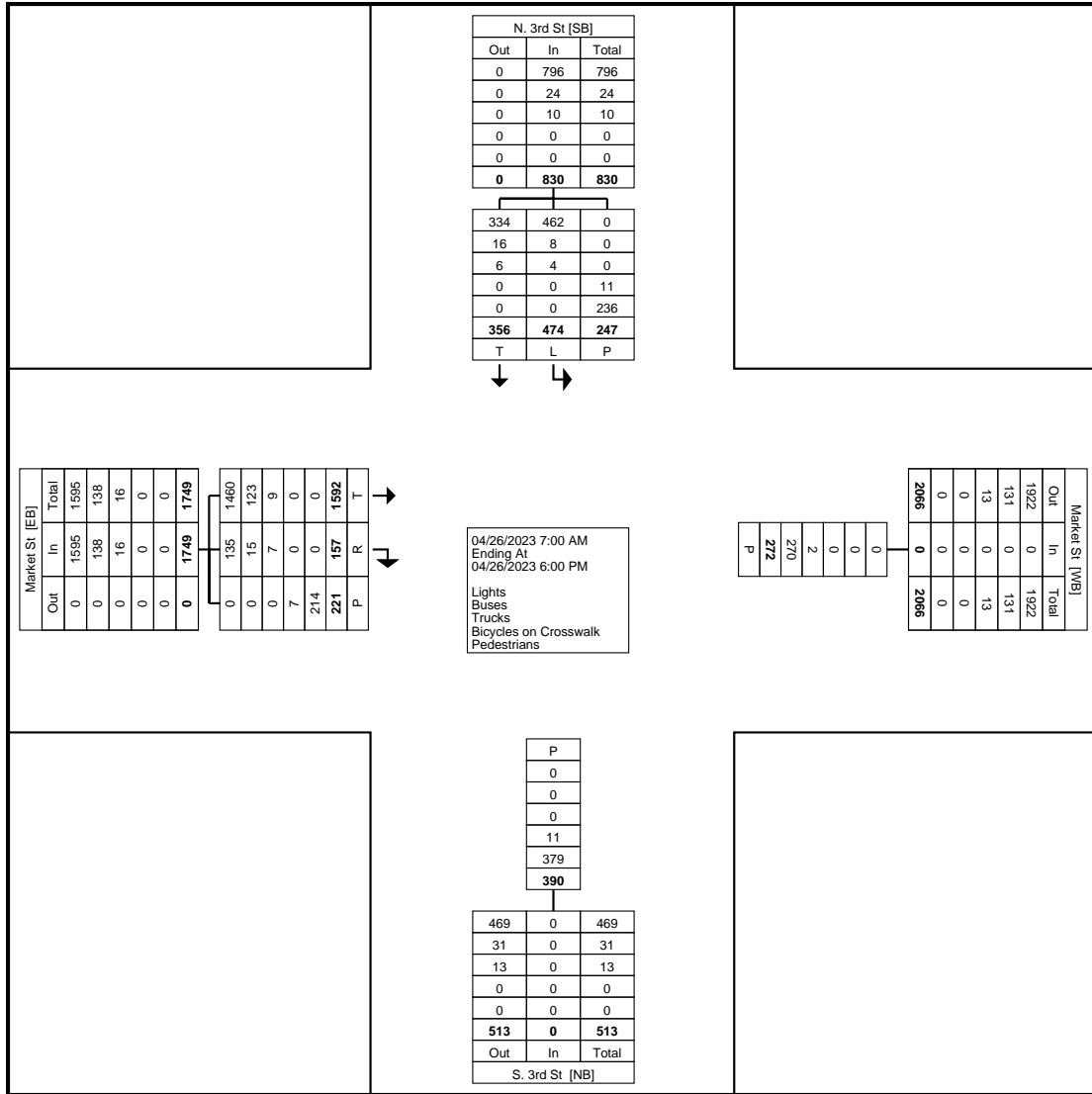
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Harrisburg, PA
Market St & N 3rd St
Wednesday, April 26, 2023
Location: 40.260849, -
76.880733

Count Name: Market St & N. 3rd St
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Market St Eastbound				Market St Westbound		S. 3rd St Northbound		N. 3rd St Southbound				Int. Total	
	Thru	Right	Right on Red	Peds	App. Total	Peds	App. Total	Peds	App. Total	Left	Thru	Peds		App. Total
7:00 AM	84	3	0	6	87	10	0	12	0	12	9	8	21	108
7:15 AM	91	11	0	17	102	15	0	24	0	21	18	19	39	141
7:30 AM	110	11	0	37	121	6	0	18	0	33	23	9	56	177
7:45 AM	134	11	0	26	145	17	0	21	0	35	34	15	69	214
Hourly Total	419	36	0	86	455	48	0	75	0	101	84	51	185	640
8:00 AM	116	10	0	13	126	12	0	18	0	25	26	15	51	177
8:15 AM	118	7	0	12	125	8	0	24	0	26	17	12	43	168
8:30 AM	113	13	0	20	126	25	0	27	0	28	17	12	45	171
8:45 AM	99	12	0	6	111	31	0	19	0	30	10	12	40	151
Hourly Total	446	42	0	51	488	76	0	88	0	109	70	51	179	667
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	100	7	0	15	107	22	0	37	0	35	23	24	58	165
4:15 PM	84	10	0	7	94	18	0	20	0	32	27	19	59	153
4:30 PM	114	9	0	14	123	11	0	34	0	29	29	15	58	181
4:45 PM	102	4	0	10	106	21	0	16	0	35	42	17	77	183
Hourly Total	400	30	0	46	430	72	0	107	0	131	121	75	252	682
5:00 PM	97	7	0	15	104	27	0	36	0	34	16	27	50	154
5:15 PM	70	7	0	4	77	16	0	16	0	36	19	17	55	132
5:30 PM	83	14	0	5	97	13	0	31	0	24	25	16	49	146
5:45 PM	77	21	0	14	98	20	0	37	0	39	21	10	60	158
Hourly Total	327	49	0	38	376	76	0	120	0	133	81	70	214	590
Grand Total	1592	157	0	221	1749	272	0	390	0	474	356	247	830	2579
Approach %	91.0	9.0	0.0	-	-	-	-	-	-	57.1	42.9	-	-	-
Total %	61.7	6.1	0.0	-	67.8	-	0.0	-	0.0	18.4	13.8	-	32.2	-
Lights	1460	135	0	-	1595	-	0	-	0	462	334	-	796	2391
% Lights	91.7	86.0	-	-	91.2	-	-	-	-	97.5	93.8	-	95.9	92.7
Buses	123	15	0	-	138	-	0	-	0	8	16	-	24	162
% Buses	7.7	9.6	-	-	7.9	-	-	-	-	1.7	4.5	-	2.9	6.3
Trucks	9	7	0	-	16	-	0	-	0	4	6	-	10	26
% Trucks	0.6	4.5	-	-	0.9	-	-	-	-	0.8	1.7	-	1.2	1.0
Bicycles on Crosswalk	-	-	-	7	-	2	-	11	-	-	-	11	-	-
% Bicycles on Crosswalk	-	-	-	3.2	-	0.7	-	2.8	-	-	-	4.5	-	-
Pedestrians	-	-	-	214	-	270	-	379	-	-	-	236	-	-
% Pedestrians	-	-	-	96.8	-	99.3	-	97.2	-	-	-	95.5	-	-



Turning Movement Data Plot



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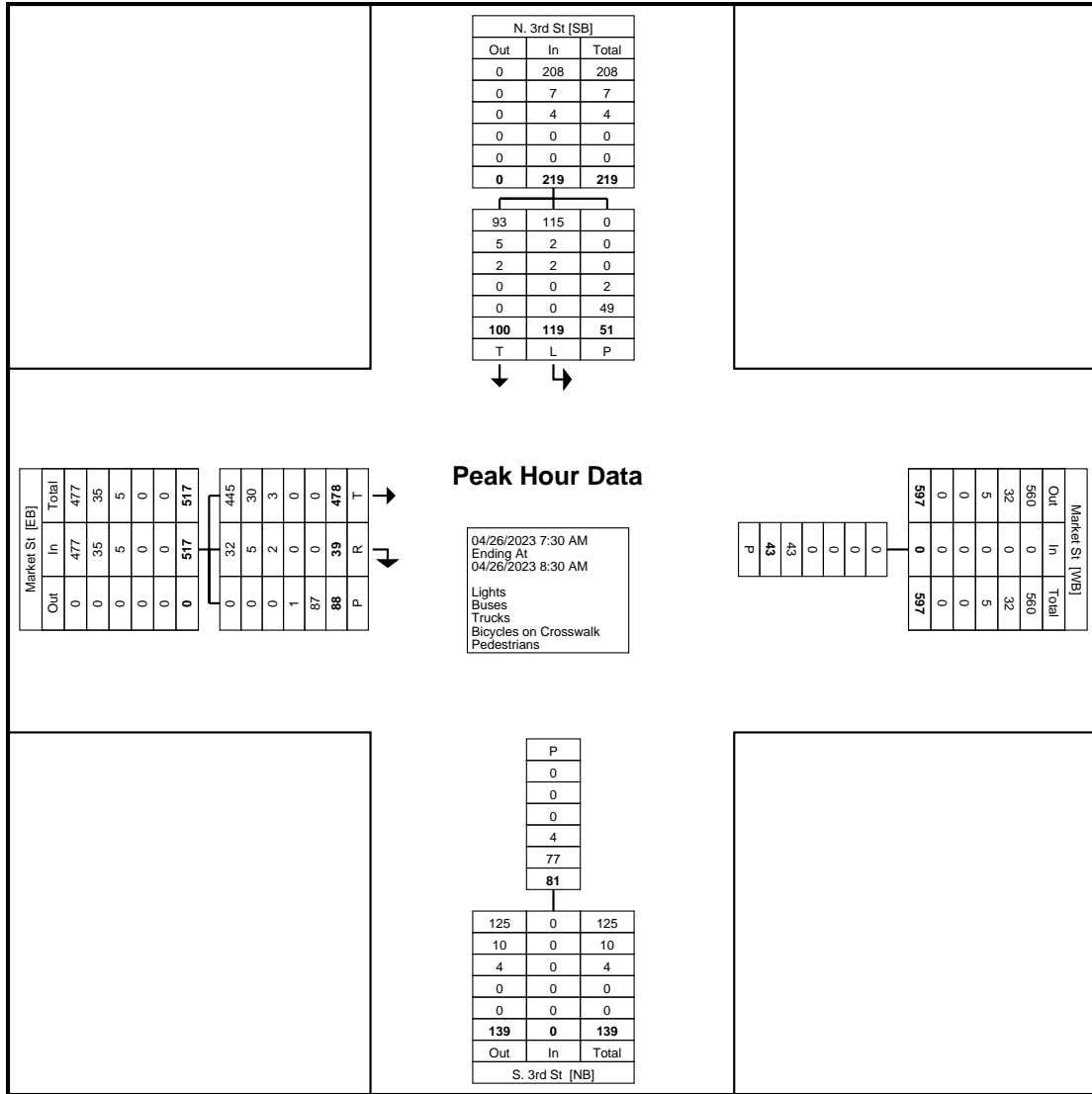
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Harrisburg, PA
Market St & N 3rd St
Wednesday, April 26, 2023
Location: 40.260849, -
76.880733

Count Name: Market St & N. 3rd St
Site Code:
Start Date: 04/26/2023
Page No: 3

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Market St Eastbound					Market St Westbound		S. 3rd St Northbound		N. 3rd St Southbound				Int. Total
	Thru	Right	Right on Red	Peds	App. Total	Peds	App. Total	Peds	App. Total	Left	Thru	Peds	App. Total	
7:30 AM	110	11	0	37	121	6	0	18	0	33	23	9	56	177
7:45 AM	134	11	0	26	145	17	0	21	0	35	34	15	69	214
8:00 AM	116	10	0	13	126	12	0	18	0	25	26	15	51	177
8:15 AM	118	7	0	12	125	8	0	24	0	26	17	12	43	168
Total	478	39	0	88	517	43	0	81	0	119	100	51	219	736
Approach %	92.5	7.5	0.0	-	-	-	-	-	-	54.3	45.7	-	-	-
Total %	64.9	5.3	0.0	-	70.2	-	0.0	-	0.0	16.2	13.6	-	29.8	-
PHF	0.892	0.886	0.000	-	0.891	-	0.000	-	0.000	0.850	0.735	-	0.793	0.860
Lights	445	32	0	-	477	-	0	-	0	115	93	-	208	685
% Lights	93.1	82.1	-	-	92.3	-	-	-	-	96.6	93.0	-	95.0	93.1
Buses	30	5	0	-	35	-	0	-	0	2	5	-	7	42
% Buses	6.3	12.8	-	-	6.8	-	-	-	-	1.7	5.0	-	3.2	5.7
Trucks	3	2	0	-	5	-	0	-	0	2	2	-	4	9
% Trucks	0.6	5.1	-	-	1.0	-	-	-	-	1.7	2.0	-	1.8	1.2
Bicycles on Crosswalk	-	-	-	1	-	0	-	4	-	-	-	2	-	-
% Bicycles on Crosswalk	-	-	-	1.1	-	0.0	-	4.9	-	-	-	3.9	-	-
Pedestrians	-	-	-	87	-	43	-	77	-	-	-	49	-	-
% Pedestrians	-	-	-	98.9	-	100.0	-	95.1	-	-	-	96.1	-	-



Turning Movement Peak Hour Data Plot (7:30 AM)



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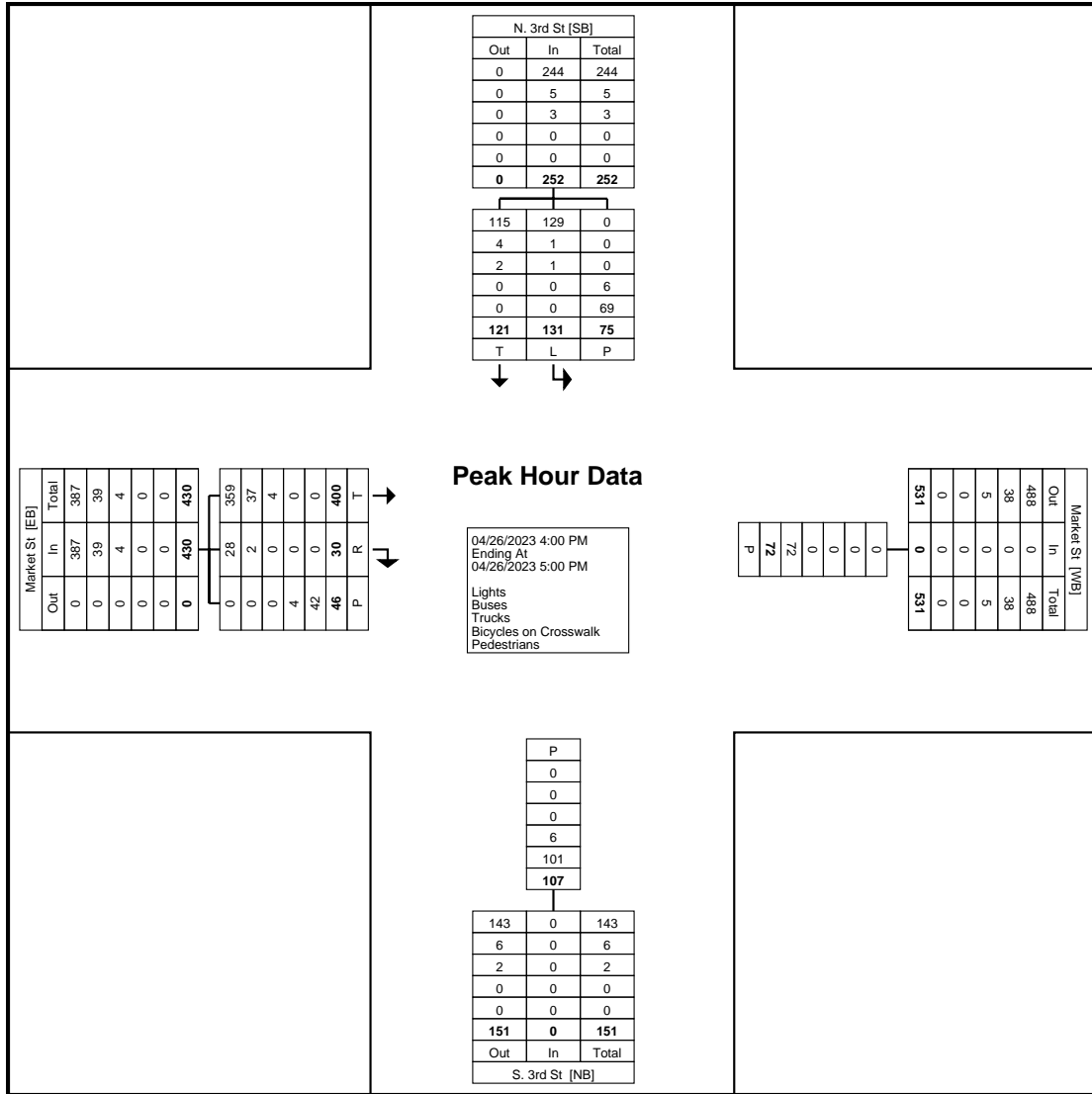
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Harrisburg, PA
Market St & N 3rd St
Wednesday, April 26, 2023
Location: 40.260849, -
76.880733

Count Name: Market St & N. 3rd St
Site Code:
Start Date: 04/26/2023
Page No: 5

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Market St Eastbound					Market St Westbound		S. 3rd St Northbound		N. 3rd St Southbound				Int. Total
	Thru	Right	Right on Red	Peds	App. Total	Peds	App. Total	Peds	App. Total	Left	Thru	Peds	App. Total	
4:00 PM	100	7	0	15	107	22	0	37	0	35	23	24	58	165
4:15 PM	84	10	0	7	94	18	0	20	0	32	27	19	59	153
4:30 PM	114	9	0	14	123	11	0	34	0	29	29	15	58	181
4:45 PM	102	4	0	10	106	21	0	16	0	35	42	17	77	183
Total	400	30	0	46	430	72	0	107	0	131	121	75	252	682
Approach %	93.0	7.0	0.0	-	-	-	-	-	-	52.0	48.0	-	-	-
Total %	58.7	4.4	0.0	-	63.0	-	0.0	-	0.0	19.2	17.7	-	37.0	-
PHF	0.877	0.750	0.000	-	0.874	-	0.000	-	0.000	0.936	0.720	-	0.818	0.932
Lights	359	28	0	-	387	-	0	-	0	129	115	-	244	631
% Lights	89.8	93.3	-	-	90.0	-	-	-	-	98.5	95.0	-	96.8	92.5
Buses	37	2	0	-	39	-	0	-	0	1	4	-	5	44
% Buses	9.3	6.7	-	-	9.1	-	-	-	-	0.8	3.3	-	2.0	6.5
Trucks	4	0	0	-	4	-	0	-	0	1	2	-	3	7
% Trucks	1.0	0.0	-	-	0.9	-	-	-	-	0.8	1.7	-	1.2	1.0
Bicycles on Crosswalk	-	-	-	4	-	0	-	6	-	-	-	6	-	-
% Bicycles on Crosswalk	-	-	-	8.7	-	0.0	-	5.6	-	-	-	8.0	-	-
Pedestrians	-	-	-	42	-	72	-	101	-	-	-	69	-	-
% Pedestrians	-	-	-	91.3	-	100.0	-	94.4	-	-	-	92.0	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)



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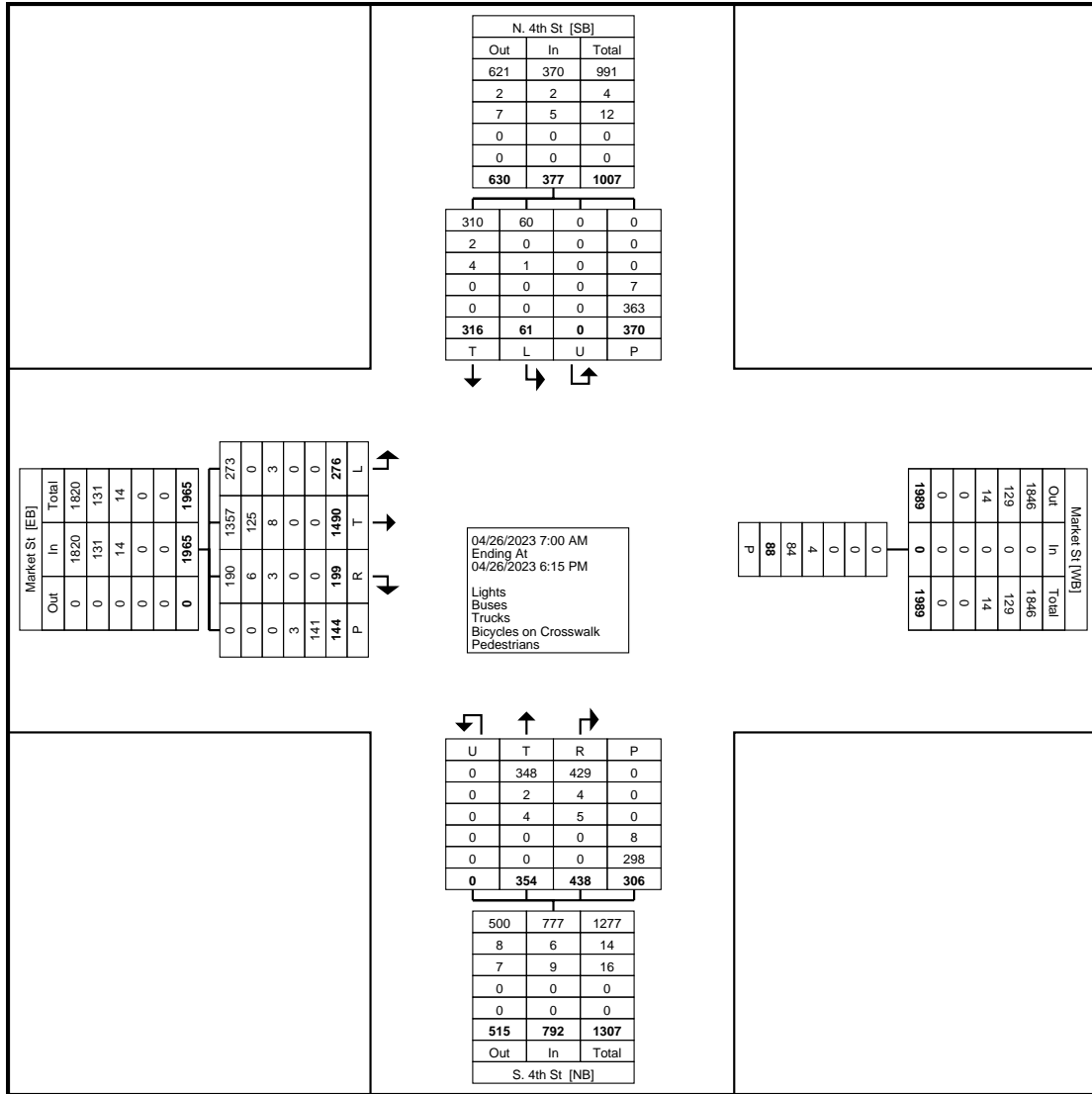
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Harrisburg, PA
Market St & N 4th St
Wednesday, April 26, 2023
Location: 40.261948, -
76.879732

Count Name: Market St & N. 4th St
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Market St Eastbound						Market St Westbound		S. 4th St Northbound						N. 4th St Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total		
7:00 AM	7	70	4	3	9	84	5	0	12	7	1	0	21	20	2	10	0	17	12	116	
7:15 AM	13	82	5	1	6	101	10	0	14	14	5	0	23	33	4	18	0	19	22	156	
7:30 AM	15	111	8	4	5	138	3	0	27	20	1	0	11	48	3	20	0	26	23	209	
7:45 AM	27	120	16	0	7	163	6	0	43	30	2	0	20	75	2	19	0	40	21	259	
Hourly Total	62	383	33	8	27	486	24	0	96	71	9	0	75	176	11	67	0	102	78	740	
8:00 AM	24	105	9	4	16	142	10	0	29	32	2	0	31	63	1	14	0	22	15	220	
8:15 AM	20	98	11	3	14	132	2	0	29	26	8	0	7	63	0	18	0	34	18	213	
8:30 AM	25	105	9	2	2	141	3	0	25	29	9	0	19	63	1	19	0	29	20	224	
8:45 AM	22	93	10	5	8	130	4	0	16	25	10	0	14	51	2	20	0	22	22	203	
Hourly Total	91	401	39	14	40	545	19	0	99	112	29	0	71	240	4	71	0	107	75	860	
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4:00 PM	11	91	10	5	18	117	5	0	13	34	1	0	24	48	6	19	0	26	25	190	
4:15 PM	13	95	10	2	13	120	12	0	18	21	4	0	31	43	7	18	0	18	25	188	
4:30 PM	13	105	9	2	11	129	11	0	30	33	4	0	19	67	6	50	0	30	56	252	
4:45 PM	12	108	5	2	6	127	3	0	13	21	8	0	8	42	2	25	0	16	27	196	
Hourly Total	49	399	34	11	48	493	31	0	74	109	17	0	82	200	21	112	0	90	133	826	
5:00 PM	15	91	11	0	9	117	6	0	20	27	3	0	20	50	14	20	0	21	34	201	
5:15 PM	18	77	18	1	14	114	5	0	15	22	3	0	27	40	4	17	0	21	21	175	
5:30 PM	17	68	5	3	4	93	0	0	33	16	2	0	13	51	4	12	0	19	16	160	
5:45 PM	24	71	19	3	2	117	3	0	17	14	4	0	18	35	3	17	0	10	20	172	
Hourly Total	74	307	53	7	29	441	14	0	85	79	12	0	78	176	25	66	0	71	91	708	
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Grand Total	276	1490	159	40	144	1965	88	0	354	371	67	0	306	792	61	316	0	370	377	3134	
Approach %	14.0	75.8	8.1	2.0	-	-	-	-	44.7	46.8	8.5	0.0	-	-	16.2	83.8	0.0	-	-	-	
Total %	8.8	47.5	5.1	1.3	-	62.7	-	0.0	11.3	11.8	2.1	0.0	-	25.3	1.9	10.1	0.0	-	12.0	-	
Lights	273	1357	151	39	-	1820	-	0	348	364	65	0	-	777	60	310	0	-	370	2967	
% Lights	98.9	91.1	95.0	97.5	-	92.6	-	-	98.3	98.1	97.0	-	-	98.1	98.4	98.1	-	-	98.1	94.7	
Buses	0	125	5	1	-	131	-	0	2	4	0	0	-	6	0	2	0	-	2	139	
% Buses	0.0	8.4	3.1	2.5	-	6.7	-	-	0.6	1.1	0.0	-	-	0.8	0.0	0.6	-	-	0.5	4.4	
Trucks	3	8	3	0	-	14	-	0	4	3	2	0	-	9	1	4	0	-	5	28	
% Trucks	1.1	0.5	1.9	0.0	-	0.7	-	-	1.1	0.8	3.0	-	-	1.1	1.6	1.3	-	-	1.3	0.9	
Bicycles on Crosswalk	-	-	-	-	3	-	4	-	-	-	-	-	8	-	-	-	-	7	-	-	
% Bicycles on Crosswalk	-	-	-	-	2.1	-	4.5	-	-	-	-	-	2.6	-	-	-	-	1.9	-	-	
Pedestrians	-	-	-	-	141	-	84	-	-	-	-	-	298	-	-	-	-	363	-	-	
% Pedestrians	-	-	-	-	97.9	-	95.5	-	-	-	-	-	97.4	-	-	-	-	98.1	-	-	



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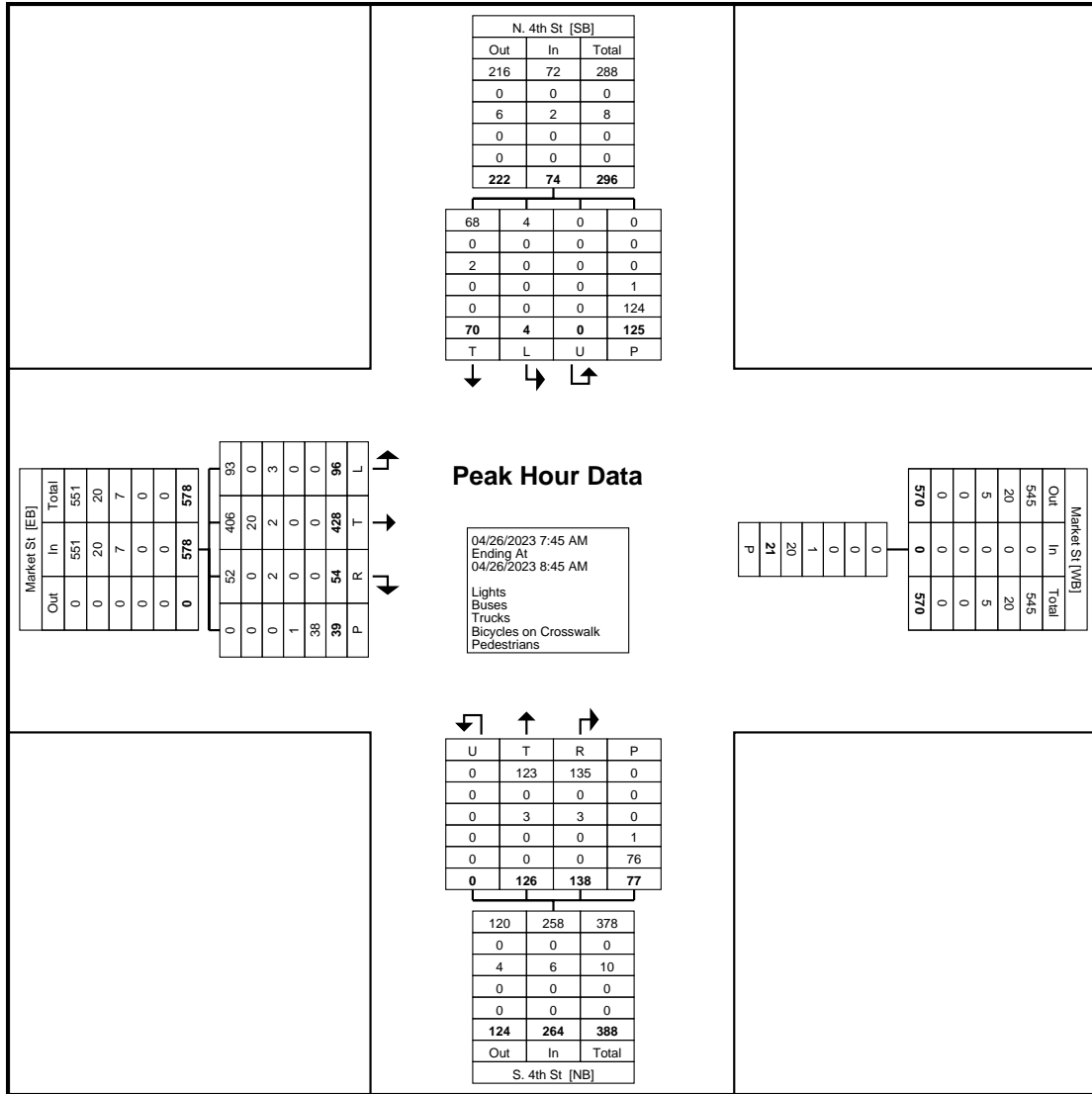
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Harrisburg, PA
Market St & N 4th St
Wednesday, April 26, 2023
Location: 40.261948, -
76.879732

Count Name: Market St & N. 4th St
Site Code:
Start Date: 04/26/2023
Page No: 3

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Market St Eastbound						Market St Westbound		S. 4th St Northbound						N. 4th St Southbound					Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
7:45 AM	27	120	16	0	7	163	6	0	43	30	2	0	20	75	2	19	0	40	21	259
8:00 AM	24	105	9	4	16	142	10	0	29	32	2	0	31	63	1	14	0	22	15	220
8:15 AM	20	98	11	3	14	132	2	0	29	26	8	0	7	63	0	18	0	34	18	213
8:30 AM	25	105	9	2	2	141	3	0	25	29	9	0	19	63	1	19	0	29	20	224
Total	96	428	45	9	39	578	21	0	126	117	21	0	77	264	4	70	0	125	74	916
Approach %	16.6	74.0	7.8	1.6	-	-	-	-	47.7	44.3	8.0	0.0	-	-	5.4	94.6	0.0	-	-	-
Total %	10.5	46.7	4.9	1.0	-	63.1	-	0.0	13.8	12.8	2.3	0.0	-	28.8	0.4	7.6	0.0	-	8.1	-
PHF	0.889	0.892	0.703	0.563	-	0.887	-	0.000	0.733	0.914	0.583	0.000	-	0.880	0.500	0.921	0.000	-	0.881	0.884
Lights	93	406	43	9	-	551	-	0	123	116	19	0	-	258	4	68	0	-	72	881
% Lights	96.9	94.9	95.6	100.0	-	95.3	-	-	97.6	99.1	90.5	-	-	97.7	100.0	97.1	-	-	97.3	96.2
Buses	0	20	0	0	-	20	-	0	0	0	0	0	-	0	0	0	0	-	0	20
% Buses	0.0	4.7	0.0	0.0	-	3.5	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	2.2
Trucks	3	2	2	0	-	7	-	0	3	1	2	0	-	6	0	2	0	-	2	15
% Trucks	3.1	0.5	4.4	0.0	-	1.2	-	-	2.4	0.9	9.5	-	-	2.3	0.0	2.9	-	-	2.7	1.6
Bicycles on Crosswalk	-	-	-	-	1	-	1	-	-	-	-	-	1	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	2.6	-	4.8	-	-	-	-	-	1.3	-	-	-	-	0.8	-	-
Pedestrians	-	-	-	-	38	-	20	-	-	-	-	-	76	-	-	-	-	124	-	-
% Pedestrians	-	-	-	-	97.4	-	95.2	-	-	-	-	-	98.7	-	-	-	-	99.2	-	-



Turning Movement Peak Hour Data Plot (7:45 AM)



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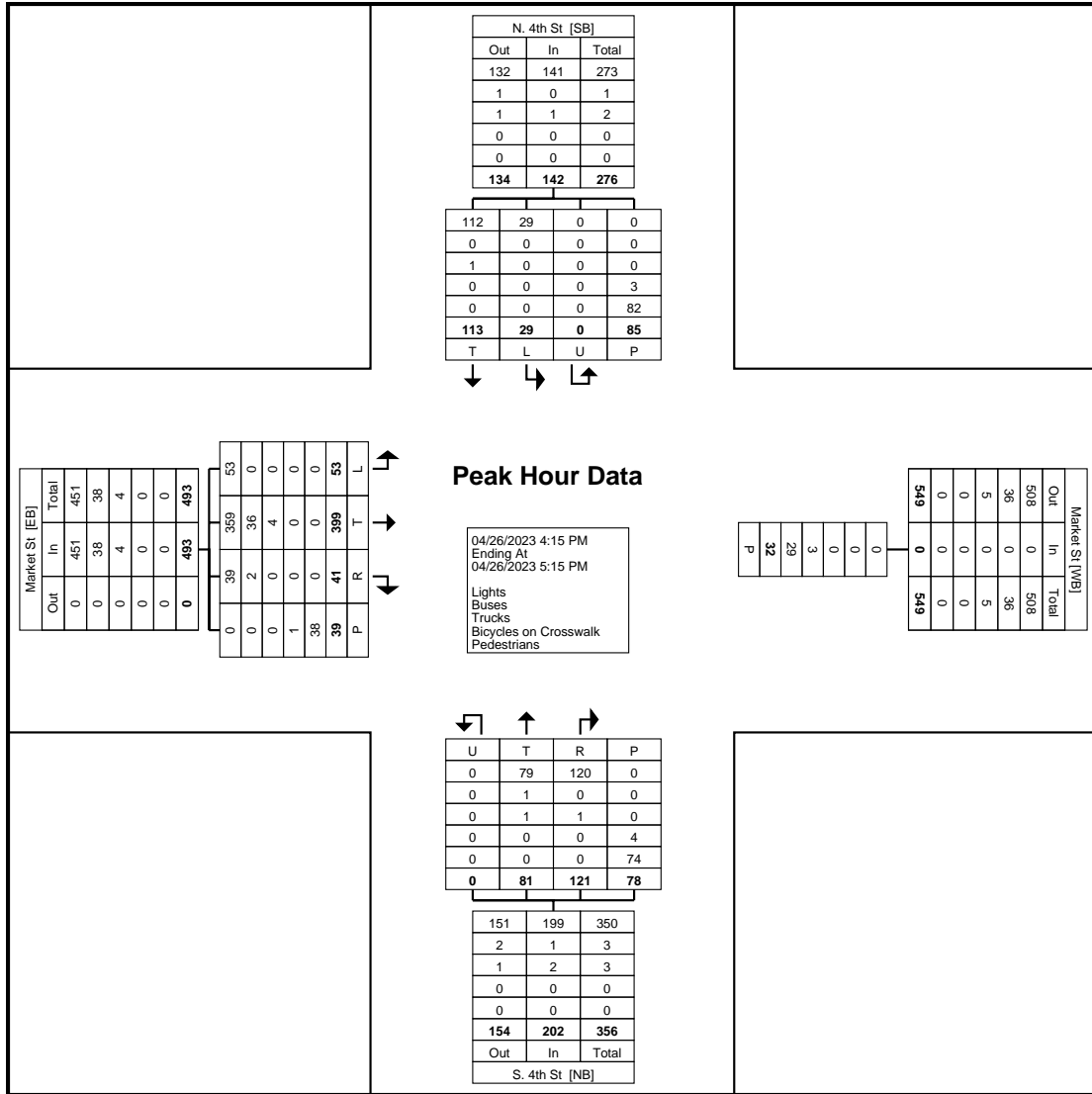
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Harrisburg, PA
Market St & N 4th St
Wednesday, April 26, 2023
Location: 40.261948, -
76.879732

Count Name: Market St & N. 4th St
Site Code:
Start Date: 04/26/2023
Page No: 5

Turning Movement Peak Hour Data (4:15 PM)

Start Time	Market St Eastbound						Market St Westbound		S. 4th St Northbound						N. 4th St Southbound					Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
4:15 PM	13	95	10	2	13	120	12	0	18	21	4	0	31	43	7	18	0	18	25	188
4:30 PM	13	105	9	2	11	129	11	0	30	33	4	0	19	67	6	50	0	30	56	252
4:45 PM	12	108	5	2	6	127	3	0	13	21	8	0	8	42	2	25	0	16	27	196
5:00 PM	15	91	11	0	9	117	6	0	20	27	3	0	20	50	14	20	0	21	34	201
Total	53	399	35	6	39	493	32	0	81	102	19	0	78	202	29	113	0	85	142	837
Approach %	10.8	80.9	7.1	1.2	-	-	-	-	40.1	50.5	9.4	0.0	-	-	20.4	79.6	0.0	-	-	-
Total %	6.3	47.7	4.2	0.7	-	58.9	-	0.0	9.7	12.2	2.3	0.0	-	24.1	3.5	13.5	0.0	-	17.0	-
PHF	0.883	0.924	0.795	0.750	-	0.955	-	0.000	0.675	0.773	0.594	0.000	-	0.754	0.518	0.565	0.000	-	0.634	0.830
Lights	53	359	33	6	-	451	-	0	79	101	19	0	-	199	29	112	0	-	141	791
% Lights	100.0	90.0	94.3	100.0	-	91.5	-	-	97.5	99.0	100.0	-	-	98.5	100.0	99.1	-	-	99.3	94.5
Buses	0	36	2	0	-	38	-	0	1	0	0	0	-	1	0	0	0	-	0	39
% Buses	0.0	9.0	5.7	0.0	-	7.7	-	-	1.2	0.0	0.0	-	-	0.5	0.0	0.0	-	-	0.0	4.7
Trucks	0	4	0	0	-	4	-	0	1	1	0	0	-	2	0	1	0	-	1	7
% Trucks	0.0	1.0	0.0	0.0	-	0.8	-	-	1.2	1.0	0.0	-	-	1.0	0.0	0.9	-	-	0.7	0.8
Bicycles on Crosswalk	-	-	-	-	1	-	3	-	-	-	-	-	4	-	-	-	-	3	-	-
% Bicycles on Crosswalk	-	-	-	-	2.6	-	9.4	-	-	-	-	-	5.1	-	-	-	-	3.5	-	-
Pedestrians	-	-	-	-	38	-	29	-	-	-	-	-	74	-	-	-	-	82	-	-
% Pedestrians	-	-	-	-	97.4	-	90.6	-	-	-	-	-	94.9	-	-	-	-	96.5	-	-



Turning Movement Peak Hour Data Plot (4:15 PM)



Harrisburg, PA
 Market St & N 5th St/Bus
 Terminal
 Wednesday, April 26, 2023
 Location: 40.263088, -
 76.878703

www.TSTData.com
 184 Baker Rd

Coatesville, Pennsylvania, United States 19320
 610-466-1469
 Serving Transportation Professionals Since 1995

Count Name: Market St & N. 5th
 St/Bus Terminal Dr
 Site Code:
 Start Date: 04/26/2023
 Page No: 1

Turning Movement Data

Start Time	Market St Eastbound					Market St Westbound					Bus Terminal Dr Northbound					N. 5th St Southbound		Int. Total		
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total		Peds	App. Total
7:00 AM	65	37	0	0	102	0	57	3	0	0	60	0	1	0	0	7	1	9	0	163
7:15 AM	62	60	0	0	122	3	72	2	0	0	77	0	1	0	0	13	1	10	0	200
7:30 AM	82	66	0	1	148	1	97	0	0	0	98	0	0	0	0	10	0	21	0	246
7:45 AM	99	79	0	0	178	1	100	2	0	0	103	0	0	0	0	16	0	24	0	281
Hourly Total	308	242	0	1	550	5	326	7	0	0	338	0	2	0	0	46	2	64	0	890
8:00 AM	106	53	0	0	159	1	91	0	0	0	92	0	2	0	0	8	2	17	0	253
8:15 AM	107	46	0	0	153	1	101	0	0	0	102	0	1	0	0	9	1	14	0	256
8:30 AM	107	54	0	0	161	3	82	0	0	1	85	0	0	1	0	9	1	20	0	247
8:45 AM	98	46	0	0	144	1	74	0	0	0	75	0	1	0	1	10	2	5	0	221
Hourly Total	418	199	0	0	617	6	348	0	0	1	354	0	4	1	1	36	6	56	0	977
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	63	116	0	1	179	4	41	0	0	0	45	0	0	0	0	18	0	20	0	224
4:15 PM	63	102	0	1	165	4	41	2	0	0	47	0	1	0	1	10	2	9	0	214
4:30 PM	93	117	0	0	210	4	42	0	0	0	46	0	0	0	0	18	0	20	0	256
4:45 PM	74	104	0	0	178	1	46	1	0	0	48	0	1	1	0	13	2	14	0	228
Hourly Total	293	439	0	2	732	13	170	3	0	0	186	0	2	1	1	59	4	63	0	922
5:00 PM	57	104	0	1	161	0	43	1	0	0	44	0	0	1	2	6	3	7	0	208
5:15 PM	40	91	0	2	131	2	37	2	0	0	41	0	0	0	0	13	0	7	0	172
5:30 PM	37	70	0	0	107	1	48	3	0	0	52	0	1	0	0	11	1	10	0	160
5:45 PM	39	72	0	0	111	1	26	2	0	0	29	0	1	0	0	5	1	6	0	141
Hourly Total	173	337	0	3	510	4	154	8	0	0	166	0	2	1	2	35	5	30	0	681
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1192	1217	0	6	2409	28	998	18	0	1	1044	0	10	3	4	176	17	213	0	3470
Approach %	49.5	50.5	0.0	-	-	2.7	95.6	1.7	0.0	-	-	0.0	58.8	17.6	23.5	-	-	-	-	-
Total %	34.4	35.1	0.0	-	69.4	0.8	28.8	0.5	0.0	-	30.1	0.0	0.3	0.1	0.1	-	0.5	-	0.0	-
Lights	1121	1151	0	-	2272	4	988	18	0	-	1010	0	4	2	4	-	10	-	0	3292
% Lights	94.0	94.6	-	-	94.3	14.3	99.0	100.0	-	-	96.7	-	40.0	66.7	100.0	-	58.8	-	-	94.9
Buses	64	51	0	-	115	24	4	0	0	-	28	0	6	1	0	-	7	-	0	150
% Buses	5.4	4.2	-	-	4.8	85.7	0.4	0.0	-	-	2.7	-	60.0	33.3	0.0	-	41.2	-	-	4.3
Trucks	7	15	0	-	22	0	6	0	0	-	6	0	0	0	0	-	0	-	0	28
% Trucks	0.6	1.2	-	-	0.9	0.0	0.6	0.0	-	-	0.6	-	0.0	0.0	0.0	-	0.0	-	-	0.8
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	8	-	8	-	-
% Bicycles on Crosswalk	-	-	-	16.7	-	-	-	-	-	0.0	-	-	-	-	-	4.5	-	3.8	-	-
Pedestrians	-	-	-	5	-	-	-	-	-	1	-	-	-	-	-	168	-	205	-	-
% Pedestrians	-	-	-	83.3	-	-	-	-	-	100.0	-	-	-	-	-	95.5	-	96.2	-	-

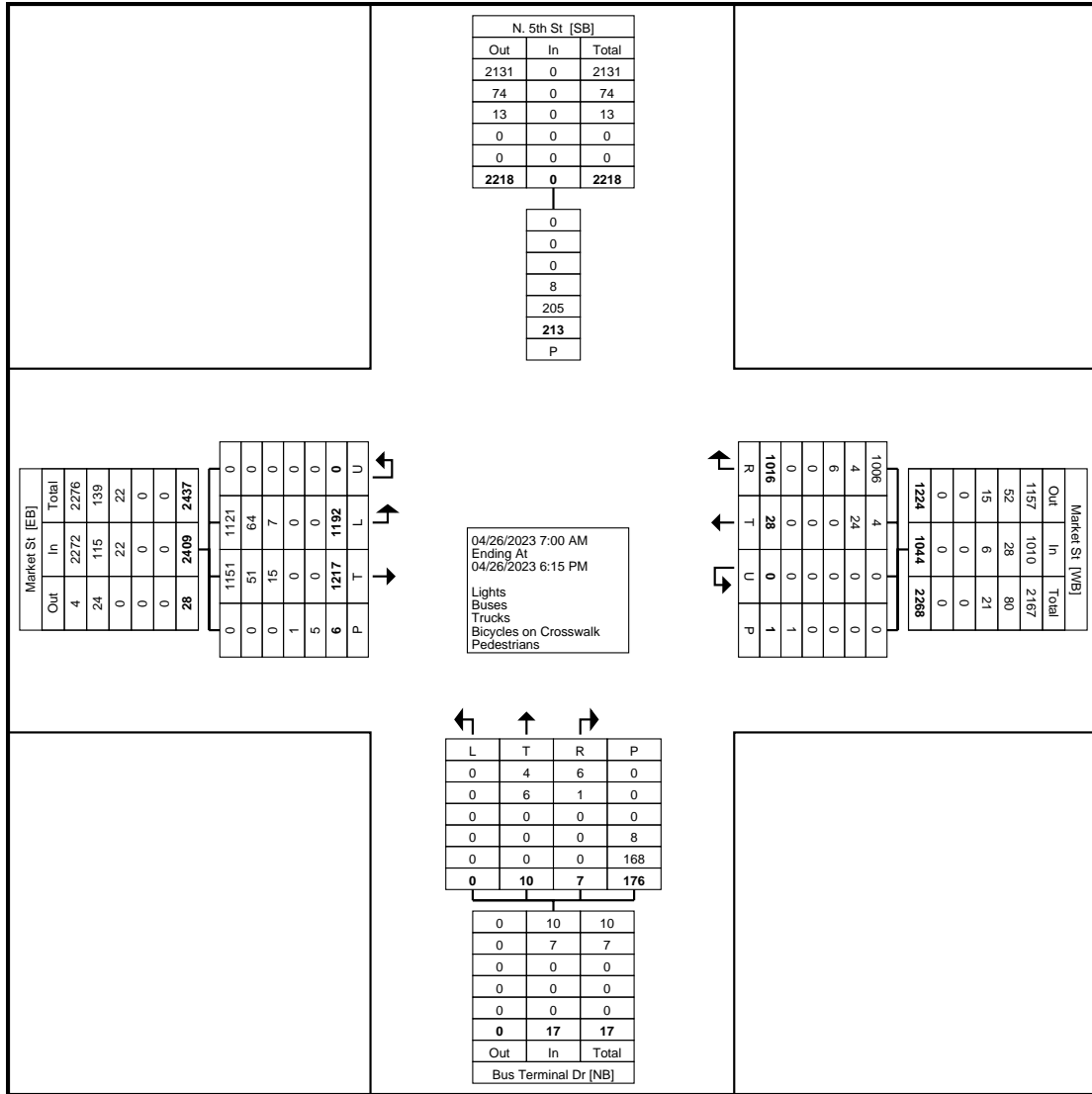


www.TSTData.com
184 Baker Rd

Harrisburg, PA
Market St & N 5th St/Bus
Terminal
Wednesday, April 26, 2023
Location: 40.263088, -
76.878703

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Count Name: Market St & N. 5th
St/Bus Terminal Dr
Site Code:
Start Date: 04/26/2023
Page No: 2



Turning Movement Data Plot



Harrisburg, PA
 Market St & N 5th St/Bus
 Terminal
 Wednesday, April 26, 2023
 Location: 40.263088, -
 76.878703

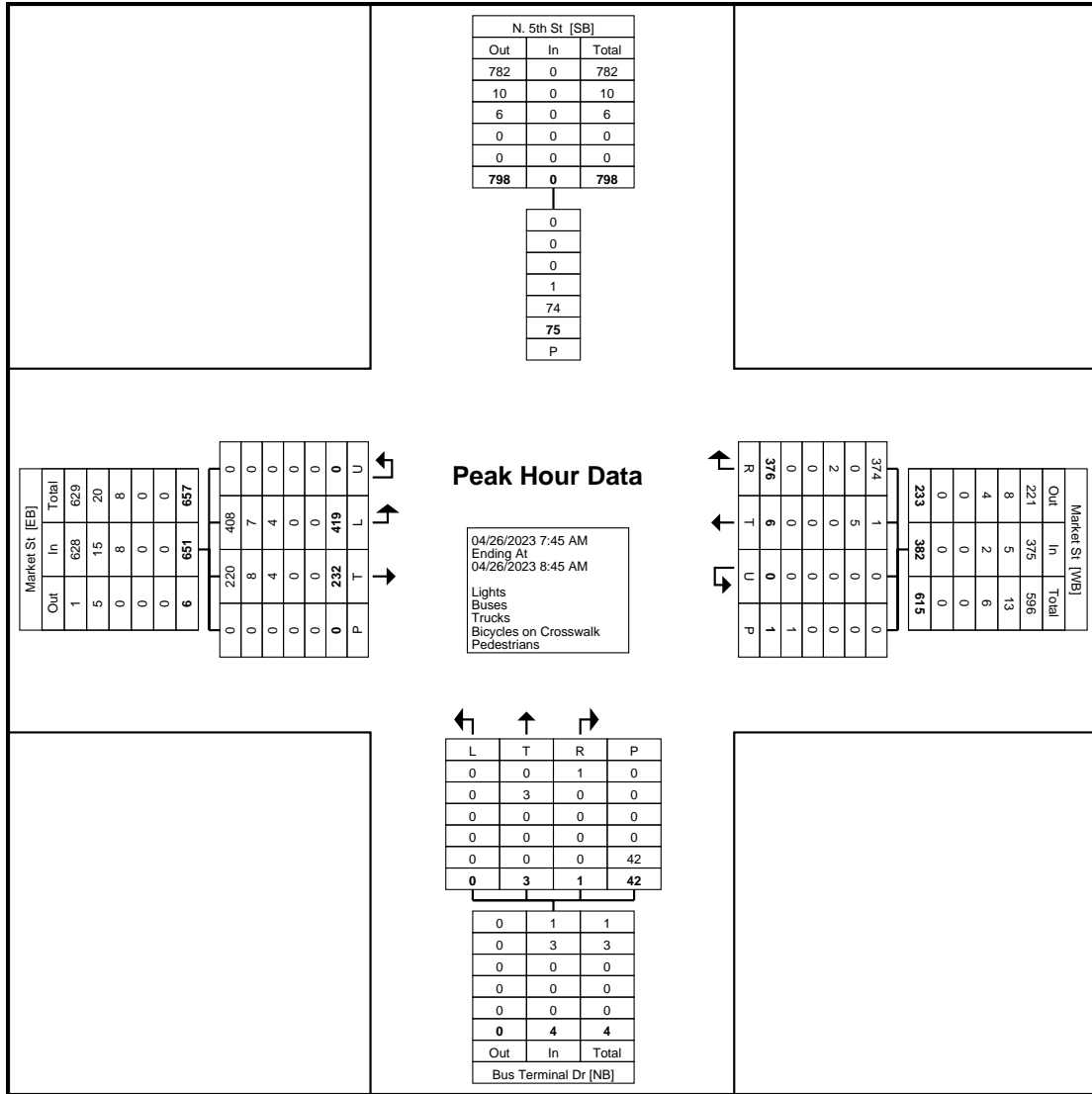
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 610-466-1469
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Count Name: Market St & N. 5th
 St/Bus Terminal Dr
 Site Code:
 Start Date: 04/26/2023
 Page No: 3

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Market St Eastbound					Market St Westbound					Bus Terminal Dr Northbound					N. 5th St Southbound		Int. Total		
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total		Peds	App. Total
7:45 AM	99	79	0	0	178	1	100	2	0	0	103	0	0	0	0	16	0	24	0	281
8:00 AM	106	53	0	0	159	1	91	0	0	0	92	0	2	0	0	8	2	17	0	253
8:15 AM	107	46	0	0	153	1	101	0	0	0	102	0	1	0	0	9	1	14	0	256
8:30 AM	107	54	0	0	161	3	82	0	0	1	85	0	0	1	0	9	1	20	0	247
Total	419	232	0	0	651	6	374	2	0	1	382	0	3	1	0	42	4	75	0	1037
Approach %	64.4	35.6	0.0	-	-	1.6	97.9	0.5	0.0	-	-	0.0	75.0	25.0	0.0	-	-	-	-	-
Total %	40.4	22.4	0.0	-	62.8	0.6	36.1	0.2	0.0	-	36.8	0.0	0.3	0.1	0.0	-	0.4	-	0.0	-
PHF	0.979	0.734	0.000	-	0.914	0.500	0.926	0.250	0.000	-	0.927	0.000	0.375	0.250	0.000	-	0.500	-	0.000	0.923
Lights	408	220	0	-	628	1	372	2	0	-	375	0	0	1	0	-	1	-	0	1004
% Lights	97.4	94.8	-	-	96.5	16.7	99.5	100.0	-	-	98.2	-	0.0	100.0	-	-	25.0	-	-	96.8
Buses	7	8	0	-	15	5	0	0	0	-	5	0	3	0	0	-	3	-	0	23
% Buses	1.7	3.4	-	-	2.3	83.3	0.0	0.0	-	-	1.3	-	100.0	0.0	-	-	75.0	-	-	2.2
Trucks	4	4	0	-	8	0	2	0	0	-	2	0	0	0	0	-	0	-	0	10
% Trucks	1.0	1.7	-	-	1.2	0.0	0.5	0.0	-	-	0.5	-	0.0	0.0	-	-	0.0	-	-	1.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	1.3	-	-
Pedestrians	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	42	-	74	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	98.7	-	-



Turning Movement Peak Hour Data Plot (7:45 AM)



Harrisburg, PA
 Market St & N 5th St/Bus
 Terminal
 Wednesday, April 26, 2023
 Location: 40.263088, -
 76.878703

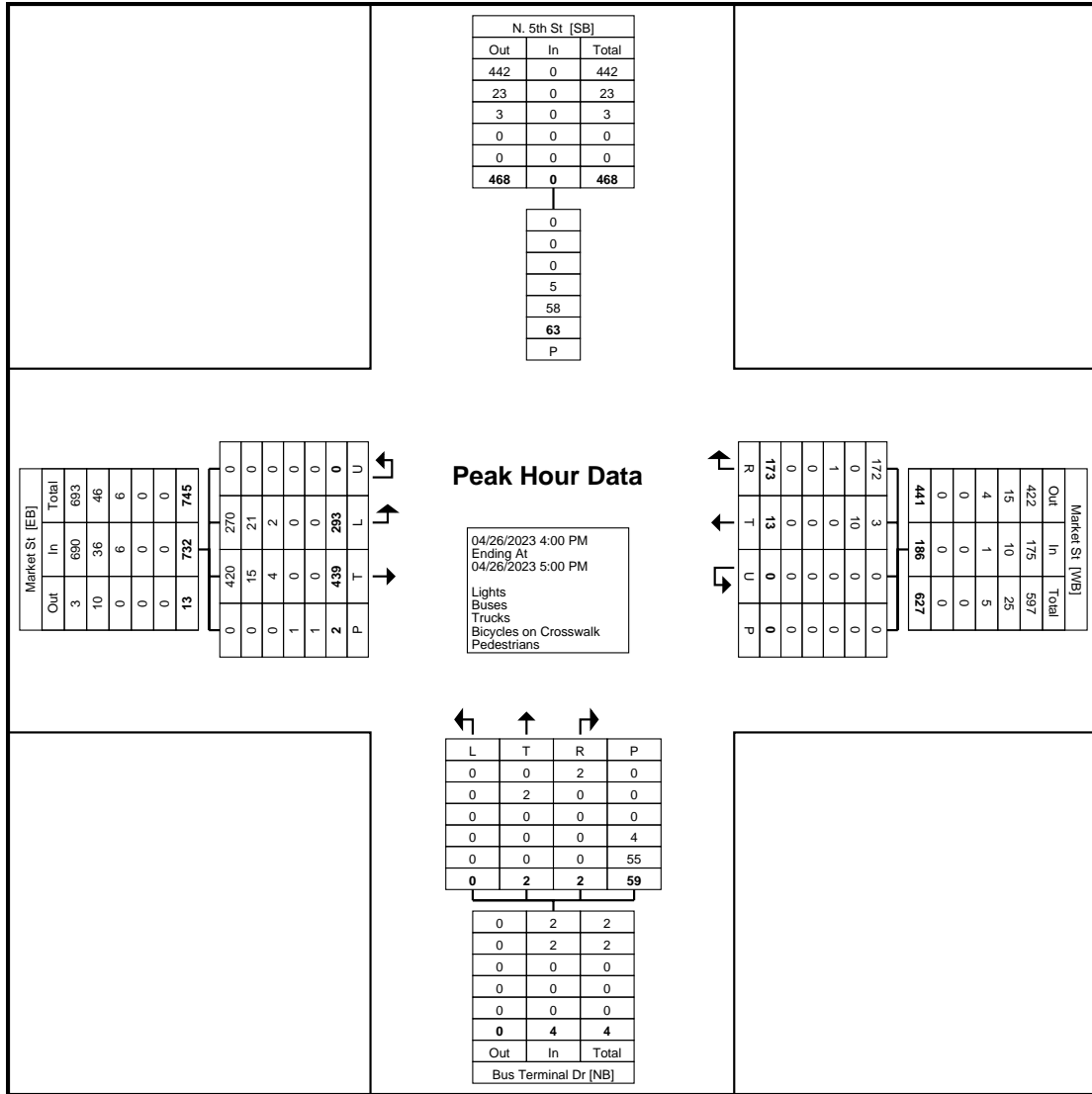
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Coatesville, Pennsylvania, United States 19320
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Count Name: Market St & N. 5th
 St/Bus Terminal Dr
 Site Code:
 Start Date: 04/26/2023
 Page No: 5

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Market St Eastbound					Market St Westbound					Bus Terminal Dr Northbound					N. 5th St Southbound		Int. Total		
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total		Peds	App. Total
4:00 PM	63	116	0	1	179	4	41	0	0	0	45	0	0	0	0	18	0	20	0	224
4:15 PM	63	102	0	1	165	4	41	2	0	0	47	0	1	0	1	10	2	9	0	214
4:30 PM	93	117	0	0	210	4	42	0	0	0	46	0	0	0	0	18	0	20	0	256
4:45 PM	74	104	0	0	178	1	46	1	0	0	48	0	1	1	0	13	2	14	0	228
Total	293	439	0	2	732	13	170	3	0	0	186	0	2	1	1	59	4	63	0	922
Approach %	40.0	60.0	0.0	-	-	7.0	91.4	1.6	0.0	-	-	0.0	50.0	25.0	25.0	-	-	-	-	-
Total %	31.8	47.6	0.0	-	79.4	1.4	18.4	0.3	0.0	-	20.2	0.0	0.2	0.1	0.1	-	0.4	-	0.0	-
PHF	0.788	0.938	0.000	-	0.871	0.813	0.924	0.375	0.000	-	0.969	0.000	0.500	0.250	0.250	-	0.500	-	0.000	0.900
Lights	270	420	0	-	690	3	169	3	0	-	175	0	0	1	1	-	2	-	0	867
% Lights	92.2	95.7	-	-	94.3	23.1	99.4	100.0	-	-	94.1	-	0.0	100.0	100.0	-	50.0	-	-	94.0
Buses	21	15	0	-	36	10	0	0	0	-	10	0	2	0	0	-	2	-	0	48
% Buses	7.2	3.4	-	-	4.9	76.9	0.0	0.0	-	-	5.4	-	100.0	0.0	0.0	-	50.0	-	-	5.2
Trucks	2	4	0	-	6	0	1	0	0	-	1	0	0	0	0	-	0	-	0	7
% Trucks	0.7	0.9	-	-	0.8	0.0	0.6	0.0	-	-	0.5	-	0.0	0.0	0.0	-	0.0	-	-	0.8
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	4	-	5	-	-
% Bicycles on Crosswalk	-	-	-	50.0	-	-	-	-	-	-	-	-	-	-	-	6.8	-	7.9	-	-
Pedestrians	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	55	-	58	-	-
% Pedestrians	-	-	-	50.0	-	-	-	-	-	-	-	-	-	-	-	93.2	-	92.1	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)



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184 Baker Rd

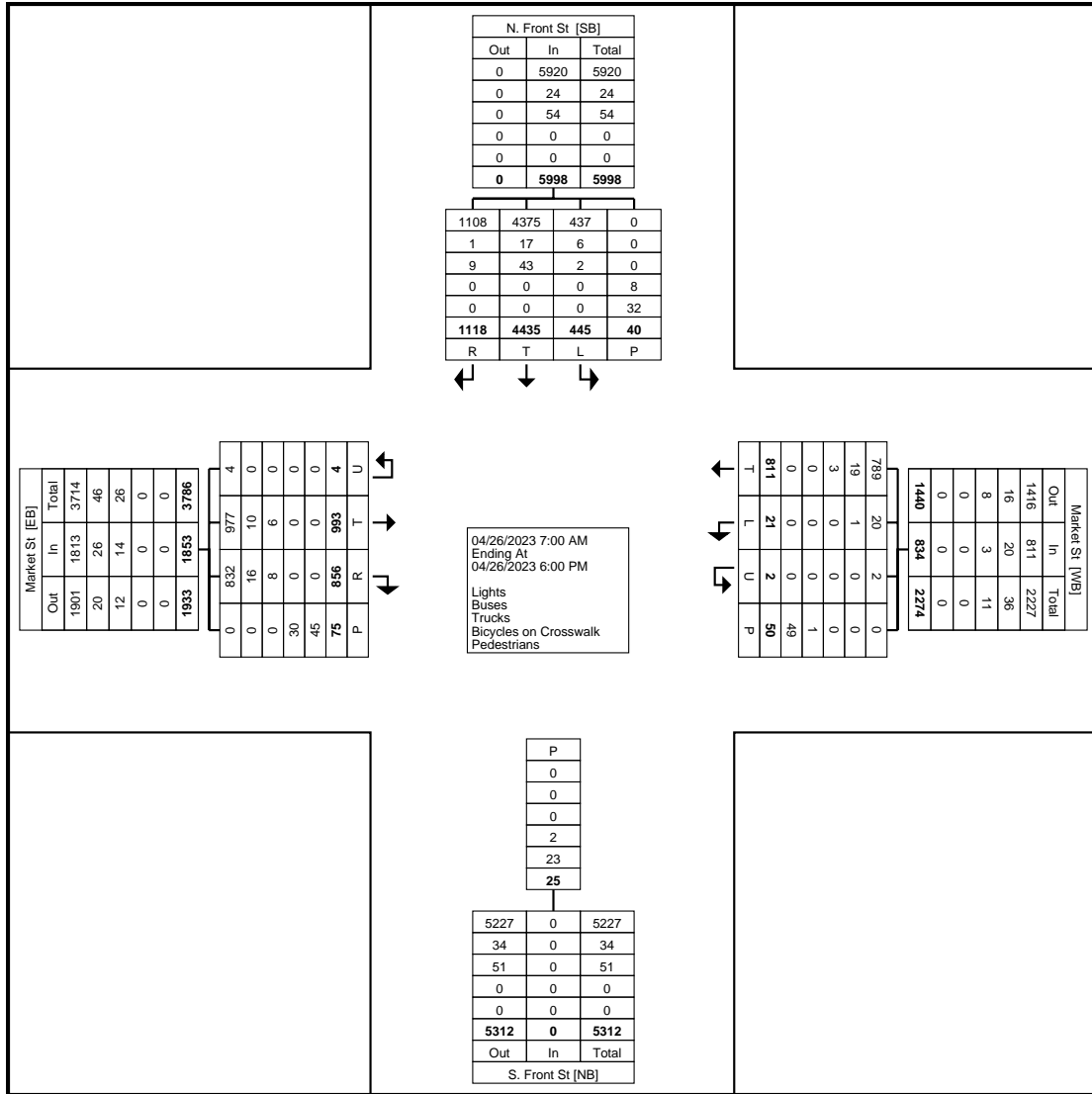
Coatesville, Pennsylvania, United States 19320
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Harrisburg, PA
Market St & N Front St
Wednesday, April 26, 2023
Location: 40.258543, -
76.882848

Count Name: Market St & N.
Front St
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Market St Eastbound						Market St Westbound					S. Front St Northbound		N. Front St Southbound						Int. Total
	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
7:00 AM	51	37	9	0	1	97	1	18	0	4	19	2	0	16	194	23	7	1	240	356
7:15 AM	59	61	6	0	0	126	1	33	0	3	34	2	0	27	210	26	3	2	266	426
7:30 AM	83	49	22	0	0	154	0	33	0	4	33	0	0	27	235	40	4	1	306	493
7:45 AM	77	58	11	0	4	146	2	29	0	3	31	1	0	45	280	46	3	1	374	551
Hourly Total	270	205	48	0	5	523	4	113	0	14	117	5	0	115	919	135	17	5	1186	1826
8:00 AM	78	40	9	0	1	127	0	25	0	4	25	0	0	33	273	38	2	1	346	498
8:15 AM	72	34	13	0	2	119	0	38	0	1	38	3	0	36	214	35	6	3	291	448
8:30 AM	70	42	17	0	3	129	0	33	0	0	33	0	0	34	177	45	6	1	262	424
8:45 AM	62	30	18	1	4	111	3	28	0	1	31	1	0	29	201	50	3	2	283	425
Hourly Total	282	146	57	1	10	486	3	124	0	6	127	4	0	132	865	168	17	7	1182	1795
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	43	44	3	0	1	90	4	89	0	6	93	1	0	28	375	108	5	1	516	699
4:15 PM	57	50	0	1	4	108	1	91	1	3	93	2	0	22	320	85	2	1	429	630
4:30 PM	67	64	5	0	5	136	6	66	0	3	72	3	0	12	353	101	9	4	475	683
4:45 PM	67	72	5	0	4	144	0	100	1	3	101	1	0	26	383	113	5	8	527	772
Hourly Total	234	230	13	1	14	478	11	346	2	15	359	7	0	88	1431	407	21	14	1947	2784
5:00 PM	49	40	10	0	8	99	0	62	0	2	62	0	0	30	412	90	12	2	544	705
5:15 PM	48	42	2	1	14	93	3	74	0	0	77	4	0	20	288	81	6	5	395	565
5:30 PM	50	23	9	1	15	83	0	49	0	7	49	3	0	34	294	72	4	3	404	536
5:45 PM	60	29	2	0	9	91	0	43	0	6	43	2	0	26	226	77	11	4	340	474
Hourly Total	207	134	23	2	46	366	3	228	0	15	231	9	0	110	1220	320	33	14	1683	2280
Grand Total	993	715	141	4	75	1853	21	811	2	50	834	25	0	445	4435	1030	88	40	5998	8685
Approach %	53.6	38.6	7.6	0.2	-	-	2.5	97.2	0.2	-	-	-	-	7.4	73.9	17.2	1.5	-	-	-
Total %	11.4	8.2	1.6	0.0	-	21.3	0.2	9.3	0.0	-	9.6	-	0.0	5.1	51.1	11.9	1.0	-	69.1	-
Lights	977	696	136	4	-	1813	20	789	2	-	811	-	0	437	4375	1020	88	-	5920	8544
% Lights	98.4	97.3	96.5	100.0	-	97.8	95.2	97.3	100.0	-	97.2	-	-	98.2	98.6	99.0	100.0	-	98.7	98.4
Buses	10	14	2	0	-	26	1	19	0	-	20	-	0	6	17	1	0	-	24	70
% Buses	1.0	2.0	1.4	0.0	-	1.4	4.8	2.3	0.0	-	2.4	-	-	1.3	0.4	0.1	0.0	-	0.4	0.8
Trucks	6	5	3	0	-	14	0	3	0	-	3	-	0	2	43	9	0	-	54	71
% Trucks	0.6	0.7	2.1	0.0	-	0.8	0.0	0.4	0.0	-	0.4	-	-	0.4	1.0	0.9	0.0	-	0.9	0.8
Bicycles on Crosswalk	-	-	-	-	30	-	-	-	-	1	-	2	-	-	-	-	-	-	8	-
% Bicycles on Crosswalk	-	-	-	-	40.0	-	-	-	-	2.0	-	8.0	-	-	-	-	-	-	20.0	-
Pedestrians	-	-	-	-	45	-	-	-	-	49	-	23	-	-	-	-	-	-	32	-
% Pedestrians	-	-	-	-	60.0	-	-	-	-	98.0	-	92.0	-	-	-	-	-	-	80.0	-



Turning Movement Data Plot



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184 Baker Rd

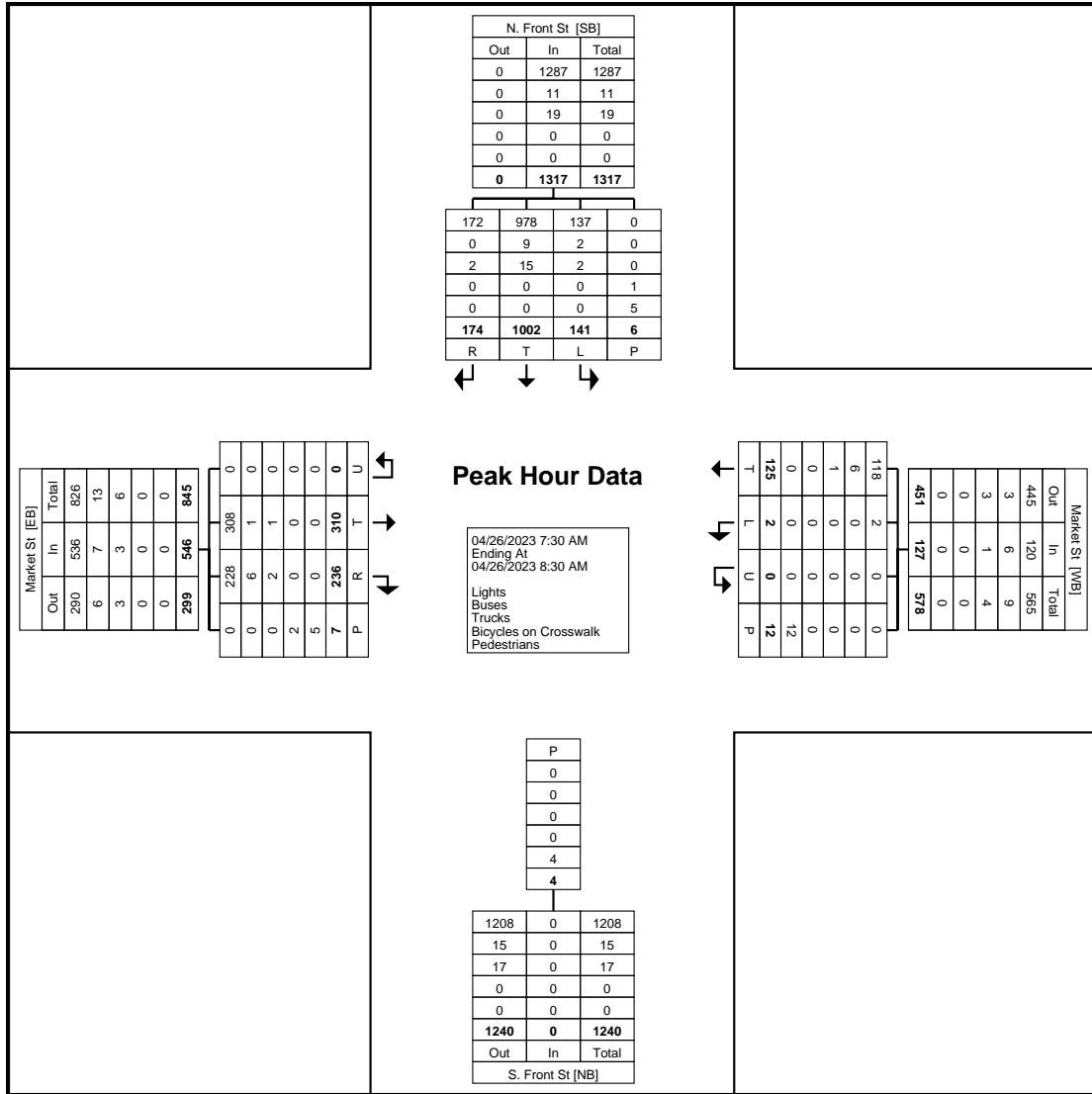
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Harrisburg, PA
Market St & N Front St
Wednesday, April 26, 2023
Location: 40.258543, -
76.882848

Count Name: Market St & N.
Front St
Site Code:
Start Date: 04/26/2023
Page No: 3

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Market St Eastbound						Market St Westbound					S. Front St Northbound		N. Front St Southbound						Int. Total
	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
7:30 AM	83	49	22	0	0	154	0	33	0	4	33	0	0	27	235	40	4	1	306	493
7:45 AM	77	58	11	0	4	146	2	29	0	3	31	1	0	45	280	46	3	1	374	551
8:00 AM	78	40	9	0	1	127	0	25	0	4	25	0	0	33	273	38	2	1	346	498
8:15 AM	72	34	13	0	2	119	0	38	0	1	38	3	0	36	214	35	6	3	291	448
Total	310	181	55	0	7	546	2	125	0	12	127	4	0	141	1002	159	15	6	1317	1990
Approach %	56.8	33.2	10.1	0.0	-	-	1.6	98.4	0.0	-	-	-	-	10.7	76.1	12.1	1.1	-	-	-
Total %	15.6	9.1	2.8	0.0	-	27.4	0.1	6.3	0.0	-	6.4	-	0.0	7.1	50.4	8.0	0.8	-	66.2	-
PHF	0.934	0.780	0.625	0.000	-	0.886	0.250	0.822	0.000	-	0.836	-	0.000	0.783	0.895	0.864	0.625	-	0.880	0.903
Lights	308	174	54	0	-	536	2	118	0	-	120	-	0	137	978	157	15	-	1287	1943
% Lights	99.4	96.1	98.2	-	-	98.2	100.0	94.4	-	-	94.5	-	-	97.2	97.6	98.7	100.0	-	97.7	97.6
Buses	1	5	1	0	-	7	0	6	0	-	6	-	0	2	9	0	0	-	11	24
% Buses	0.3	2.8	1.8	-	-	1.3	0.0	4.8	-	-	4.7	-	-	1.4	0.9	0.0	0.0	-	0.8	1.2
Trucks	1	2	0	0	-	3	0	1	0	-	1	-	0	2	15	2	0	-	19	23
% Trucks	0.3	1.1	0.0	-	-	0.5	0.0	0.8	-	-	0.8	-	-	1.4	1.5	1.3	0.0	-	1.4	1.2
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	0	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	28.6	-	-	-	-	0.0	-	0.0	-	-	-	-	-	16.7	-	-
Pedestrians	-	-	-	-	5	-	-	-	-	12	-	4	-	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	71.4	-	-	-	-	100.0	-	100.0	-	-	-	-	-	83.3	-	-



Turning Movement Peak Hour Data Plot (7:30 AM)



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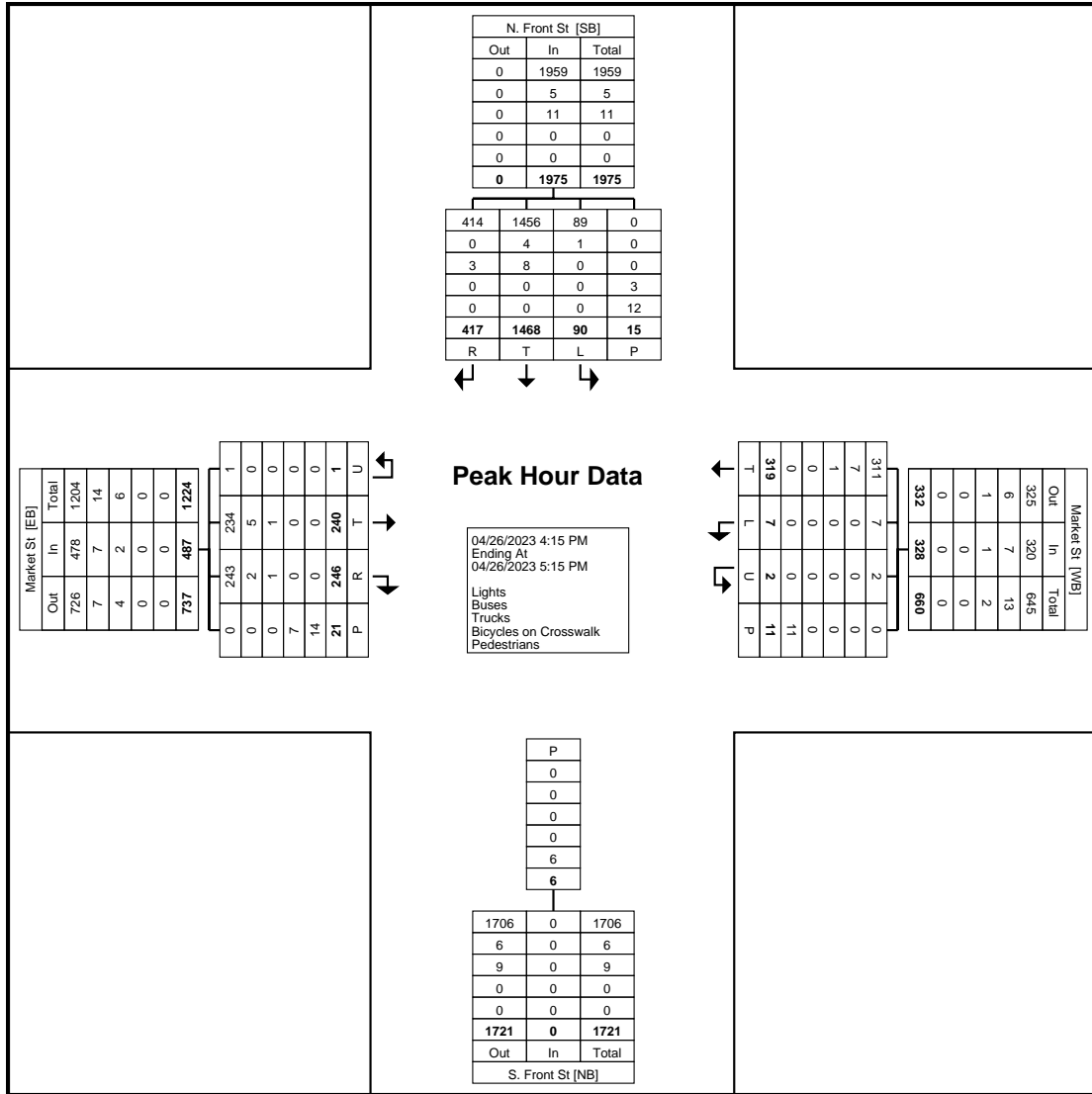
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Harrisburg, PA
Market St & N Front St
Wednesday, April 26, 2023
Location: 40.258543, -
76.882848

Count Name: Market St & N.
Front St
Site Code:
Start Date: 04/26/2023
Page No: 5

Turning Movement Peak Hour Data (4:15 PM)

Start Time	Market St Eastbound						Market St Westbound					S. Front St Northbound		N. Front St Southbound						Int. Total
	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
4:15 PM	57	50	0	1	4	108	1	91	1	3	93	2	0	22	320	85	2	1	429	630
4:30 PM	67	64	5	0	5	136	6	66	0	3	72	3	0	12	353	101	9	4	475	683
4:45 PM	67	72	5	0	4	144	0	100	1	3	101	1	0	26	383	113	5	8	527	772
5:00 PM	49	40	10	0	8	99	0	62	0	2	62	0	0	30	412	90	12	2	544	705
Total	240	226	20	1	21	487	7	319	2	11	328	6	0	90	1468	389	28	15	1975	2790
Approach %	49.3	46.4	4.1	0.2	-	-	2.1	97.3	0.6	-	-	-	-	4.6	74.3	19.7	1.4	-	-	-
Total %	8.6	8.1	0.7	0.0	-	17.5	0.3	11.4	0.1	-	11.8	-	0.0	3.2	52.6	13.9	1.0	-	70.8	-
PHF	0.896	0.785	0.500	0.250	-	0.845	0.292	0.798	0.500	-	0.812	-	0.000	0.750	0.891	0.861	0.583	-	0.908	0.903
Lights	234	223	20	1	-	478	7	311	2	-	320	-	0	89	1456	386	28	-	1959	2757
% Lights	97.5	98.7	100.0	100.0	-	98.2	100.0	97.5	100.0	-	97.6	-	-	98.9	99.2	99.2	100.0	-	99.2	98.8
Buses	5	2	0	0	-	7	0	7	0	-	7	-	0	1	4	0	0	-	5	19
% Buses	2.1	0.9	0.0	0.0	-	1.4	0.0	2.2	0.0	-	2.1	-	-	1.1	0.3	0.0	0.0	-	0.3	0.7
Trucks	1	1	0	0	-	2	0	1	0	-	1	-	0	0	8	3	0	-	11	14
% Trucks	0.4	0.4	0.0	0.0	-	0.4	0.0	0.3	0.0	-	0.3	-	-	0.0	0.5	0.8	0.0	-	0.6	0.5
Bicycles on Crosswalk	-	-	-	-	7	-	-	-	-	0	-	0	-	-	-	-	-	3	-	-
% Bicycles on Crosswalk	-	-	-	-	33.3	-	-	-	-	0.0	-	0.0	-	-	-	-	-	20.0	-	-
Pedestrians	-	-	-	-	14	-	-	-	-	11	-	6	-	-	-	-	-	12	-	-
% Pedestrians	-	-	-	-	66.7	-	-	-	-	100.0	-	100.0	-	-	-	-	-	80.0	-	-



Turning Movement Peak Hour Data Plot (4:15 PM)



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Harrisburg, PA
Market St & S Front St
Wednesday, April 26, 2023
Location: 40.249809, -
76.891353

Count Name: Market St & S.
Front St (West Shore)
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Market St Eastbound					Market St Westbound						S. Front St Southbound						Int. Total
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Right	Right on Red	U-Turn	Peds	App. Total	
7:00 AM	66	61	0	0	127	29	7	3	0	1	39	46	26	42	0	1	114	280
7:15 AM	77	75	0	0	152	30	22	4	0	0	56	48	13	64	0	0	125	333
7:30 AM	108	96	0	0	204	30	12	1	0	1	43	72	8	57	0	0	137	384
7:45 AM	99	97	0	0	196	48	39	0	0	0	87	60	18	65	0	0	143	426
Hourly Total	350	329	0	0	679	137	80	8	0	2	225	226	65	228	0	1	519	1423
8:00 AM	103	76	0	0	179	41	15	3	0	1	59	47	57	2	0	0	106	344
8:15 AM	99	78	0	0	177	43	22	3	0	0	68	48	61	3	0	0	112	357
8:30 AM	86	85	0	0	171	53	12	5	0	0	70	46	55	4	0	1	105	346
8:45 AM	92	63	0	0	155	50	10	7	0	1	67	42	48	3	0	0	93	315
Hourly Total	380	302	0	0	682	187	59	18	0	2	264	183	221	12	0	1	416	1362
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	110	55	0	0	165	116	68	3	0	4	187	48	22	54	0	4	124	476
4:15 PM	100	52	0	0	152	127	61	4	0	1	192	40	17	81	0	2	138	482
4:30 PM	107	66	0	0	173	111	44	12	0	0	167	48	4	72	0	1	124	464
4:45 PM	98	80	0	0	178	134	78	7	0	2	219	56	32	54	0	1	142	539
Hourly Total	415	253	0	0	668	488	251	26	0	7	765	192	75	261	0	8	528	1961
5:00 PM	110	57	0	0	167	110	56	17	0	0	183	45	80	3	0	0	128	478
5:15 PM	125	49	0	0	174	104	40	12	0	1	156	36	71	10	0	2	117	447
5:30 PM	89	54	0	0	143	93	29	12	0	1	134	29	64	5	0	1	98	375
5:45 PM	98	55	0	0	153	83	27	10	0	0	120	24	61	3	0	0	88	361
Hourly Total	422	215	0	0	637	390	152	51	0	2	593	134	276	21	0	3	431	1661
Grand Total	1567	1099	0	0	2666	1202	542	103	0	13	1847	735	637	522	0	13	1894	6407
Approach %	58.8	41.2	0.0	-	-	65.1	29.3	5.6	0.0	-	-	38.8	33.6	27.6	0.0	-	-	-
Total %	24.5	17.2	0.0	-	41.6	18.8	8.5	1.6	0.0	-	28.8	11.5	9.9	8.1	0.0	-	29.6	-
Lights	1526	1069	0	-	2595	1177	533	103	0	-	1813	726	618	506	0	-	1850	6258
% Lights	97.4	97.3	-	-	97.3	97.9	98.3	100.0	-	-	98.2	98.8	97.0	96.9	-	-	97.7	97.7
Buses	9	19	0	-	28	14	5	0	0	-	19	4	3	4	0	-	11	58
% Buses	0.6	1.7	-	-	1.1	1.2	0.9	0.0	-	-	1.0	0.5	0.5	0.8	-	-	0.6	0.9
Trucks	32	11	0	-	43	11	4	0	0	-	15	5	16	12	0	-	33	91
% Trucks	2.0	1.0	-	-	1.6	0.9	0.7	0.0	-	-	0.8	0.7	2.5	2.3	-	-	1.7	1.4
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	7	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	23.1	-	-	-	-	-	53.8	-	-
Pedestrians	-	-	-	0	-	-	-	-	-	10	-	-	-	-	-	6	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	76.9	-	-	-	-	-	46.2	-	-

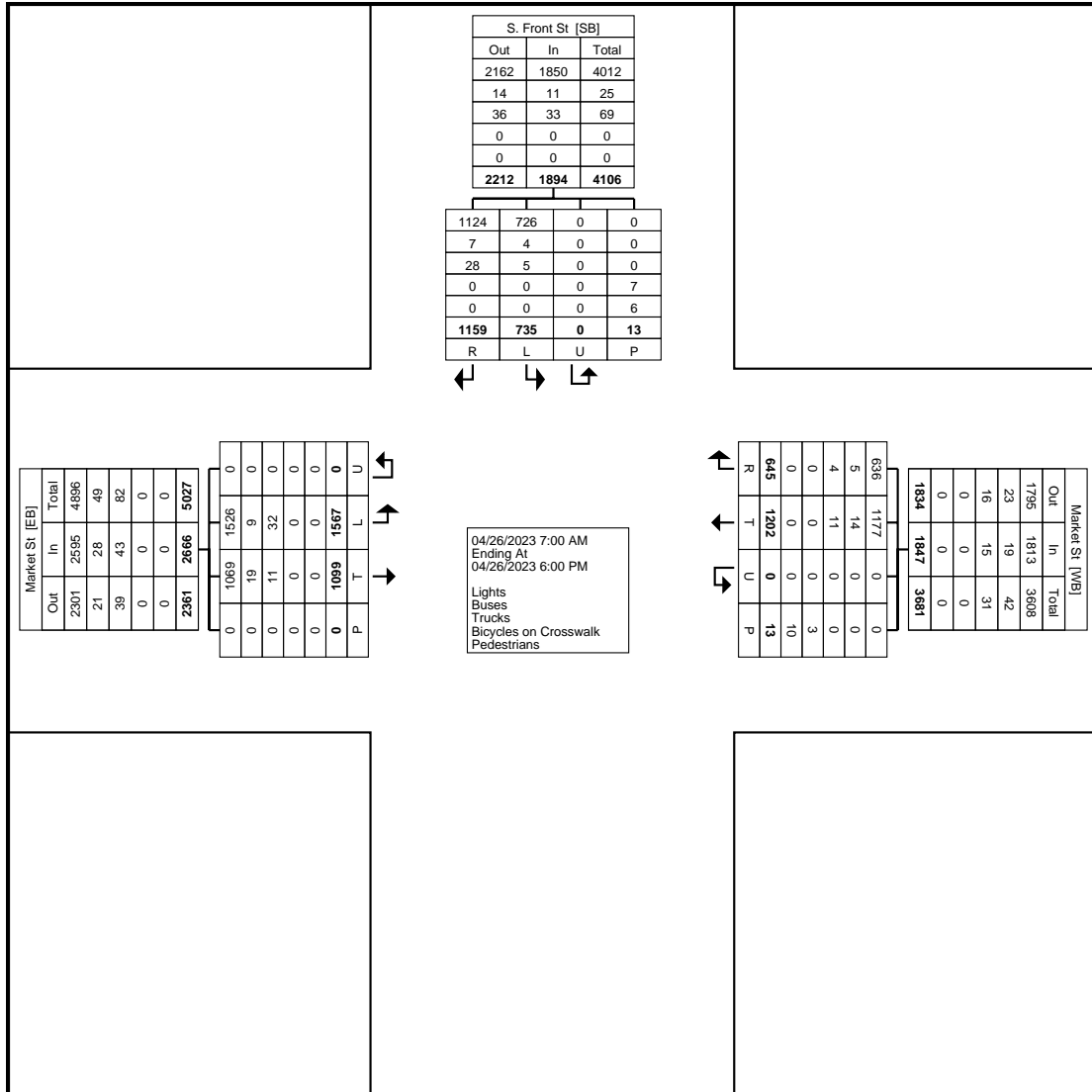


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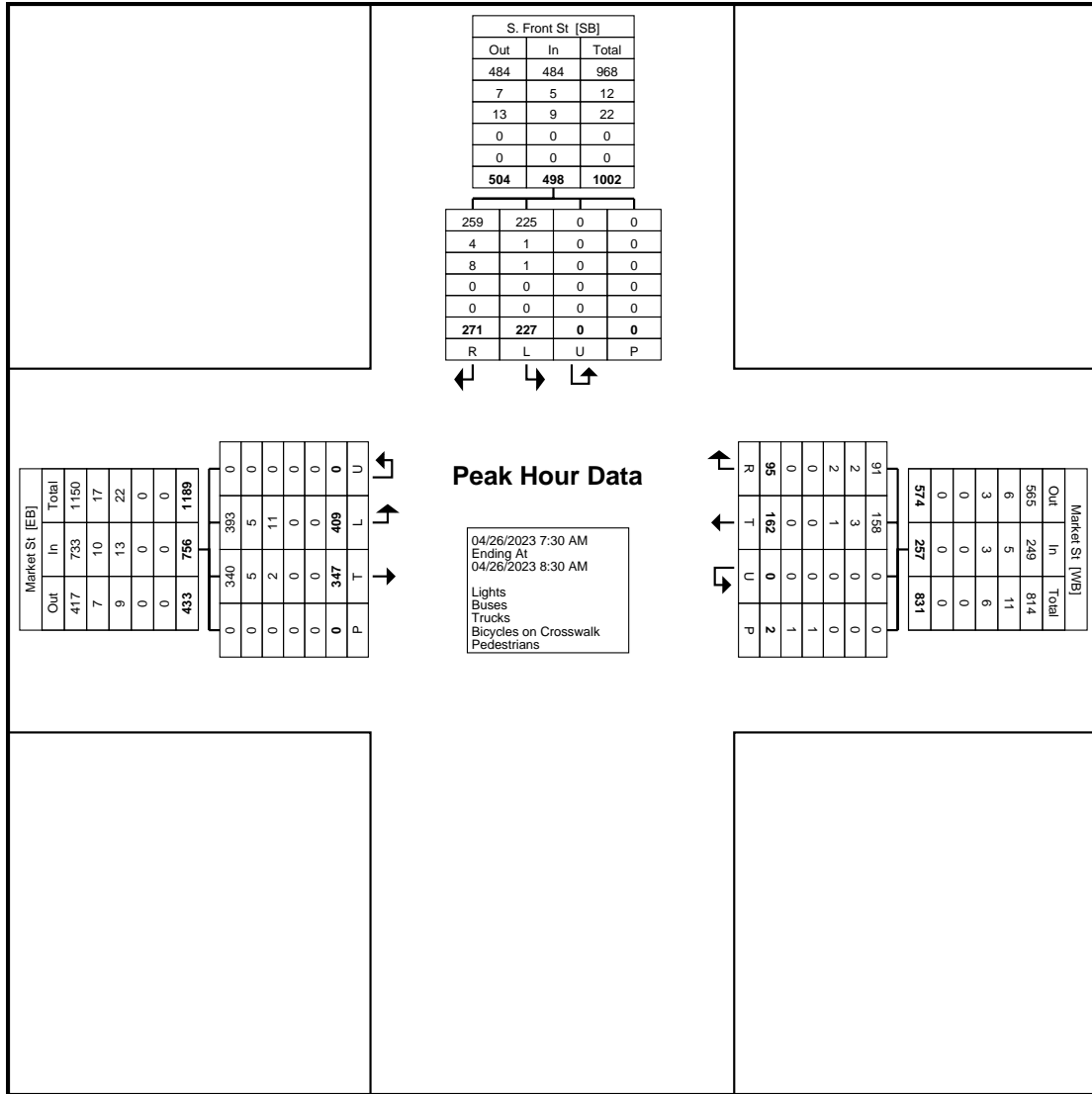
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Count Name: Market St & S.
Front St (West Shore)
Site Code:
Start Date: 04/26/2023
Page No: 2

Harrisburg, PA
Market St & S Front St
Wednesday, April 26, 2023
Location: 40.249809, -
76.891353



Turning Movement Data Plot



Turning Movement Peak Hour Data Plot (7:30 AM)



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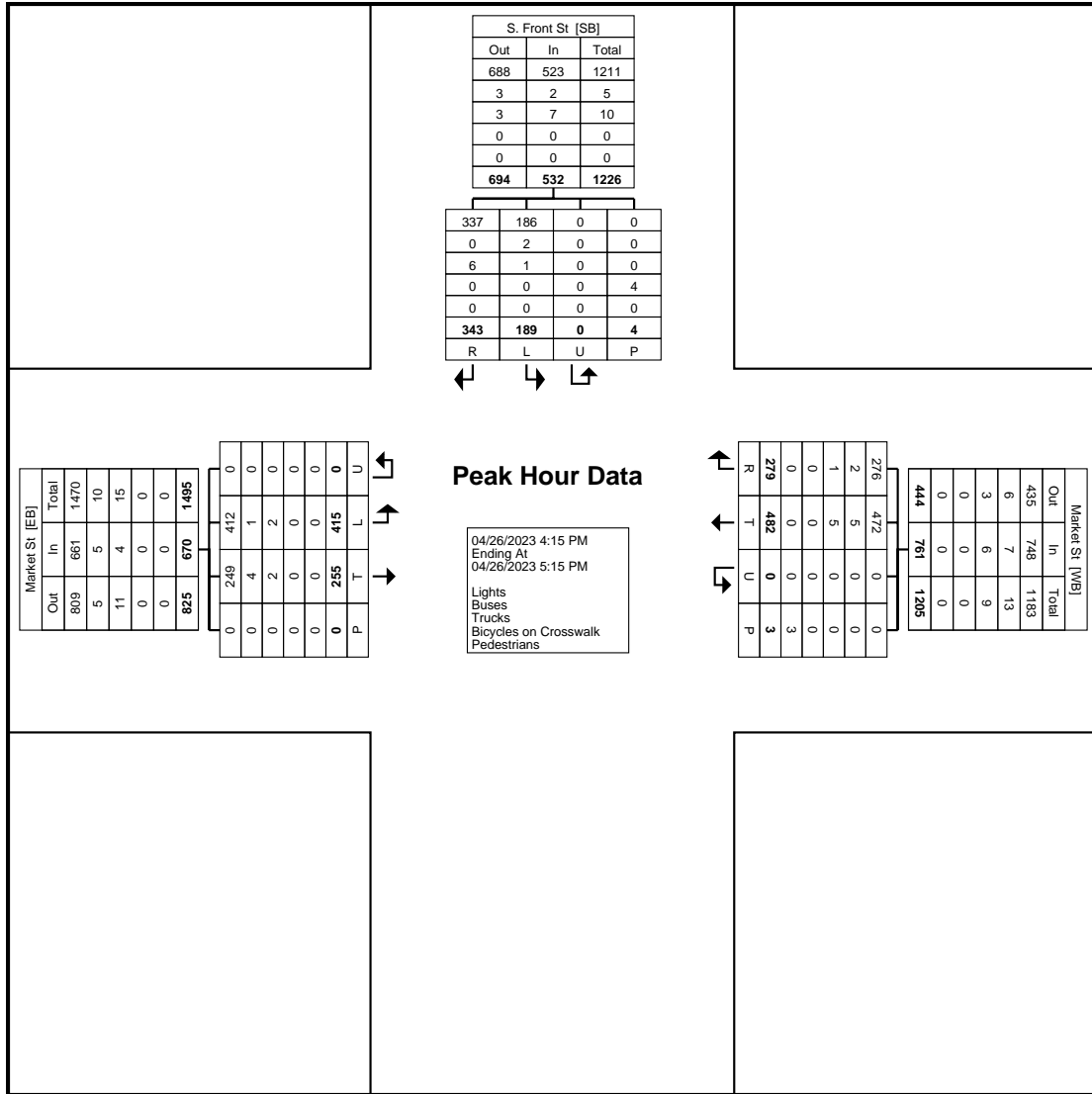
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Harrisburg, PA
Market St & S Front St
Wednesday, April 26, 2023
Location: 40.249809, -
76.891353

Count Name: Market St & S.
Front St (West Shore)
Site Code:
Start Date: 04/26/2023
Page No: 5

Turning Movement Peak Hour Data (4:15 PM)

Start Time	Market St Eastbound					Market St Westbound					S. Front St Southbound					Int. Total		
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Right	Right on Red	U-Turn		Peds	App. Total
4:15 PM	100	52	0	0	152	127	61	4	0	1	192	40	17	81	0	2	138	482
4:30 PM	107	66	0	0	173	111	44	12	0	0	167	48	4	72	0	1	124	464
4:45 PM	98	80	0	0	178	134	78	7	0	2	219	56	32	54	0	1	142	539
5:00 PM	110	57	0	0	167	110	56	17	0	0	183	45	80	3	0	0	128	478
Total	415	255	0	0	670	482	239	40	0	3	761	189	133	210	0	4	532	1963
Approach %	61.9	38.1	0.0	-	-	63.3	31.4	5.3	0.0	-	-	35.5	25.0	39.5	0.0	-	-	-
Total %	21.1	13.0	0.0	-	34.1	24.6	12.2	2.0	0.0	-	38.8	9.6	6.8	10.7	0.0	-	27.1	-
PHF	0.943	0.797	0.000	-	0.941	0.899	0.766	0.588	0.000	-	0.869	0.844	0.416	0.648	0.000	-	0.937	0.910
Lights	412	249	0	-	661	472	236	40	0	-	748	186	131	206	0	-	523	1932
% Lights	99.3	97.6	-	-	98.7	97.9	98.7	100.0	-	-	98.3	98.4	98.5	98.1	-	-	98.3	98.4
Buses	1	4	0	-	5	5	2	0	0	-	7	2	0	0	0	-	2	14
% Buses	0.2	1.6	-	-	0.7	1.0	0.8	0.0	-	-	0.9	1.1	0.0	0.0	-	-	0.4	0.7
Trucks	2	2	0	-	4	5	1	0	0	-	6	1	2	4	0	-	7	17
% Trucks	0.5	0.8	-	-	0.6	1.0	0.4	0.0	-	-	0.8	0.5	1.5	1.9	-	-	1.3	0.9
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	4	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	100.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	0.0	-	-



Turning Movement Peak Hour Data Plot (4:15 PM)



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Harrisburg, PA
Market St & City Island Ramps
Wednesday, April 26, 2023
Location: 40.253833, -
76.887408

Count Name: Market St Bridge &
City Island Ramps
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	West Ramp Eastbound						East Ramp Westbound						Market Street Bridge Northbound						Market Street Bridge Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	0	0	0	3	0	0	0	5	0	1	5	0	102	11	0	0	113	0	44	8	0	0	52	170
7:15 AM	0	0	1	0	0	1	0	0	9	0	0	9	0	112	10	0	0	122	0	53	9	0	0	62	194
7:30 AM	0	0	0	0	2	0	0	0	7	0	0	7	0	153	11	0	0	164	1	59	19	0	0	79	250
7:45 AM	0	0	0	0	0	0	0	0	5	0	0	5	0	150	9	0	0	159	1	77	5	0	0	83	247
Hourly Total	0	0	1	0	5	1	0	0	26	0	1	26	0	517	41	0	0	558	2	233	41	0	0	276	861
8:00 AM	0	0	0	0	3	0	0	0	1	0	0	1	0	125	2	0	0	127	0	58	7	0	0	65	193
8:15 AM	1	0	3	0	1	4	0	0	5	0	0	5	0	114	8	0	0	122	1	68	13	0	0	82	213
8:30 AM	0	0	3	0	1	3	0	0	6	0	1	6	0	125	6	0	0	131	2	67	14	0	0	83	223
8:45 AM	0	0	1	0	1	1	0	0	5	0	0	5	0	102	9	0	0	111	0	64	16	0	0	80	197
Hourly Total	1	0	7	0	6	8	0	0	17	0	1	17	0	466	25	0	0	491	3	257	50	0	0	310	826
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	13	0	0	13	0	0	26	0	0	26	0	102	2	0	0	104	0	185	21	0	0	206	349
4:15 PM	0	0	11	0	3	11	0	0	21	0	2	21	0	103	3	0	0	106	0	187	17	0	0	204	342
4:30 PM	0	0	6	0	5	6	1	0	24	0	0	25	0	106	8	0	0	114	1	172	15	0	0	188	333
4:45 PM	0	0	12	0	2	12	0	0	17	0	0	17	0	129	5	0	0	134	0	215	13	0	0	228	391
Hourly Total	0	0	42	0	10	42	1	0	88	0	2	89	0	440	18	0	0	458	1	759	66	0	0	826	1415
5:00 PM	0	0	13	0	1	13	0	0	9	0	0	9	1	101	5	0	0	107	2	162	9	0	0	173	302
5:15 PM	0	0	5	0	1	5	0	0	7	0	1	7	0	82	2	0	0	84	0	151	11	0	0	162	258
5:30 PM	0	0	9	0	1	9	1	0	13	0	0	14	0	82	7	0	0	89	0	118	11	0	0	129	241
5:45 PM	0	0	7	0	2	7	0	0	17	0	0	17	1	65	11	0	0	77	0	118	11	0	0	129	230
Hourly Total	0	0	34	0	5	34	1	0	46	0	1	47	2	330	25	0	0	357	2	549	42	0	0	593	1031
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1	0	84	0	26	85	2	0	177	0	5	179	2	1753	109	0	0	1864	8	1798	199	0	0	2005	4133
Approach %	1.2	0.0	98.8	0.0	-	-	1.1	0.0	98.9	0.0	-	-	0.1	94.0	5.8	0.0	-	-	0.4	89.7	9.9	0.0	-	-	-
Total %	0.0	0.0	2.0	0.0	-	2.1	0.0	0.0	4.3	0.0	-	4.3	0.0	42.4	2.6	0.0	-	45.1	0.2	43.5	4.8	0.0	-	48.5	-
Lights	1	0	83	0	-	84	2	0	175	0	-	177	2	1711	109	0	-	1822	8	1765	198	0	-	1971	4054
% Lights	100.0	-	98.8	-	-	98.8	100.0	-	98.9	-	-	98.9	100.0	97.6	100.0	-	-	97.7	100.0	98.2	99.5	-	-	98.3	98.1
Buses	0	0	0	0	-	0	0	0	2	0	-	2	0	25	0	0	-	25	0	23	1	0	-	24	51
% Buses	0.0	-	0.0	-	-	0.0	0.0	-	1.1	-	-	1.1	0.0	1.4	0.0	-	-	1.3	0.0	1.3	0.5	-	-	1.2	1.2
Trucks	0	0	1	0	-	1	0	0	0	0	-	0	0	17	0	0	-	17	0	10	0	0	-	10	28
% Trucks	0.0	-	1.2	-	-	1.2	0.0	-	0.0	-	-	0.0	0.0	1.0	0.0	-	-	0.9	0.0	0.6	0.0	-	-	0.5	0.7
Bicycles on Crosswalk	-	-	-	-	10	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	38.5	-	-	-	-	-	60.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	16	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	61.5	-	-	-	-	-	40.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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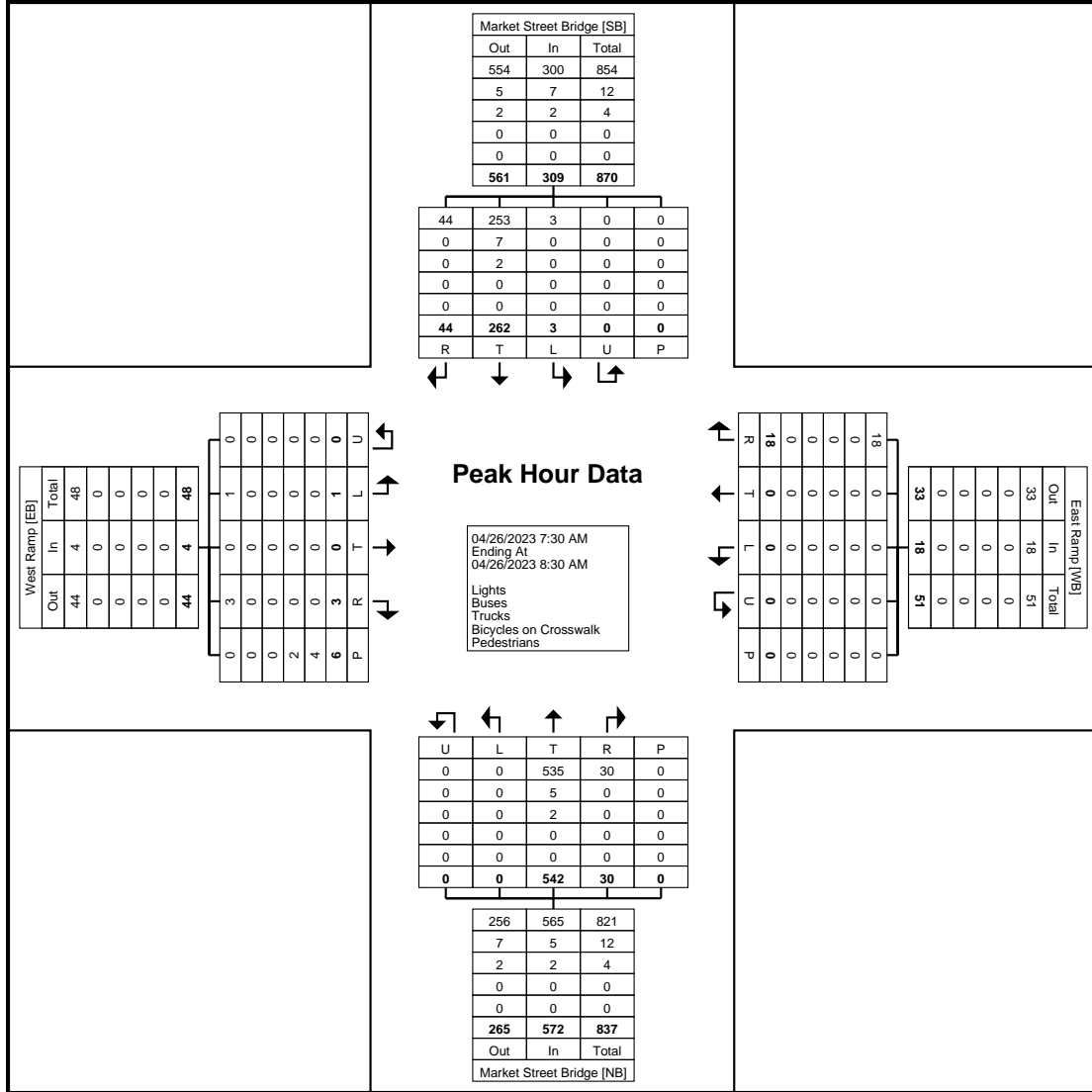
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Harrisburg, PA
Market St & City Island Ramps
Wednesday, April 26, 2023
Location: 40.253833, -
76.887408

Count Name: Market St Bridge &
City Island Ramps
Site Code:
Start Date: 04/26/2023
Page No: 3

Turning Movement Peak Hour Data (7:30 AM)

Start Time	West Ramp Eastbound						East Ramp Westbound						Market Street Bridge Northbound						Market Street Bridge Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	0	0	0	0	2	0	0	0	7	0	0	7	0	153	11	0	0	164	1	59	19	0	0	79	250
7:45 AM	0	0	0	0	0	0	0	0	5	0	0	5	0	150	9	0	0	159	1	77	5	0	0	83	247
8:00 AM	0	0	0	0	3	0	0	0	1	0	0	1	0	125	2	0	0	127	0	58	7	0	0	65	193
8:15 AM	1	0	3	0	1	4	0	0	5	0	0	5	0	114	8	0	0	122	1	68	13	0	0	82	213
Total	1	0	3	0	6	4	0	0	18	0	0	18	0	542	30	0	0	572	3	262	44	0	0	309	903
Approach %	25.0	0.0	75.0	0.0	-	-	0.0	0.0	100.0	0.0	-	-	0.0	94.8	5.2	0.0	-	-	1.0	84.8	14.2	0.0	-	-	-
Total %	0.1	0.0	0.3	0.0	-	0.4	0.0	0.0	2.0	0.0	-	2.0	0.0	60.0	3.3	0.0	-	63.3	0.3	29.0	4.9	0.0	-	34.2	-
PHF	0.250	0.000	0.250	0.000	-	0.250	0.000	0.000	0.643	0.000	-	0.643	0.000	0.886	0.682	0.000	-	0.872	0.750	0.851	0.579	0.000	-	0.931	0.903
Lights	1	0	3	0	-	4	0	0	18	0	-	18	0	535	30	0	-	565	3	253	44	0	-	300	887
% Lights	100.0	-	100.0	-	-	100.0	-	-	100.0	-	-	100.0	-	98.7	100.0	-	-	98.8	100.0	96.6	100.0	-	-	97.1	98.2
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	5	0	0	-	5	0	7	0	0	-	7	12
% Buses	0.0	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	0.9	0.0	-	-	0.9	0.0	2.7	0.0	-	-	2.3	1.3
Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	2	0	0	-	2	4
% Trucks	0.0	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	-	0.4	0.0	-	-	0.3	0.0	0.8	0.0	-	-	0.6	0.4
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	33.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	66.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (7:30 AM)



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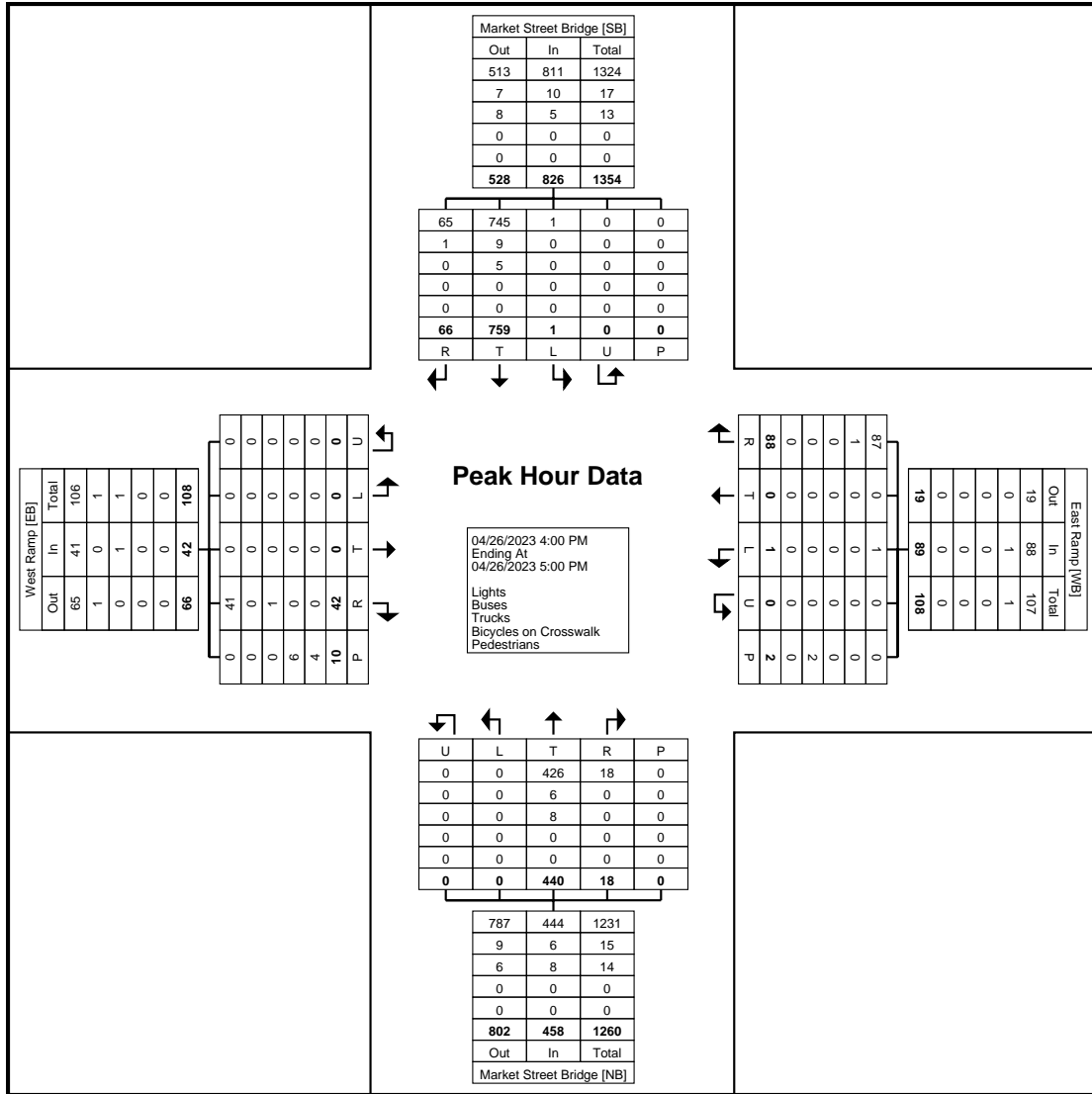
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Harrisburg, PA
Market St & City Island Ramps
Wednesday, April 26, 2023
Location: 40.253833, -
76.887408

Count Name: Market St Bridge &
City Island Ramps
Site Code:
Start Date: 04/26/2023
Page No: 5

Turning Movement Peak Hour Data (4:00 PM)

Start Time	West Ramp Eastbound						East Ramp Westbound						Market Street Bridge Northbound						Market Street Bridge Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:00 PM	0	0	13	0	0	13	0	0	26	0	0	26	0	102	2	0	0	104	0	185	21	0	0	206	349
4:15 PM	0	0	11	0	3	11	0	0	21	0	2	21	0	103	3	0	0	106	0	187	17	0	0	204	342
4:30 PM	0	0	6	0	5	6	1	0	24	0	0	25	0	106	8	0	0	114	1	172	15	0	0	188	333
4:45 PM	0	0	12	0	2	12	0	0	17	0	0	17	0	129	5	0	0	134	0	215	13	0	0	228	391
Total	0	0	42	0	10	42	1	0	88	0	2	89	0	440	18	0	0	458	1	759	66	0	0	826	1415
Approach %	0.0	0.0	100.0	0.0	-	-	1.1	0.0	98.9	0.0	-	-	0.0	96.1	3.9	0.0	-	-	0.1	91.9	8.0	0.0	-	-	-
Total %	0.0	0.0	3.0	0.0	-	3.0	0.1	0.0	6.2	0.0	-	6.3	0.0	31.1	1.3	0.0	-	32.4	0.1	53.6	4.7	0.0	-	58.4	-
PHF	0.000	0.000	0.808	0.000	-	0.808	0.250	0.000	0.846	0.000	-	0.856	0.000	0.853	0.563	0.000	-	0.854	0.250	0.883	0.786	0.000	-	0.906	0.905
Lights	0	0	41	0	-	41	1	0	87	0	-	88	0	426	18	0	-	444	1	745	65	0	-	811	1384
% Lights	-	-	97.6	-	-	97.6	100.0	-	98.9	-	-	98.9	-	96.8	100.0	-	-	96.9	100.0	98.2	98.5	-	-	98.2	97.8
Buses	0	0	0	0	-	0	0	0	1	0	-	1	0	6	0	0	-	6	0	9	1	0	-	10	17
% Buses	-	-	0.0	-	-	0.0	0.0	-	1.1	-	-	1.1	-	1.4	0.0	-	-	1.3	0.0	1.2	1.5	-	-	1.2	1.2
Trucks	0	0	1	0	-	1	0	0	0	0	-	0	0	8	0	0	-	8	0	5	0	0	-	5	14
% Trucks	-	-	2.4	-	-	2.4	0.0	-	0.0	-	-	0.0	-	1.8	0.0	-	-	1.7	0.0	0.7	0.0	-	-	0.6	1.0
Bicycles on Crosswalk	-	-	-	-	6	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	60.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	40.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)



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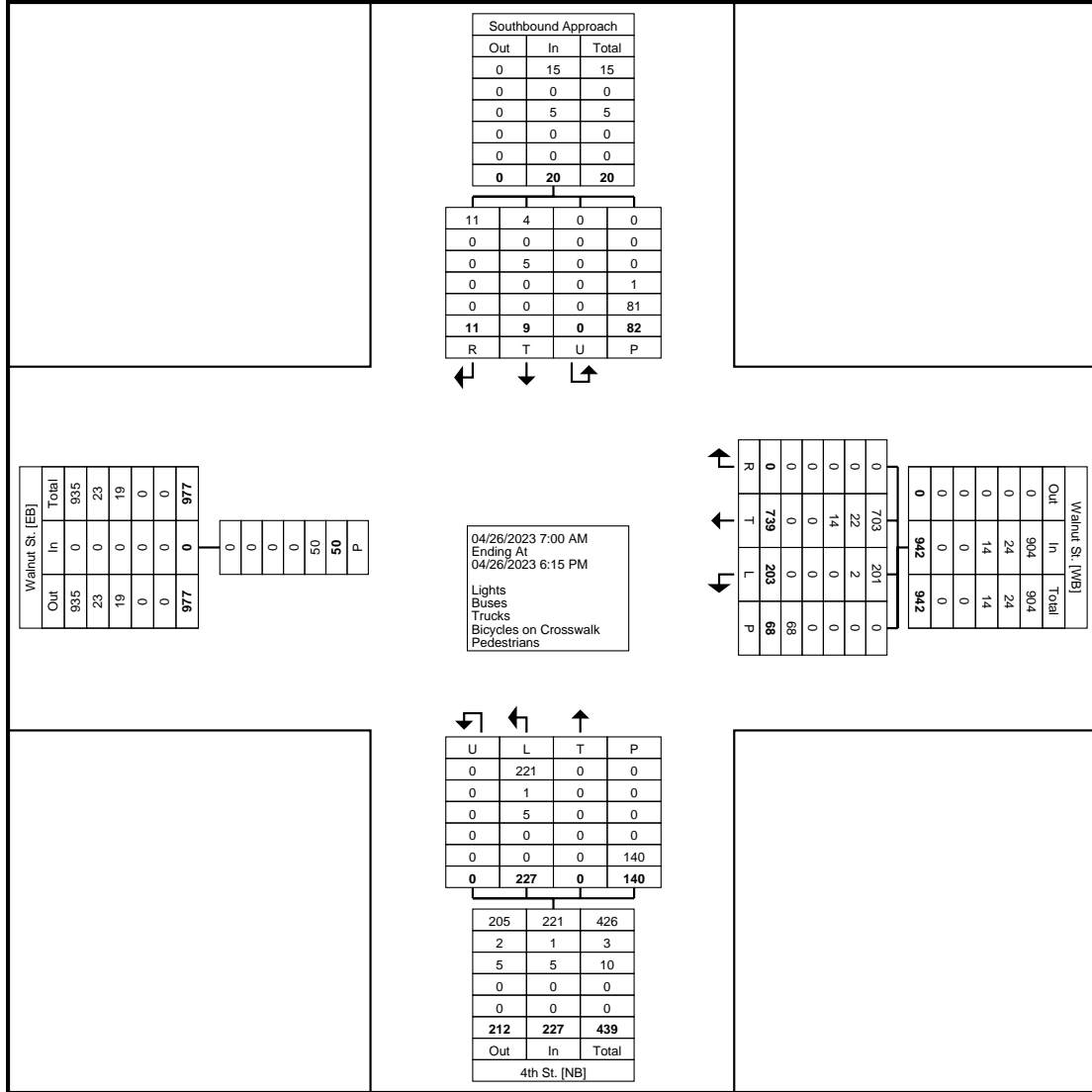
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Harrisburg, PA
Walnut St & 4th St
Wednesday, April 26, 2023
Location: 40.262783, -
76.881259

Count Name: Walnut St. & 4th St.
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Walnut St. Eastbound		Walnut St. Westbound				4th St. Northbound					Southbound Approach Southbound						Int. Total		
	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	Right on Red	U-Turn		Peds	App. Total
7:00 AM	2	0	15	60	0	0	4	75	14	0	0	7	14	2	1	2	0	5	5	94
7:15 AM	2	0	23	68	0	0	6	91	17	0	0	7	17	3	2	1	0	6	6	114
7:30 AM	4	0	34	99	0	0	3	133	31	0	0	17	31	0	1	1	0	9	2	166
7:45 AM	6	0	22	126	0	0	3	148	52	0	0	20	52	0	0	0	0	8	0	200
Hourly Total	14	0	94	353	0	0	16	447	114	0	0	51	114	5	4	4	0	28	13	574
8:00 AM	6	0	23	91	0	0	6	114	39	0	0	24	39	1	0	0	0	5	1	154
8:15 AM	10	0	32	108	0	0	9	140	27	0	0	23	27	2	0	1	0	11	3	170
8:30 AM	6	0	20	90	0	0	12	110	30	0	0	15	30	1	0	0	0	17	1	141
8:45 AM	14	0	34	97	0	0	25	131	17	0	0	27	17	0	0	2	0	21	2	150
Hourly Total	36	0	109	386	0	0	52	495	113	0	0	89	113	4	0	3	0	54	7	615
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	50	0	203	739	0	0	68	942	227	0	0	140	227	9	4	7	0	82	20	1189
Approach %	-	-	21.5	78.5	0.0	0.0	-	-	100.0	0.0	0.0	-	-	45.0	20.0	35.0	0.0	-	-	-
Total %	-	0.0	17.1	62.2	0.0	0.0	-	79.2	19.1	0.0	0.0	-	19.1	0.8	0.3	0.6	0.0	-	1.7	-
Lights	-	0	201	703	0	0	-	904	221	0	0	-	221	4	4	7	0	-	15	1140
% Lights	-	-	99.0	95.1	-	-	-	96.0	97.4	-	-	-	97.4	44.4	100.0	100.0	-	-	75.0	95.9
Buses	-	0	2	22	0	0	-	24	1	0	0	-	1	0	0	0	0	-	0	25
% Buses	-	-	1.0	3.0	-	-	-	2.5	0.4	-	-	-	0.4	0.0	0.0	0.0	-	-	0.0	2.1
Trucks	-	0	0	14	0	0	-	14	5	0	0	-	5	5	0	0	0	-	5	24
% Trucks	-	-	0.0	1.9	-	-	-	1.5	2.2	-	-	-	2.2	55.6	0.0	0.0	-	-	25.0	2.0
Bicycles on Crosswalk	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	0.0	-	-	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	1.2	-	-
Pedestrians	50	-	-	-	-	-	68	-	-	-	-	140	-	-	-	-	-	81	-	-
% Pedestrians	100.0	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	98.8	-	-



Turning Movement Data Plot



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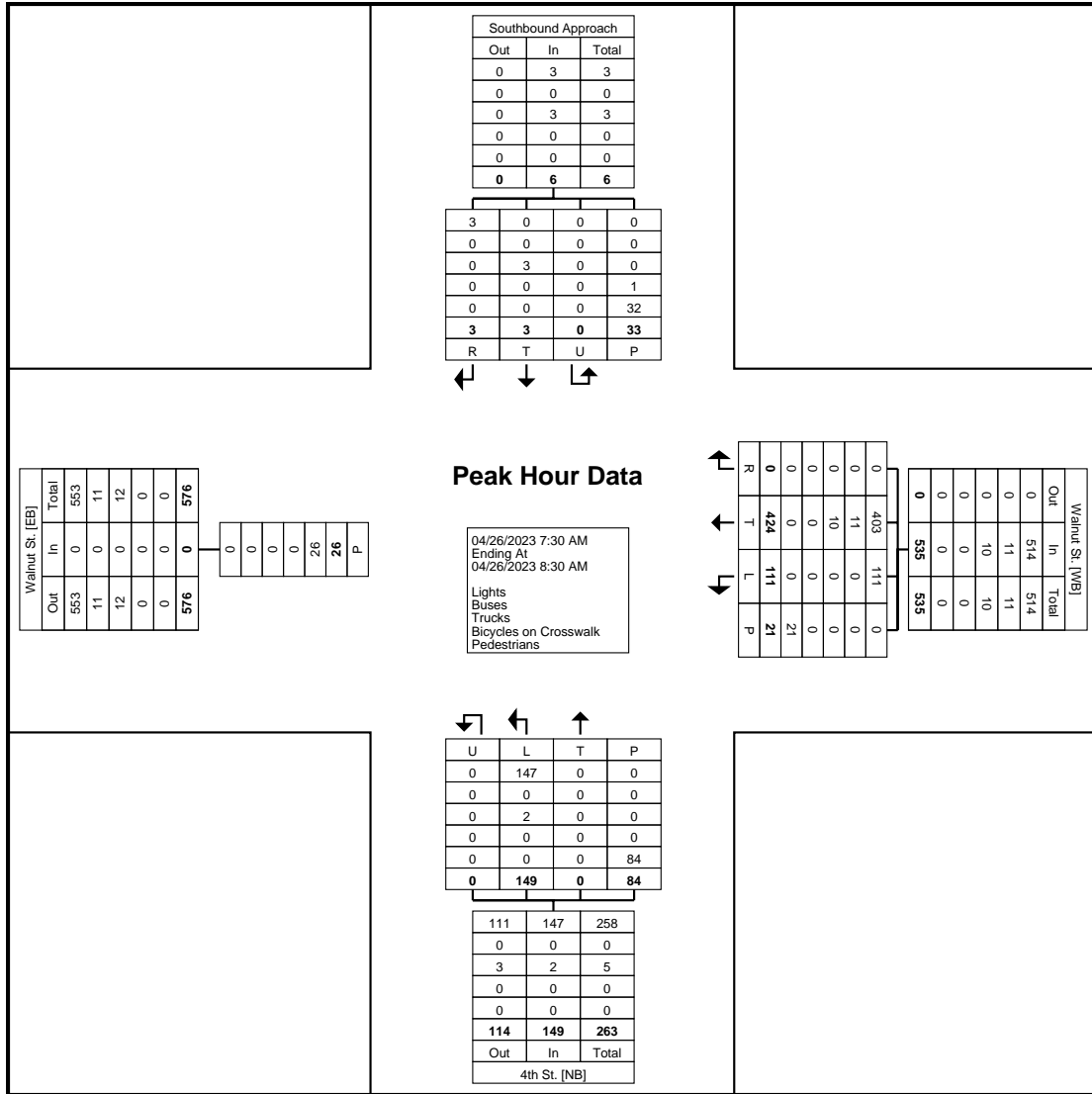
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Harrisburg, PA
Walnut St & 4th St
Wednesday, April 26, 2023
Location: 40.262783, -
76.881259

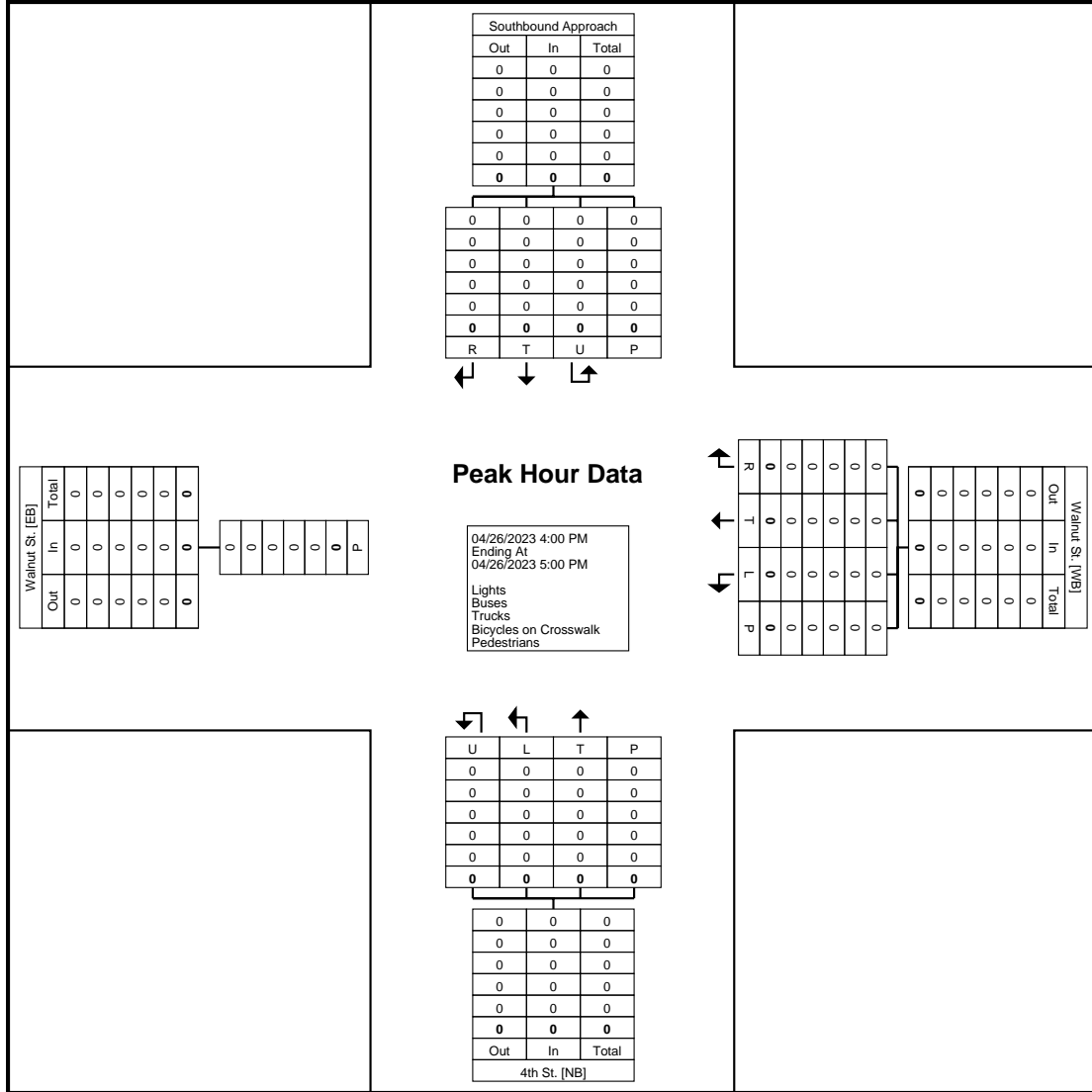
Count Name: Walnut St. & 4th St.
Site Code:
Start Date: 04/26/2023
Page No: 3

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Walnut St. Eastbound		Walnut St. Westbound				4th St. Northbound					Southbound Approach Southbound						Int. Total		
	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	Right on Red	U-Turn		Peds	App. Total
7:30 AM	4	0	34	99	0	0	3	133	31	0	0	17	31	0	1	1	0	9	2	166
7:45 AM	6	0	22	126	0	0	3	148	52	0	0	20	52	0	0	0	0	8	0	200
8:00 AM	6	0	23	91	0	0	6	114	39	0	0	24	39	1	0	0	0	5	1	154
8:15 AM	10	0	32	108	0	0	9	140	27	0	0	23	27	2	0	1	0	11	3	170
Total	26	0	111	424	0	0	21	535	149	0	0	84	149	3	1	2	0	33	6	690
Approach %	-	-	20.7	79.3	0.0	0.0	-	-	100.0	0.0	0.0	-	-	50.0	16.7	33.3	0.0	-	-	-
Total %	-	0.0	16.1	61.4	0.0	0.0	-	77.5	21.6	0.0	0.0	-	21.6	0.4	0.1	0.3	0.0	-	0.9	-
PHF	-	0.000	0.816	0.841	0.000	0.000	-	0.904	0.716	0.000	0.000	-	0.716	0.375	0.250	0.500	0.000	-	0.500	0.863
Lights	-	0	111	403	0	0	-	514	147	0	0	-	147	0	1	2	0	-	3	664
% Lights	-	-	100.0	95.0	-	-	-	96.1	98.7	-	-	-	98.7	0.0	100.0	100.0	-	-	50.0	96.2
Buses	-	0	0	11	0	0	-	11	0	0	0	-	0	0	0	0	0	-	0	11
% Buses	-	-	0.0	2.6	-	-	-	2.1	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	1.6
Trucks	-	0	0	10	0	0	-	10	2	0	0	-	2	3	0	0	0	-	3	15
% Trucks	-	-	0.0	2.4	-	-	-	1.9	1.3	-	-	-	1.3	100.0	0.0	0.0	-	-	50.0	2.2
Bicycles on Crosswalk	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	-	1	-
% Bicycles on Crosswalk	0.0	-	-	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	3.0	-
Pedestrians	26	-	-	-	-	-	21	-	-	-	-	84	-	-	-	-	-	-	32	-
% Pedestrians	100.0	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	97.0	-



Turning Movement Peak Hour Data Plot (7:30 AM)



Turning Movement Peak Hour Data Plot (4:00 PM)



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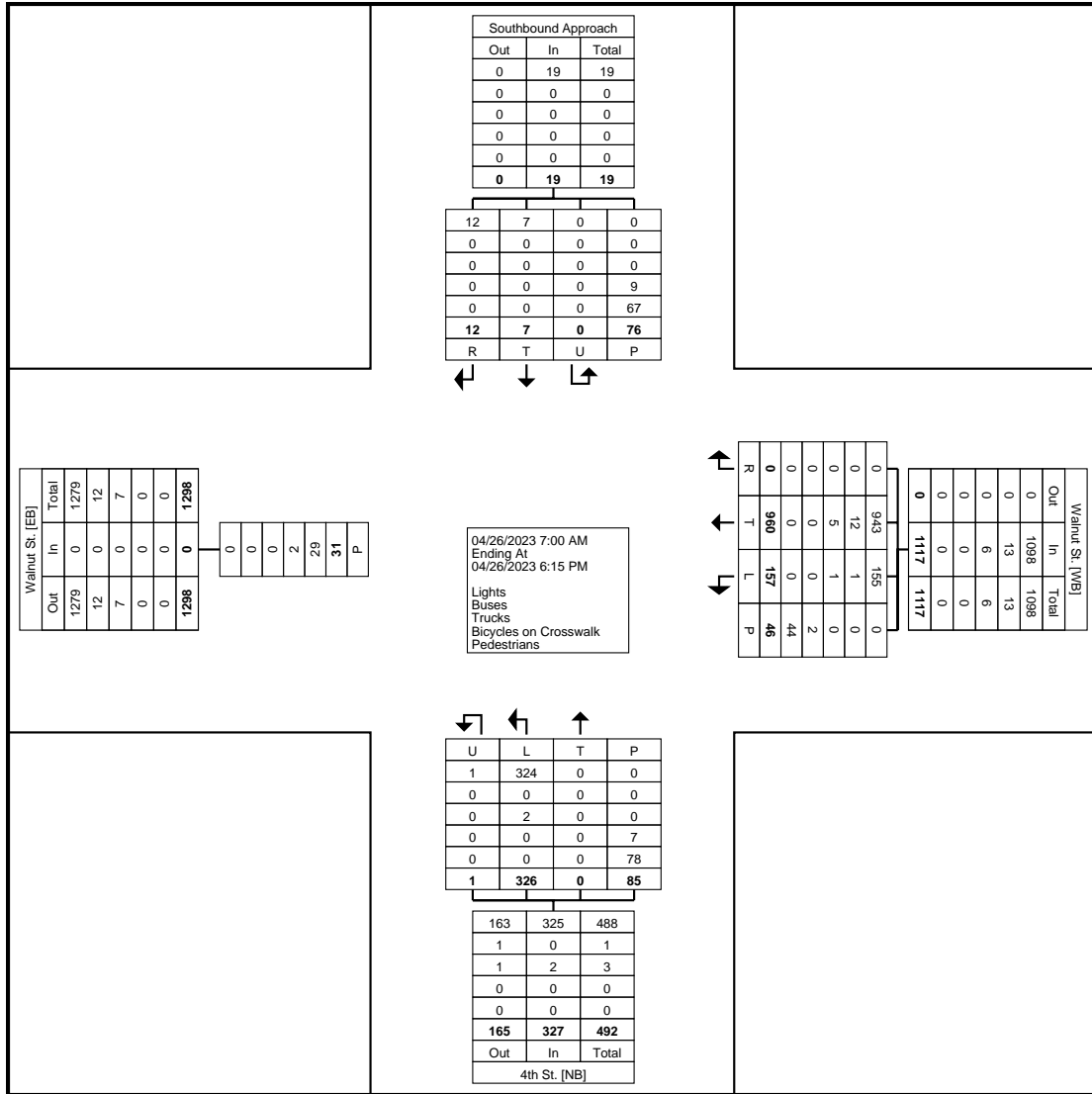
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Harrisburg, PA
Walnut St & 4th St
Wednesday, April 26, 2023
Location: 40.262783, -
76.881259

Count Name: Walnut St. & 4th St.
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Walnut St. Eastbound		Walnut St. Westbound				4th St. Northbound					Southbound Approach Southbound						Int. Total		
	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	Right on Red	U-Turn		Peds	App. Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	4	0	13	137	0	0	8	150	31	0	0	18	31	0	1	0	0	5	1	182
4:15 PM	9	0	21	123	0	0	8	144	37	0	0	10	37	1	0	1	0	16	2	183
4:30 PM	4	0	40	146	0	0	7	186	47	0	0	11	47	5	5	0	0	16	10	243
4:45 PM	3	0	24	138	0	0	7	162	29	0	0	12	29	0	2	0	0	9	2	193
Hourly Total	20	0	98	544	0	0	30	642	144	0	0	51	144	6	8	1	0	46	15	801
5:00 PM	3	0	20	109	0	0	8	129	48	0	0	13	48	1	0	1	0	12	2	179
5:15 PM	3	0	13	106	0	0	3	119	47	0	0	12	47	0	0	1	0	7	1	167
5:30 PM	3	0	11	105	0	0	3	116	48	0	1	3	49	0	0	1	0	4	1	166
5:45 PM	2	0	15	96	0	0	2	111	39	0	0	6	39	0	0	0	0	7	0	150
Hourly Total	11	0	59	416	0	0	16	475	182	0	1	34	183	1	0	3	0	30	4	662
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	31	0	157	960	0	0	46	1117	326	0	1	85	327	7	8	4	0	76	19	1463
Approach %	-	-	14.1	85.9	0.0	0.0	-	-	99.7	0.0	0.3	-	-	36.8	42.1	21.1	0.0	-	-	-
Total %	-	0.0	10.7	65.6	0.0	0.0	-	76.3	22.3	0.0	0.1	-	22.4	0.5	0.5	0.3	0.0	-	1.3	-
Lights	-	0	155	943	0	0	-	1098	324	0	1	-	325	7	8	4	0	-	19	1442
% Lights	-	-	98.7	98.2	-	-	-	98.3	99.4	-	100.0	-	99.4	100.0	100.0	100.0	-	-	100.0	98.6
Buses	-	0	1	12	0	0	-	13	0	0	0	-	0	0	0	0	0	-	0	13
% Buses	-	-	0.6	1.3	-	-	-	1.2	0.0	-	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.9
Trucks	-	0	1	5	0	0	-	6	2	0	0	-	2	0	0	0	0	-	0	8
% Trucks	-	-	0.6	0.5	-	-	-	0.5	0.6	-	0.0	-	0.6	0.0	0.0	0.0	-	-	0.0	0.5
Bicycles on Crosswalk	2	-	-	-	-	-	2	-	-	-	-	7	-	-	-	-	-	9	-	-
% Bicycles on Crosswalk	6.5	-	-	-	-	-	4.3	-	-	-	-	8.2	-	-	-	-	-	11.8	-	-
Pedestrians	29	-	-	-	-	-	44	-	-	-	-	78	-	-	-	-	-	67	-	-
% Pedestrians	93.5	-	-	-	-	-	95.7	-	-	-	-	91.8	-	-	-	-	-	88.2	-	-



Turning Movement Data Plot



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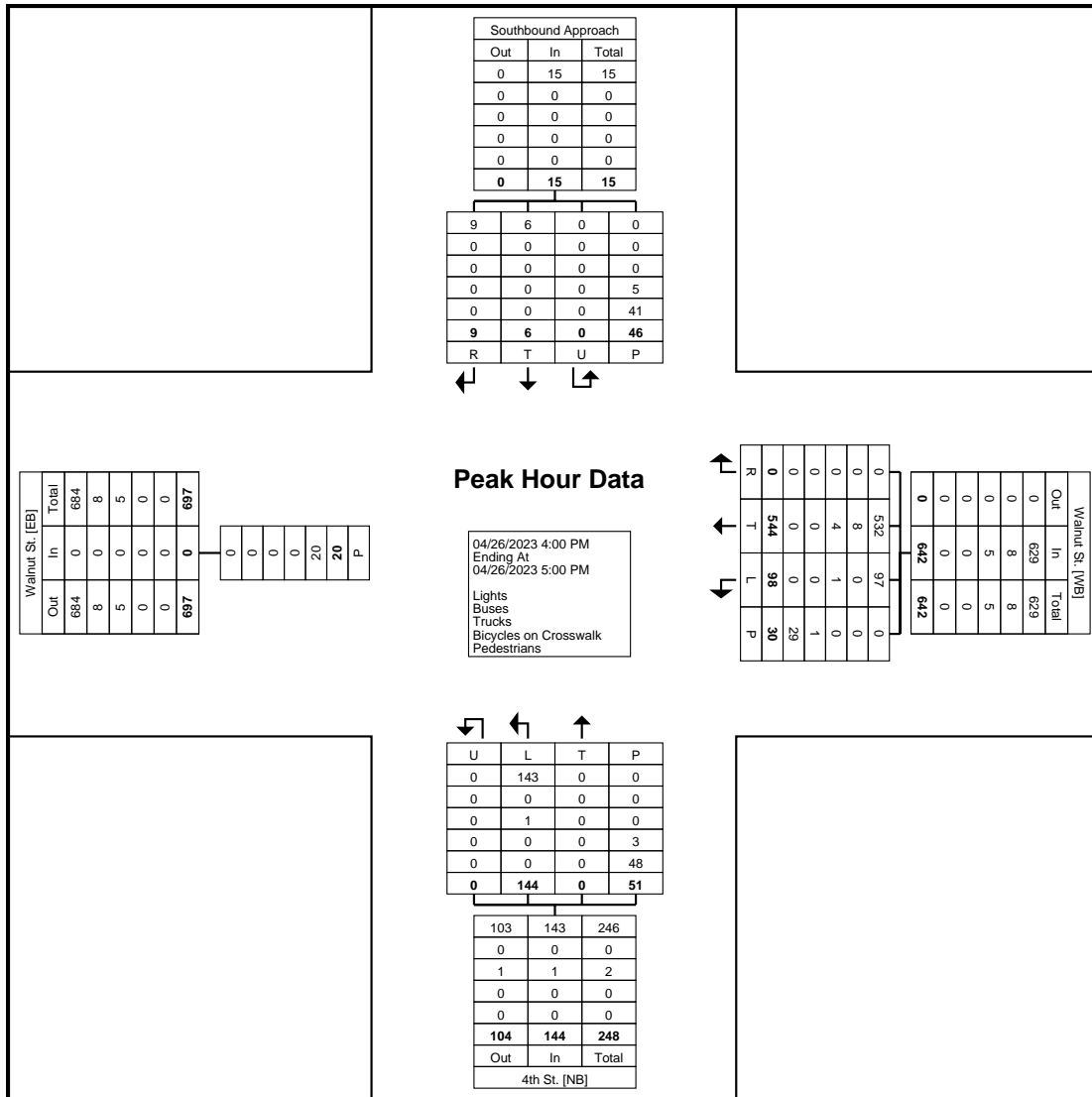
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610-466-1469
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Harrisburg, PA
Walnut St & 4th St
Wednesday, April 26, 2023
Location: 40.262783, -
76.881259

Count Name: Walnut St. & 4th St.
Site Code:
Start Date: 04/26/2023
Page No: 5

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Walnut St. Eastbound		Walnut St. Westbound				4th St. Northbound					Southbound Approach Southbound						Int. Total		
	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	Right on Red	U-Turn		Peds	App. Total
4:00 PM	4	0	13	137	0	0	8	150	31	0	0	18	31	0	1	0	0	5	1	182
4:15 PM	9	0	21	123	0	0	8	144	37	0	0	10	37	1	0	1	0	16	2	183
4:30 PM	4	0	40	146	0	0	7	186	47	0	0	11	47	5	5	0	0	16	10	243
4:45 PM	3	0	24	138	0	0	7	162	29	0	0	12	29	0	2	0	0	9	2	193
Total	20	0	98	544	0	0	30	642	144	0	0	51	144	6	8	1	0	46	15	801
Approach %	-	-	15.3	84.7	0.0	0.0	-	-	100.0	0.0	0.0	-	-	40.0	53.3	6.7	0.0	-	-	-
Total %	-	0.0	12.2	67.9	0.0	0.0	-	80.1	18.0	0.0	0.0	-	18.0	0.7	1.0	0.1	0.0	-	1.9	-
PHF	-	0.000	0.613	0.932	0.000	0.000	-	0.863	0.766	0.000	0.000	-	0.766	0.300	0.400	0.250	0.000	-	0.375	0.824
Lights	-	0	97	532	0	0	-	629	143	0	0	-	143	6	8	1	0	-	15	787
% Lights	-	-	99.0	97.8	-	-	-	98.0	99.3	-	-	-	99.3	100.0	100.0	100.0	-	-	100.0	98.3
Buses	-	0	0	8	0	0	-	8	0	0	0	-	0	0	0	0	0	-	0	8
% Buses	-	-	0.0	1.5	-	-	-	1.2	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	1.0
Trucks	-	0	1	4	0	0	-	5	1	0	0	-	1	0	0	0	0	-	0	6
% Trucks	-	-	1.0	0.7	-	-	-	0.8	0.7	-	-	-	0.7	0.0	0.0	0.0	-	-	0.0	0.7
Bicycles on Crosswalk	0	-	-	-	-	-	1	-	-	-	-	3	-	-	-	-	-	5	-	-
% Bicycles on Crosswalk	0.0	-	-	-	-	-	3.3	-	-	-	-	5.9	-	-	-	-	-	10.9	-	-
Pedestrians	20	-	-	-	-	-	29	-	-	-	-	48	-	-	-	-	-	41	-	-
% Pedestrians	100.0	-	-	-	-	-	96.7	-	-	-	-	94.1	-	-	-	-	-	89.1	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)



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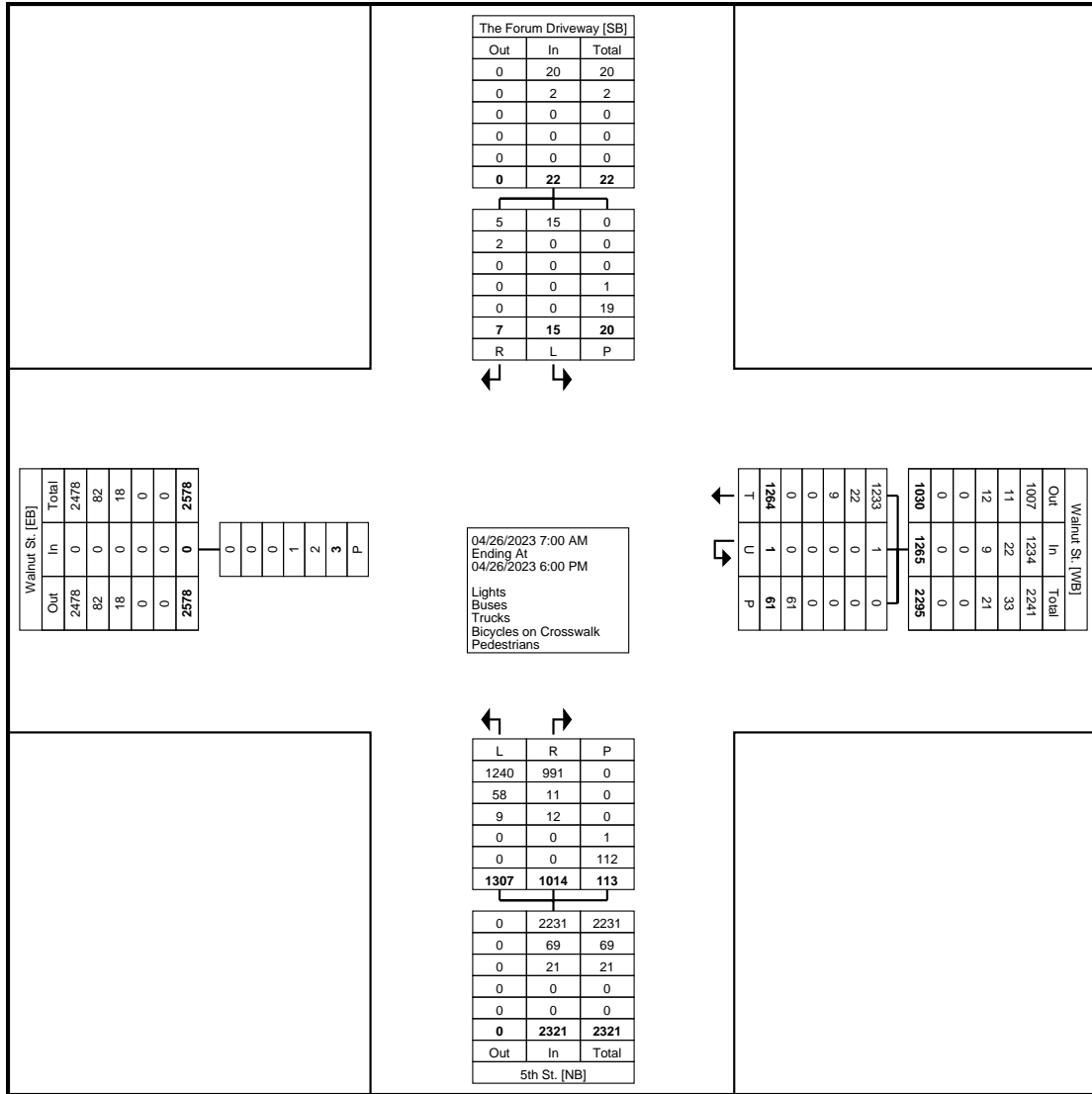
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Harrisburg, PA
Walnut St & 5th St
Wednesday, April 26, 2023
Location: 40.263852, -
76.880217

Count Name: Walnut St. & 5th St.
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Walnut St. Eastbound		Walnut St. Westbound				5th St. Northbound					The Forum Driveway Southbound					Int. Total
	Peds	App. Total	Thru	U-Turn	Peds	App. Total	Left	Right	Right on Red	Peds	App. Total	Left	Right	Right on Red	Peds	App. Total	
7:00 AM	0	0	54	0	9	54	47	23	10	5	80	1	0	1	2	2	136
7:15 AM	0	0	90	0	9	90	55	31	14	9	100	0	1	0	0	1	191
7:30 AM	0	0	99	0	4	99	69	26	20	2	115	3	1	2	0	6	220
7:45 AM	0	0	142	0	7	142	56	34	38	12	128	3	0	0	2	3	273
Hourly Total	0	0	385	0	29	385	227	114	82	28	423	7	2	3	4	12	820
8:00 AM	0	0	95	0	1	95	107	25	16	10	148	1	2	0	0	3	246
8:15 AM	0	0	125	0	4	125	89	38	20	23	147	2	0	0	0	2	274
8:30 AM	0	0	119	0	3	119	96	49	21	5	166	1	0	0	1	1	286
8:45 AM	0	0	102	0	3	102	97	34	32	6	163	4	0	0	1	4	269
Hourly Total	0	0	441	0	11	441	389	146	89	44	624	8	2	0	2	10	1075
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	62	0	9	62	103	58	37	12	198	0	0	0	4	0	260
4:15 PM	0	0	61	0	3	61	87	41	39	8	167	0	0	0	3	0	228
4:30 PM	2	0	63	0	4	63	106	72	47	10	225	0	0	0	4	0	288
4:45 PM	1	0	62	0	2	62	100	47	48	4	195	0	0	0	3	0	257
Hourly Total	3	0	248	0	18	248	396	218	171	34	785	0	0	0	14	0	1033
5:00 PM	0	0	47	0	1	47	86	32	40	5	158	0	0	0	0	0	205
5:15 PM	0	0	46	0	0	46	70	24	29	0	123	0	0	0	0	0	169
5:30 PM	0	0	46	1	2	47	81	20	12	0	113	0	0	0	0	0	160
5:45 PM	0	0	51	0	0	51	58	15	22	2	95	0	0	0	0	0	146
Hourly Total	0	0	190	1	3	191	295	91	103	7	489	0	0	0	0	0	680
Grand Total	3	0	1264	1	61	1265	1307	569	445	113	2321	15	4	3	20	22	3608
Approach %	-	-	99.9	0.1	-	-	56.3	24.5	19.2	-	-	68.2	18.2	13.6	-	-	-
Total %	-	0.0	35.0	0.0	-	35.1	36.2	15.8	12.3	-	64.3	0.4	0.1	0.1	-	0.6	-
Lights	-	0	1233	1	-	1234	1240	554	437	-	2231	15	2	3	-	20	3485
% Lights	-	-	97.5	100.0	-	97.5	94.9	97.4	98.2	-	96.1	100.0	50.0	100.0	-	90.9	96.6
Buses	-	0	22	0	-	22	58	8	3	-	69	0	2	0	-	2	93
% Buses	-	-	1.7	0.0	-	1.7	4.4	1.4	0.7	-	3.0	0.0	50.0	0.0	-	9.1	2.6
Trucks	-	0	9	0	-	9	9	7	5	-	21	0	0	0	-	0	30
% Trucks	-	-	0.7	0.0	-	0.7	0.7	1.2	1.1	-	0.9	0.0	0.0	0.0	-	0.0	0.8
Bicycles on Crosswalk	1	-	-	-	0	-	-	-	-	1	-	-	-	-	1	-	-
% Bicycles on Crosswalk	33.3	-	-	-	0.0	-	-	-	-	0.9	-	-	-	-	5.0	-	-
Pedestrians	2	-	-	-	61	-	-	-	-	112	-	-	-	-	19	-	-
% Pedestrians	66.7	-	-	-	100.0	-	-	-	-	99.1	-	-	-	-	95.0	-	-



Turning Movement Data Plot



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184 Baker Rd

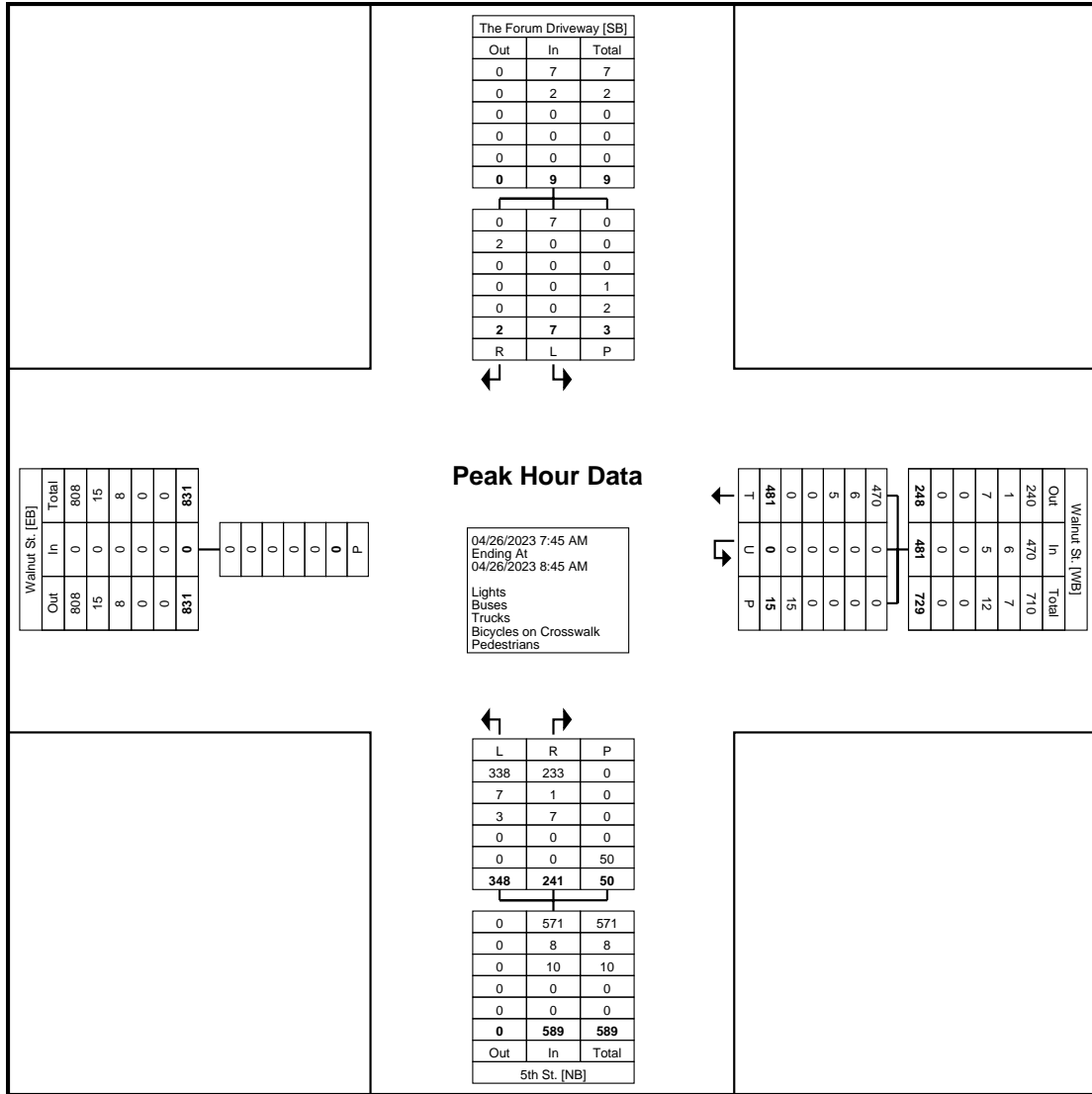
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Count Name: Walnut St. & 5th St.
Site Code:
Start Date: 04/26/2023
Page No: 3

Harrisburg, PA
Walnut St & 5th St
Wednesday, April 26, 2023
Location: 40.263852, -
76.880217

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Walnut St. Eastbound		Walnut St. Westbound				5th St. Northbound					The Forum Driveway Southbound					Int. Total
	Peds	App. Total	Thru	U-Turn	Peds	App. Total	Left	Right	Right on Red	Peds	App. Total	Left	Right	Right on Red	Peds	App. Total	
7:45 AM	0	0	142	0	7	142	56	34	38	12	128	3	0	0	2	3	273
8:00 AM	0	0	95	0	1	95	107	25	16	10	148	1	2	0	0	3	246
8:15 AM	0	0	125	0	4	125	89	38	20	23	147	2	0	0	0	2	274
8:30 AM	0	0	119	0	3	119	96	49	21	5	166	1	0	0	1	1	286
Total	0	0	481	0	15	481	348	146	95	50	589	7	2	0	3	9	1079
Approach %	-	-	100.0	0.0	-	-	59.1	24.8	16.1	-	-	77.8	22.2	0.0	-	-	-
Total %	-	0.0	44.6	0.0	-	44.6	32.3	13.5	8.8	-	54.6	0.6	0.2	0.0	-	0.8	-
PHF	-	0.000	0.847	0.000	-	0.847	0.813	0.745	0.625	-	0.887	0.583	0.250	0.000	-	0.750	0.943
Lights	-	0	470	0	-	470	338	141	92	-	571	7	0	0	-	7	1048
% Lights	-	-	97.7	-	-	97.7	97.1	96.6	96.8	-	96.9	100.0	0.0	-	-	77.8	97.1
Buses	-	0	6	0	-	6	7	1	0	-	8	0	2	0	-	2	16
% Buses	-	-	1.2	-	-	1.2	2.0	0.7	0.0	-	1.4	0.0	100.0	-	-	22.2	1.5
Trucks	-	0	5	0	-	5	3	4	3	-	10	0	0	0	-	0	15
% Trucks	-	-	1.0	-	-	1.0	0.9	2.7	3.2	-	1.7	0.0	0.0	-	-	0.0	1.4
Bicycles on Crosswalk	0	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	33.3	-	-
Pedestrians	0	-	-	-	15	-	-	-	-	50	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	66.7	-	-



Turning Movement Peak Hour Data Plot (7:45 AM)



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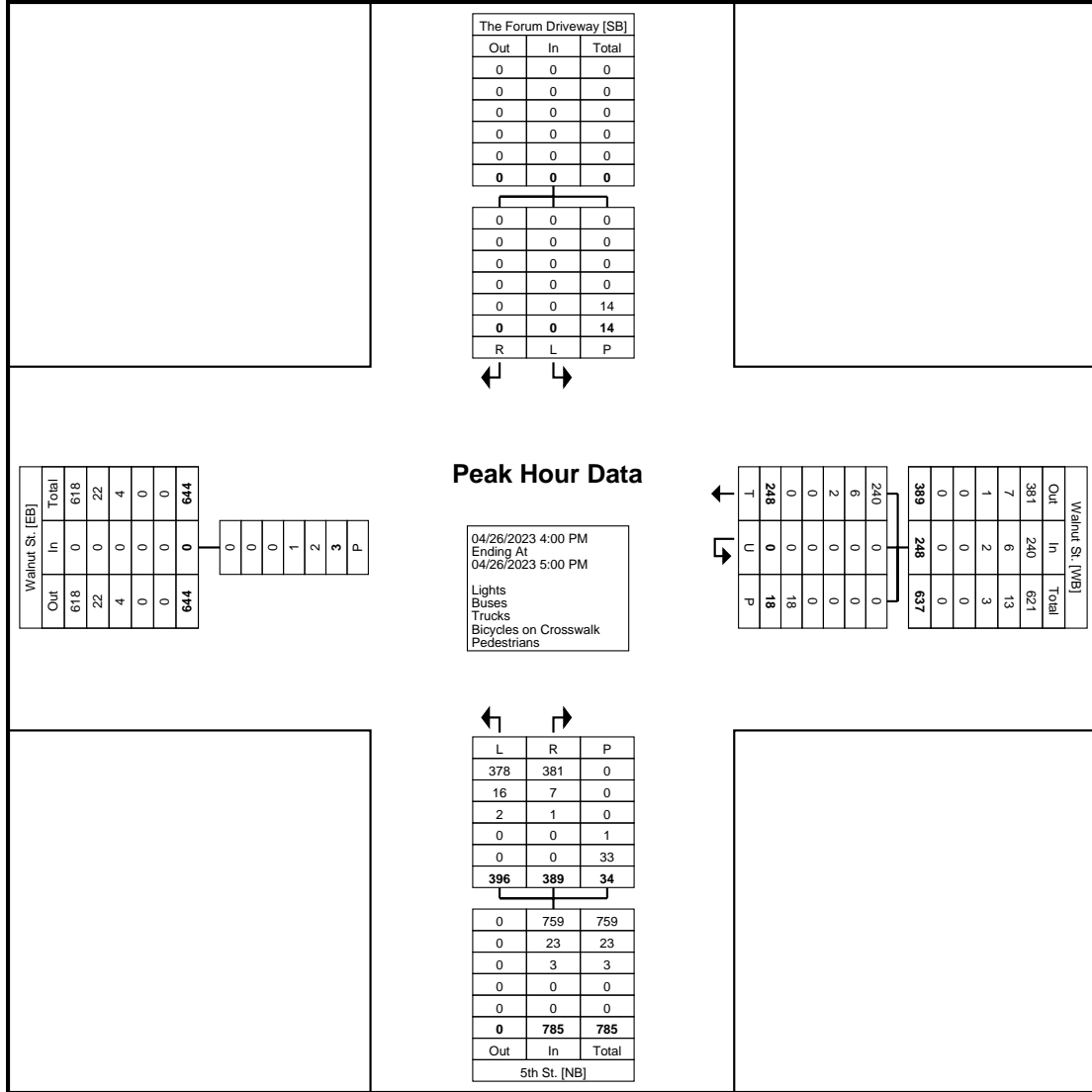
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Harrisburg, PA
Walnut St & 5th St
Wednesday, April 26, 2023
Location: 40.263852, -
76.880217

Count Name: Walnut St. & 5th St.
Site Code:
Start Date: 04/26/2023
Page No: 5

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Walnut St. Eastbound		Walnut St. Westbound				5th St. Northbound					The Forum Driveway Southbound					Int. Total
	Peds	App. Total	Thru	U-Turn	Peds	App. Total	Left	Right	Right on Red	Peds	App. Total	Left	Right	Right on Red	Peds	App. Total	
4:00 PM	0	0	62	0	9	62	103	58	37	12	198	0	0	0	4	0	260
4:15 PM	0	0	61	0	3	61	87	41	39	8	167	0	0	0	3	0	228
4:30 PM	2	0	63	0	4	63	106	72	47	10	225	0	0	0	4	0	288
4:45 PM	1	0	62	0	2	62	100	47	48	4	195	0	0	0	3	0	257
Total	3	0	248	0	18	248	396	218	171	34	785	0	0	0	14	0	1033
Approach %	-	-	100.0	0.0	-	-	50.4	27.8	21.8	-	-	0.0	0.0	0.0	-	-	-
Total %	-	0.0	24.0	0.0	-	24.0	38.3	21.1	16.6	-	76.0	0.0	0.0	0.0	-	0.0	-
PHF	-	0.000	0.984	0.000	-	0.984	0.934	0.757	0.891	-	0.872	0.000	0.000	0.000	-	0.000	0.897
Lights	-	0	240	0	-	240	378	212	169	-	759	0	0	0	-	0	999
% Lights	-	-	96.8	-	-	96.8	95.5	97.2	98.8	-	96.7	-	-	-	-	-	96.7
Buses	-	0	6	0	-	6	16	5	2	-	23	0	0	0	-	0	29
% Buses	-	-	2.4	-	-	2.4	4.0	2.3	1.2	-	2.9	-	-	-	-	-	2.8
Trucks	-	0	2	0	-	2	2	1	0	-	3	0	0	0	-	0	5
% Trucks	-	-	0.8	-	-	0.8	0.5	0.5	0.0	-	0.4	-	-	-	-	-	0.5
Bicycles on Crosswalk	1	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Bicycles on Crosswalk	33.3	-	-	-	0.0	-	-	-	-	2.9	-	-	-	-	0.0	-	-
Pedestrians	2	-	-	-	18	-	-	-	-	33	-	-	-	-	14	-	-
% Pedestrians	66.7	-	-	-	100.0	-	-	-	-	97.1	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)



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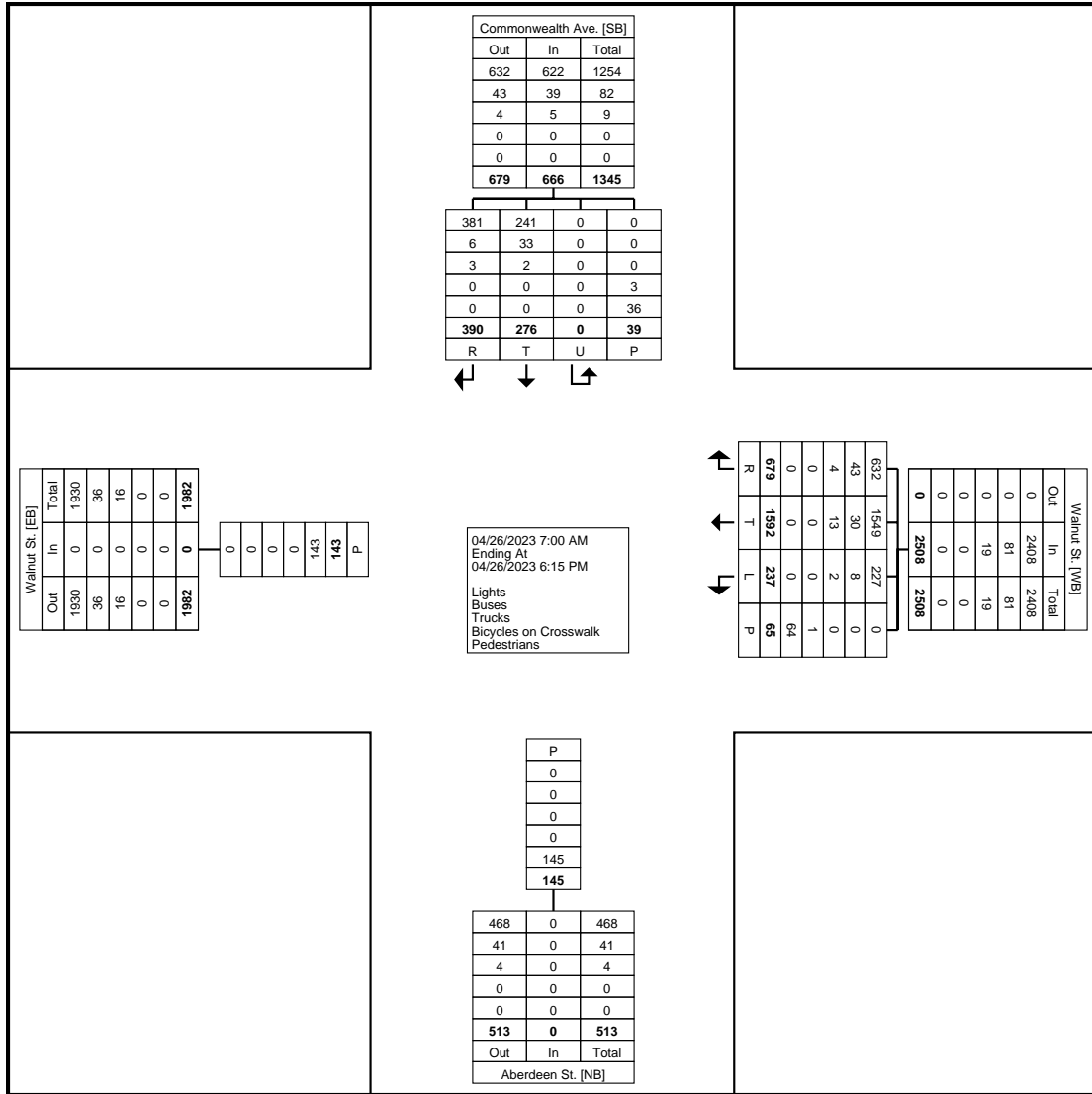
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Harrisburg, PA
Walnut St & Aberdeen St
Wednesday, April 26, 2023
Location: 40.263319, -
76.880733

Count Name: Walnut St. &
Aberdeen St.
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Walnut St. Eastbound		Walnut St. Westbound			Aberdeen St. Northbound		Commonwealth Ave. Southbound					Int. Total		
	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total			
7:00 AM	9	0	9	63	32	6	104	6	0	9	9	0	1	18	122
7:15 AM	5	0	13	87	39	5	139	9	0	19	9	0	2	28	167
7:30 AM	8	0	27	110	29	10	166	11	0	19	16	0	2	35	201
7:45 AM	8	0	28	125	49	2	202	12	0	29	20	0	6	49	251
Hourly Total	30	0	77	385	149	23	611	38	0	76	54	0	11	130	741
8:00 AM	16	0	25	99	76	10	200	13	0	14	23	0	8	37	237
8:15 AM	20	0	24	115	86	7	225	26	0	26	29	0	4	55	280
8:30 AM	5	0	27	100	87	1	214	6	0	17	12	0	1	29	243
8:45 AM	5	0	15	108	82	3	205	9	0	13	20	0	4	33	238
Hourly Total	46	0	91	422	331	21	844	54	0	70	84	0	17	154	998
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	18	0	14	113	25	5	152	8	0	15	38	0	2	53	205
4:15 PM	21	0	6	95	32	12	133	6	0	30	27	0	2	57	190
4:30 PM	9	0	9	106	30	1	145	10	0	26	57	0	6	83	228
4:45 PM	2	0	8	89	45	3	142	9	0	20	41	0	1	61	203
Hourly Total	50	0	37	403	132	21	572	33	0	91	163	0	11	254	826
5:00 PM	5	0	10	106	27	0	143	9	0	11	33	0	0	44	187
5:15 PM	8	0	8	85	13	0	106	6	0	12	16	0	0	28	134
5:30 PM	0	0	7	109	14	0	130	2	0	8	17	0	0	25	155
5:45 PM	4	0	7	82	13	0	102	3	0	8	23	0	0	31	133
Hourly Total	17	0	32	382	67	0	481	20	0	39	89	0	0	128	609
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	143	0	237	1592	679	65	2508	145	0	276	390	0	39	666	3174
Approach %	-	-	9.4	63.5	27.1	-	-	-	-	41.4	58.6	0.0	-	-	-
Total %	-	0.0	7.5	50.2	21.4	-	79.0	-	0.0	8.7	12.3	0.0	-	21.0	-
Lights	-	0	227	1549	632	-	2408	-	0	241	381	0	-	622	3030
% Lights	-	-	95.8	97.3	93.1	-	96.0	-	-	87.3	97.7	-	-	93.4	95.5
Buses	-	0	8	30	43	-	81	-	0	33	6	0	-	39	120
% Buses	-	-	3.4	1.9	6.3	-	3.2	-	-	12.0	1.5	-	-	5.9	3.8
Trucks	-	0	2	13	4	-	19	-	0	2	3	0	-	5	24
% Trucks	-	-	0.8	0.8	0.6	-	0.8	-	-	0.7	0.8	-	-	0.8	0.8
Bicycles on Crosswalk	0	-	-	-	-	1	-	0	-	-	-	-	3	-	-
% Bicycles on Crosswalk	0.0	-	-	-	-	1.5	-	0.0	-	-	-	-	7.7	-	-
Pedestrians	143	-	-	-	-	64	-	145	-	-	-	-	36	-	-
% Pedestrians	100.0	-	-	-	-	98.5	-	100.0	-	-	-	-	92.3	-	-



Turning Movement Data Plot



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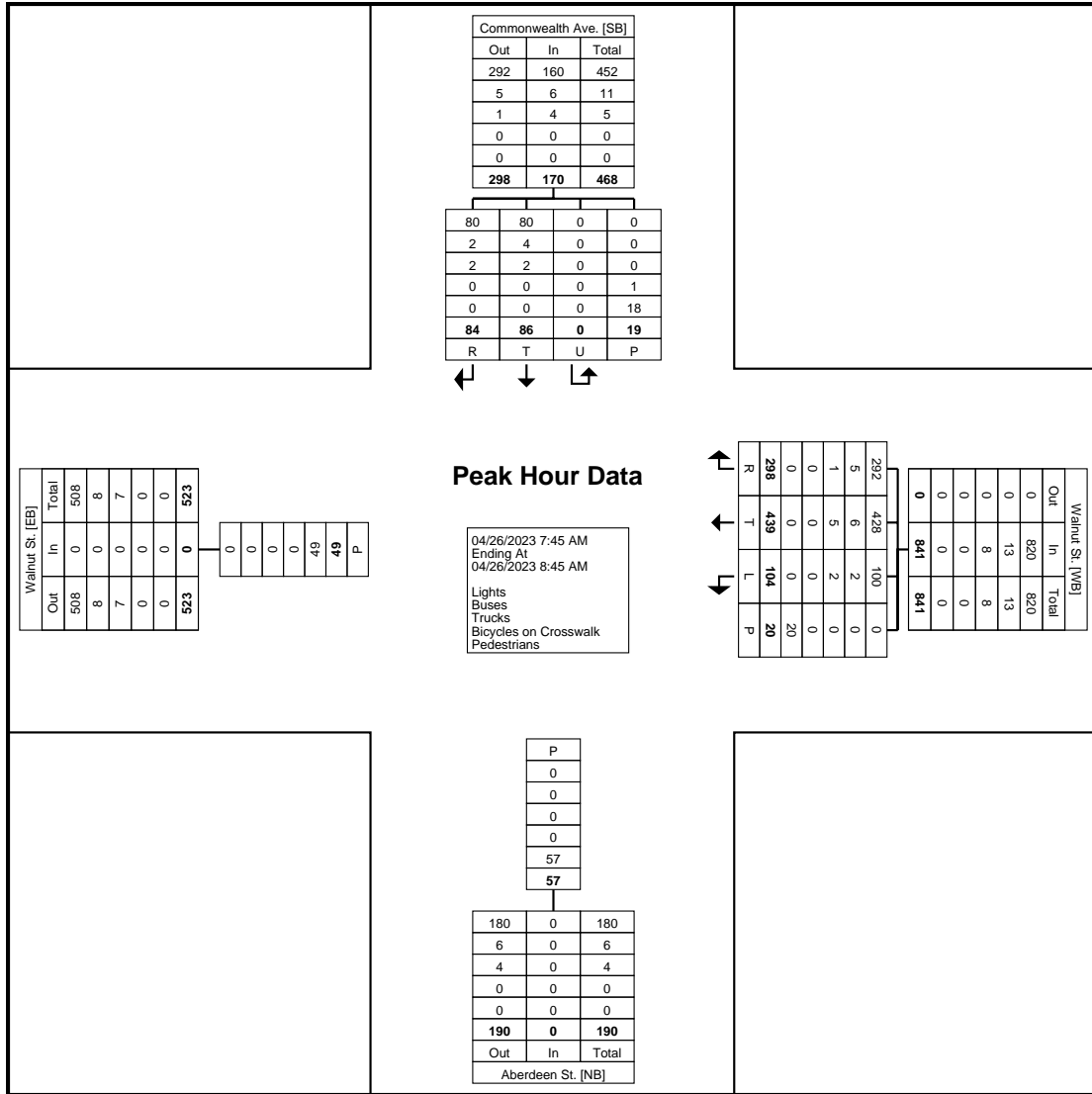
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Count Name: Walnut St. &
Aberdeen St.
Site Code:
Start Date: 04/26/2023
Page No: 3

Harrisburg, PA
Walnut St & Aberdeen St
Wednesday, April 26, 2023
Location: 40.263319, -
76.880733

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Walnut St. Eastbound		Walnut St. Westbound				Aberdeen St. Northbound		Commonwealth Ave. Southbound				Int. Total		
	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Peds	App. Total	Thru	Right	U-Turn		Peds	App. Total
7:45 AM	8	0	28	125	49	2	202	12	0	29	20	0	6	49	251
8:00 AM	16	0	25	99	76	10	200	13	0	14	23	0	8	37	237
8:15 AM	20	0	24	115	86	7	225	26	0	26	29	0	4	55	280
8:30 AM	5	0	27	100	87	1	214	6	0	17	12	0	1	29	243
Total	49	0	104	439	298	20	841	57	0	86	84	0	19	170	1011
Approach %	-	-	12.4	52.2	35.4	-	-	-	-	50.6	49.4	0.0	-	-	-
Total %	-	0.0	10.3	43.4	29.5	-	83.2	-	0.0	8.5	8.3	0.0	-	16.8	-
PHF	-	0.000	0.929	0.878	0.856	-	0.934	-	0.000	0.741	0.724	0.000	-	0.773	0.903
Lights	-	0	100	428	292	-	820	-	0	80	80	0	-	160	980
% Lights	-	-	96.2	97.5	98.0	-	97.5	-	-	93.0	95.2	-	-	94.1	96.9
Buses	-	0	2	6	5	-	13	-	0	4	2	0	-	6	19
% Buses	-	-	1.9	1.4	1.7	-	1.5	-	-	4.7	2.4	-	-	3.5	1.9
Trucks	-	0	2	5	1	-	8	-	0	2	2	0	-	4	12
% Trucks	-	-	1.9	1.1	0.3	-	1.0	-	-	2.3	2.4	-	-	2.4	1.2
Bicycles on Crosswalk	0	-	-	-	-	0	-	0	-	-	-	-	1	-	-
% Bicycles on Crosswalk	0.0	-	-	-	-	0.0	-	0.0	-	-	-	-	5.3	-	-
Pedestrians	49	-	-	-	-	20	-	57	-	-	-	-	18	-	-
% Pedestrians	100.0	-	-	-	-	100.0	-	100.0	-	-	-	-	94.7	-	-



Turning Movement Peak Hour Data Plot (7:45 AM)



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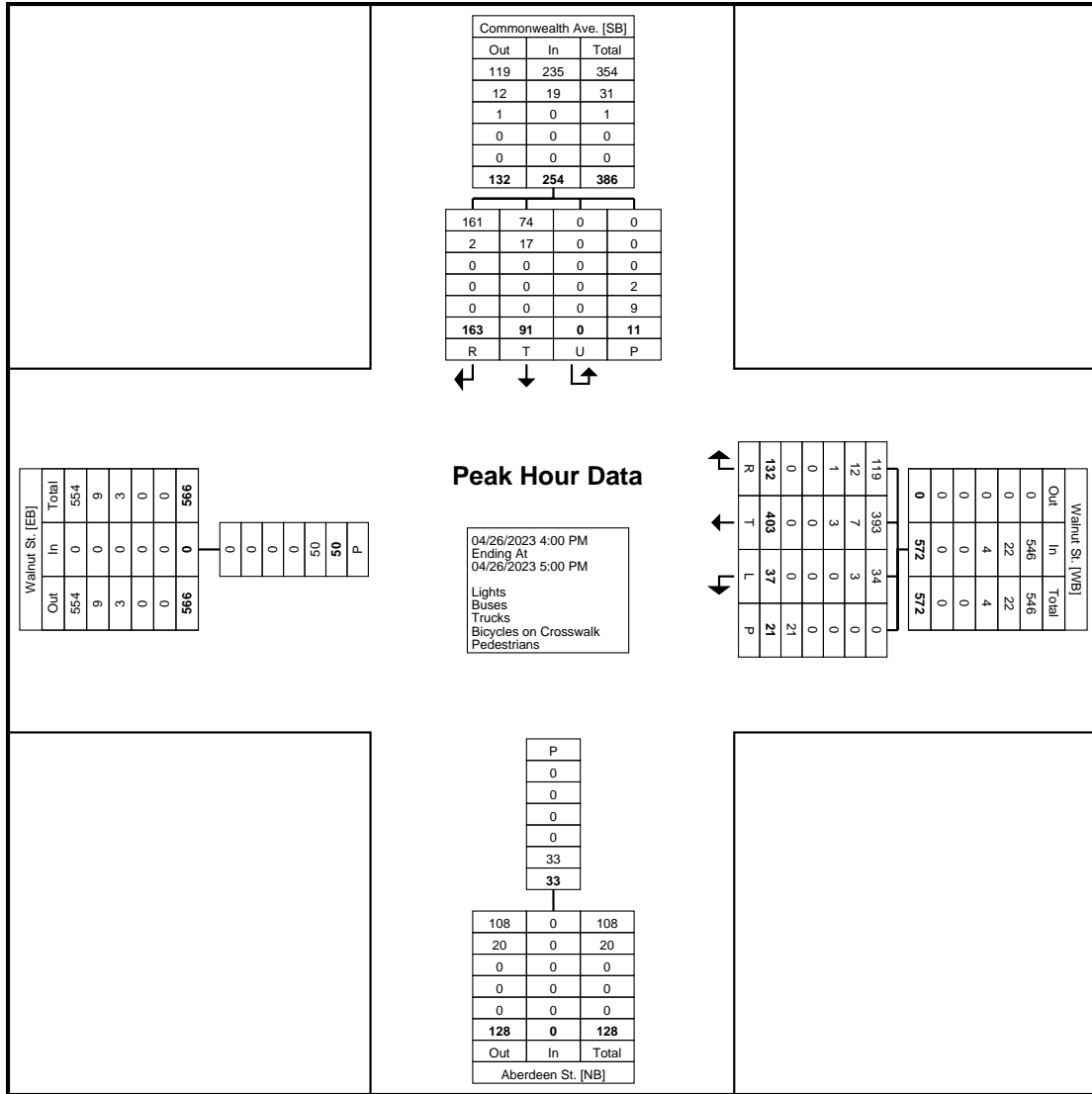
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Count Name: Walnut St. &
Aberdeen St.
Site Code:
Start Date: 04/26/2023
Page No: 5

Harrisburg, PA
Walnut St & Aberdeen St
Wednesday, April 26, 2023
Location: 40.263319, -
76.880733

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Walnut St. Eastbound		Walnut St. Westbound				Aberdeen St. Northbound		Commonwealth Ave. Southbound				Int. Total		
	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Peds	App. Total	Thru	Right	U-Turn		Peds	App. Total
4:00 PM	18	0	14	113	25	5	152	8	0	15	38	0	2	53	205
4:15 PM	21	0	6	95	32	12	133	6	0	30	27	0	2	57	190
4:30 PM	9	0	9	106	30	1	145	10	0	26	57	0	6	83	228
4:45 PM	2	0	8	89	45	3	142	9	0	20	41	0	1	61	203
Total	50	0	37	403	132	21	572	33	0	91	163	0	11	254	826
Approach %	-	-	6.5	70.5	23.1	-	-	-	-	35.8	64.2	0.0	-	-	-
Total %	-	0.0	4.5	48.8	16.0	-	69.2	-	0.0	11.0	19.7	0.0	-	30.8	-
PHF	-	0.000	0.661	0.892	0.733	-	0.941	-	0.000	0.758	0.715	0.000	-	0.765	0.906
Lights	-	0	34	393	119	-	546	-	0	74	161	0	-	235	781
% Lights	-	-	91.9	97.5	90.2	-	95.5	-	-	81.3	98.8	-	-	92.5	94.6
Buses	-	0	3	7	12	-	22	-	0	17	2	0	-	19	41
% Buses	-	-	8.1	1.7	9.1	-	3.8	-	-	18.7	1.2	-	-	7.5	5.0
Trucks	-	0	0	3	1	-	4	-	0	0	0	0	-	0	4
% Trucks	-	-	0.0	0.7	0.8	-	0.7	-	-	0.0	0.0	-	-	0.0	0.5
Bicycles on Crosswalk	0	-	-	-	-	0	-	0	-	-	-	-	2	-	-
% Bicycles on Crosswalk	0.0	-	-	-	-	0.0	-	0.0	-	-	-	-	18.2	-	-
Pedestrians	50	-	-	-	-	21	-	33	-	-	-	-	9	-	-
% Pedestrians	100.0	-	-	-	-	100.0	-	100.0	-	-	-	-	81.8	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)



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Harrisburg, PA
Walnut St & N 2nd St
Wednesday, April 26, 2023
Location: 40.260502, -76.88324

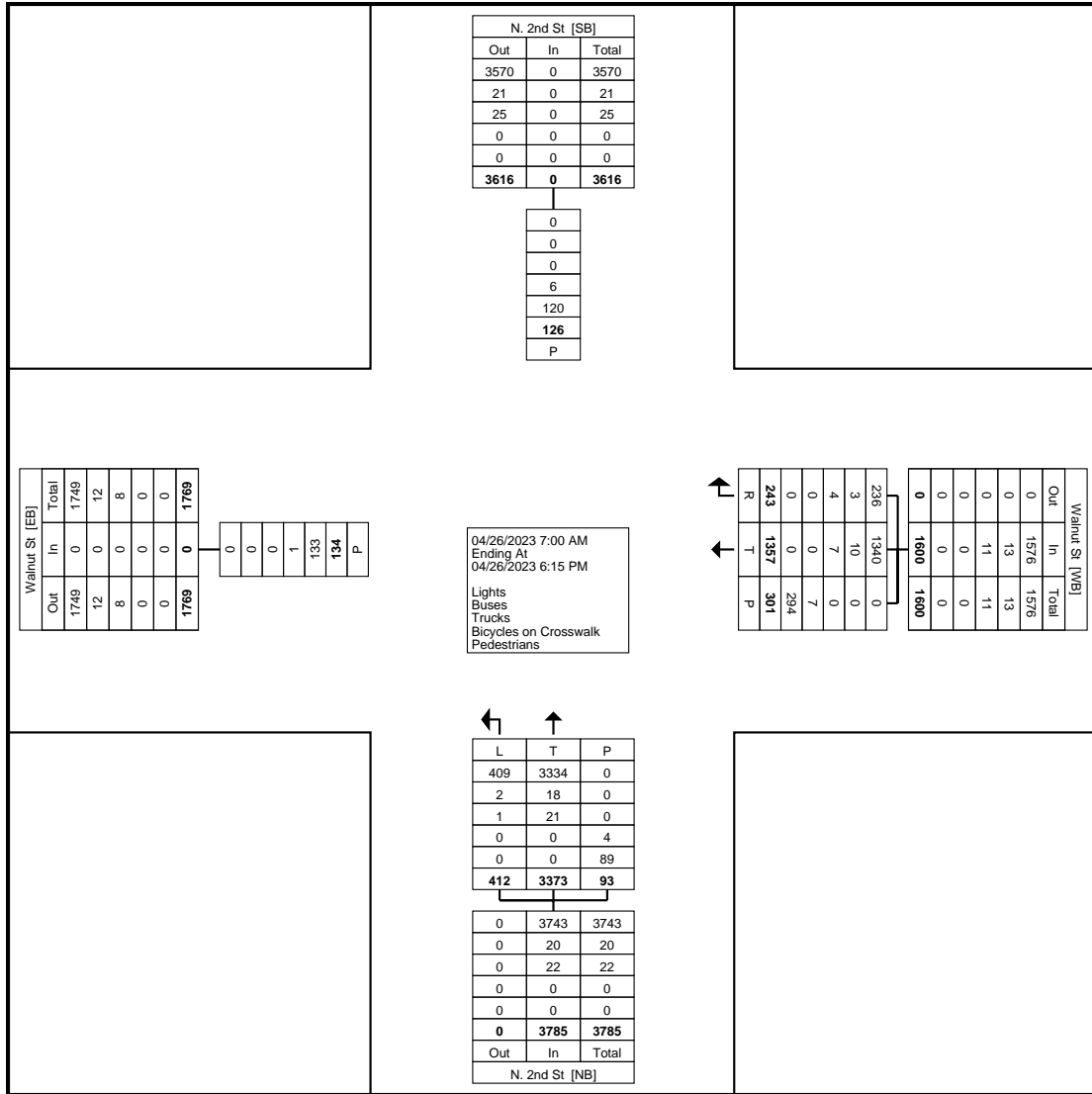
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Count Name: Walnut St & N.
2nd St
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Walnut St Eastbound		Walnut St Westbound				N. 2nd St Northbound				N. 2nd St Southbound		Int. Total	
	Peds	App. Total	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Peds	App. Total	Peds		App. Total
7:00 AM	1	0	34	5	5	14	44	26	167	1	193	4	0	237
7:15 AM	6	0	37	3	5	15	45	40	186	1	226	4	0	271
7:30 AM	8	0	40	10	5	15	55	37	233	3	270	8	0	325
7:45 AM	20	0	65	15	3	19	83	51	257	9	308	10	0	391
Hourly Total	35	0	176	33	18	63	227	154	843	14	997	26	0	1224
8:00 AM	7	0	49	13	4	13	66	40	253	8	293	7	0	359
8:15 AM	13	0	49	11	3	14	63	23	254	4	277	7	0	340
8:30 AM	4	0	46	7	3	15	56	34	260	2	294	8	0	350
8:45 AM	11	0	44	12	5	18	61	39	227	3	266	9	0	327
Hourly Total	35	0	188	43	15	60	246	136	994	17	1130	31	0	1376
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	6	0	129	16	3	14	148	28	233	13	261	7	0	409
4:15 PM	11	0	160	16	2	30	178	11	180	9	191	14	0	369
4:30 PM	11	0	130	10	3	26	143	20	225	7	245	6	0	388
4:45 PM	14	0	157	12	3	30	172	12	190	8	202	5	0	374
Hourly Total	42	0	576	54	11	100	641	71	828	37	899	32	0	1540
5:00 PM	9	0	132	18	0	14	150	9	216	8	225	15	0	375
5:15 PM	7	0	113	13	5	23	131	9	158	6	167	10	0	298
5:30 PM	0	0	87	11	6	16	104	13	183	6	196	6	0	300
5:45 PM	6	0	85	15	1	25	101	20	151	5	171	6	0	272
Hourly Total	22	0	417	57	12	78	486	51	708	25	759	37	0	1245
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	134	0	1357	187	56	301	1600	412	3373	93	3785	126	0	5385
Approach %	-	-	84.8	11.7	3.5	-	-	10.9	89.1	-	-	-	-	-
Total %	-	0.0	25.2	3.5	1.0	-	29.7	7.7	62.6	-	70.3	-	0.0	-
Lights	-	0	1340	180	56	-	1576	409	3334	-	3743	-	0	5319
% Lights	-	-	98.7	96.3	100.0	-	98.5	99.3	98.8	-	98.9	-	-	98.8
Buses	-	0	10	3	0	-	13	2	18	-	20	-	0	33
% Buses	-	-	0.7	1.6	0.0	-	0.8	0.5	0.5	-	0.5	-	-	0.6
Trucks	-	0	7	4	0	-	11	1	21	-	22	-	0	33
% Trucks	-	-	0.5	2.1	0.0	-	0.7	0.2	0.6	-	0.6	-	-	0.6
Bicycles on Crosswalk	1	-	-	-	-	7	-	-	-	4	-	6	-	-
% Bicycles on Crosswalk	0.7	-	-	-	-	2.3	-	-	-	4.3	-	4.8	-	-
Pedestrians	133	-	-	-	-	294	-	-	-	89	-	120	-	-
% Pedestrians	99.3	-	-	-	-	97.7	-	-	-	95.7	-	95.2	-	-

Harrisburg, PA
Walnut St & N 2nd St
Wednesday, April 26, 2023
Location: 40.260502, -76.88324



Turning Movement Data Plot



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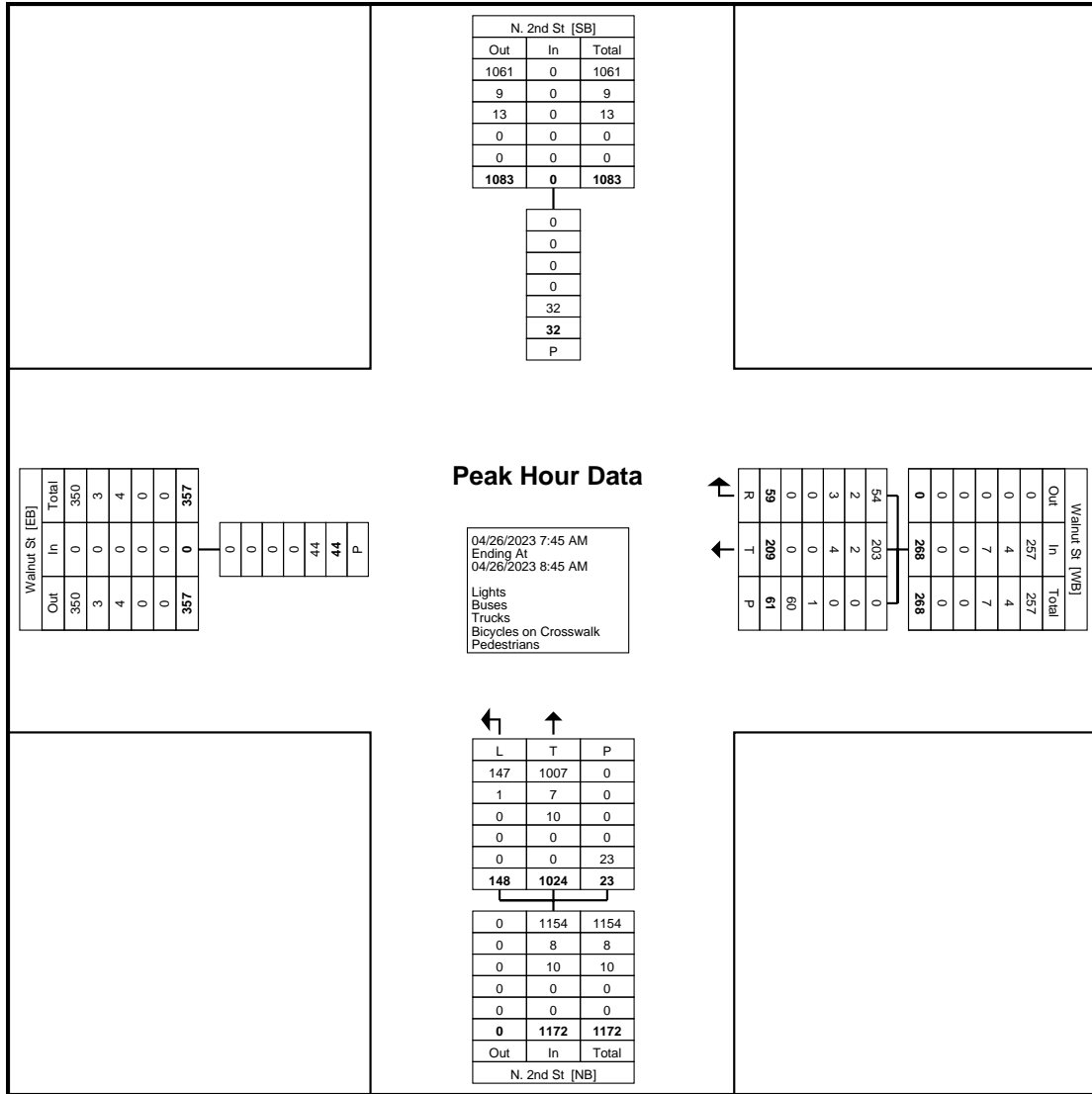
Count Name: Walnut St & N.
2nd St
Site Code:
Start Date: 04/26/2023
Page No: 3

Harrisburg, PA
Walnut St & N 2nd St
Wednesday, April 26, 2023
Location: 40.260502, -76.88324

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Walnut St Eastbound		Walnut St Westbound				N. 2nd St Northbound				N. 2nd St Southbound		Int. Total	
	Peds	App. Total	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Peds	App. Total	Peds		App. Total
7:45 AM	20	0	65	15	3	19	83	51	257	9	308	10	0	391
8:00 AM	7	0	49	13	4	13	66	40	253	8	293	7	0	359
8:15 AM	13	0	49	11	3	14	63	23	254	4	277	7	0	340
8:30 AM	4	0	46	7	3	15	56	34	260	2	294	8	0	350
Total	44	0	209	46	13	61	268	148	1024	23	1172	32	0	1440
Approach %	-	-	78.0	17.2	4.9	-	-	12.6	87.4	-	-	-	-	-
Total %	-	0.0	14.5	3.2	0.9	-	18.6	10.3	71.1	-	81.4	-	0.0	-
PHF	-	0.000	0.804	0.767	0.813	-	0.807	0.725	0.985	-	0.951	-	0.000	0.921
Lights	-	0	203	41	13	-	257	147	1007	-	1154	-	0	1411
% Lights	-	-	97.1	89.1	100.0	-	95.9	99.3	98.3	-	98.5	-	-	98.0
Buses	-	0	2	2	0	-	4	1	7	-	8	-	0	12
% Buses	-	-	1.0	4.3	0.0	-	1.5	0.7	0.7	-	0.7	-	-	0.8
Trucks	-	0	4	3	0	-	7	0	10	-	10	-	0	17
% Trucks	-	-	1.9	6.5	0.0	-	2.6	0.0	1.0	-	0.9	-	-	1.2
Bicycles on Crosswalk	0	-	-	-	-	1	-	-	-	0	-	0	-	-
% Bicycles on Crosswalk	0.0	-	-	-	-	1.6	-	-	-	0.0	-	0.0	-	-
Pedestrians	44	-	-	-	-	60	-	-	-	23	-	32	-	-
% Pedestrians	100.0	-	-	-	-	98.4	-	-	-	100.0	-	100.0	-	-

Harrisburg, PA
Walnut St & N 2nd St
Wednesday, April 26, 2023
Location: 40.260502, -76.88324



Turning Movement Peak Hour Data Plot (7:45 AM)



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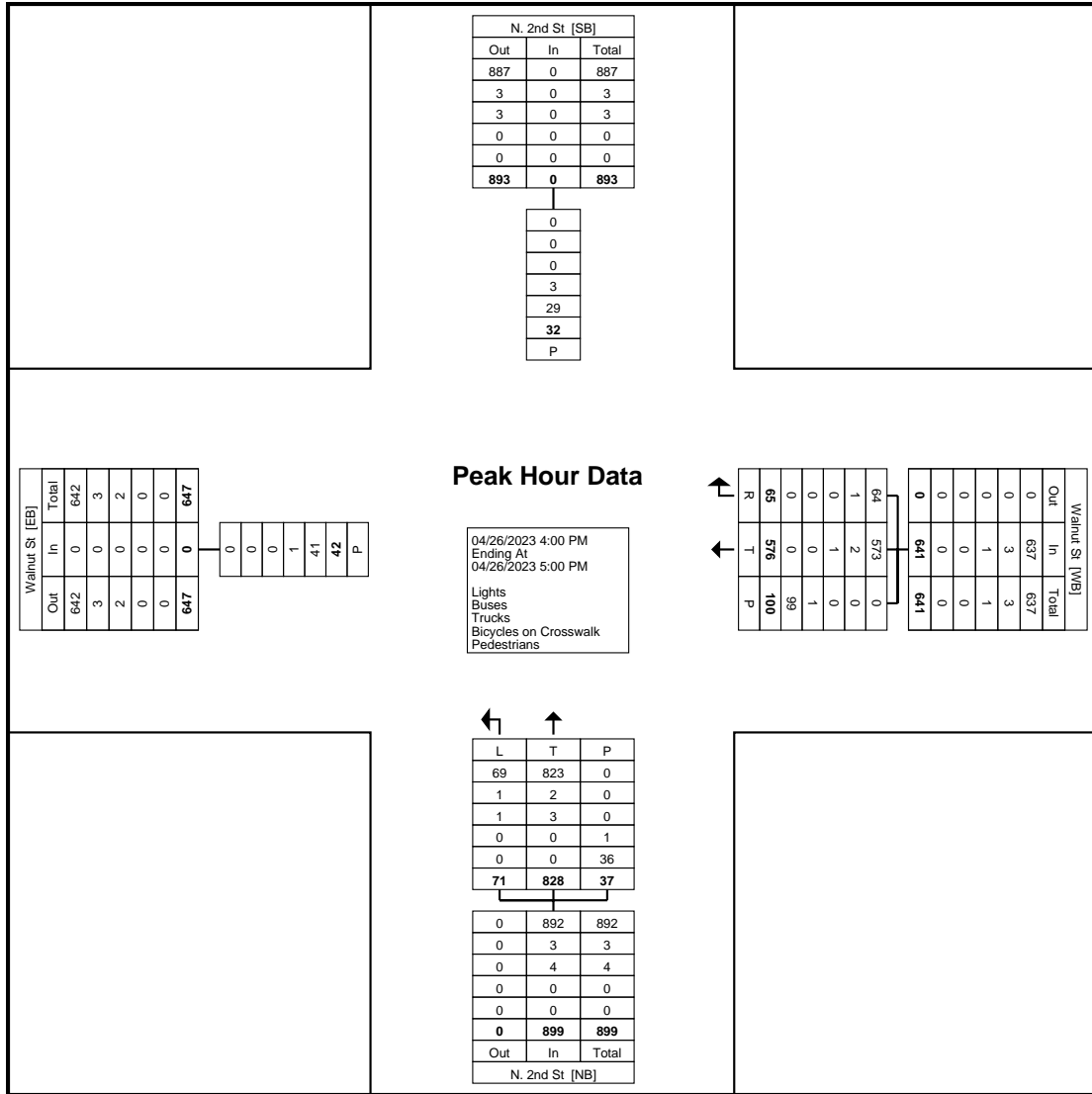
Count Name: Walnut St & N.
2nd St
Site Code:
Start Date: 04/26/2023
Page No: 5

Harrisburg, PA
Walnut St & N 2nd St
Wednesday, April 26, 2023
Location: 40.260502, -76.88324

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Walnut St Eastbound		Walnut St Westbound				N. 2nd St Northbound				N. 2nd St Southbound		Int. Total	
	Peds	App. Total	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Peds	App. Total	Peds		App. Total
4:00 PM	6	0	129	16	3	14	148	28	233	13	261	7	0	409
4:15 PM	11	0	160	16	2	30	178	11	180	9	191	14	0	369
4:30 PM	11	0	130	10	3	26	143	20	225	7	245	6	0	388
4:45 PM	14	0	157	12	3	30	172	12	190	8	202	5	0	374
Total	42	0	576	54	11	100	641	71	828	37	899	32	0	1540
Approach %	-	-	89.9	8.4	1.7	-	-	7.9	92.1	-	-	-	-	-
Total %	-	0.0	37.4	3.5	0.7	-	41.6	4.6	53.8	-	58.4	-	0.0	-
PHF	-	0.000	0.900	0.844	0.917	-	0.900	0.634	0.888	-	0.861	-	0.000	0.941
Lights	-	0	573	53	11	-	637	69	823	-	892	-	0	1529
% Lights	-	-	99.5	98.1	100.0	-	99.4	97.2	99.4	-	99.2	-	-	99.3
Buses	-	0	2	1	0	-	3	1	2	-	3	-	0	6
% Buses	-	-	0.3	1.9	0.0	-	0.5	1.4	0.2	-	0.3	-	-	0.4
Trucks	-	0	1	0	0	-	1	1	3	-	4	-	0	5
% Trucks	-	-	0.2	0.0	0.0	-	0.2	1.4	0.4	-	0.4	-	-	0.3
Bicycles on Crosswalk	1	-	-	-	-	1	-	-	-	1	-	3	-	-
% Bicycles on Crosswalk	2.4	-	-	-	-	1.0	-	-	-	2.7	-	9.4	-	-
Pedestrians	41	-	-	-	-	99	-	-	-	36	-	29	-	-
% Pedestrians	97.6	-	-	-	-	99.0	-	-	-	97.3	-	90.6	-	-

Harrisburg, PA
Walnut St & N 2nd St
Wednesday, April 26, 2023
Location: 40.260502, -76.88324



Turning Movement Peak Hour Data Plot (4:00 PM)



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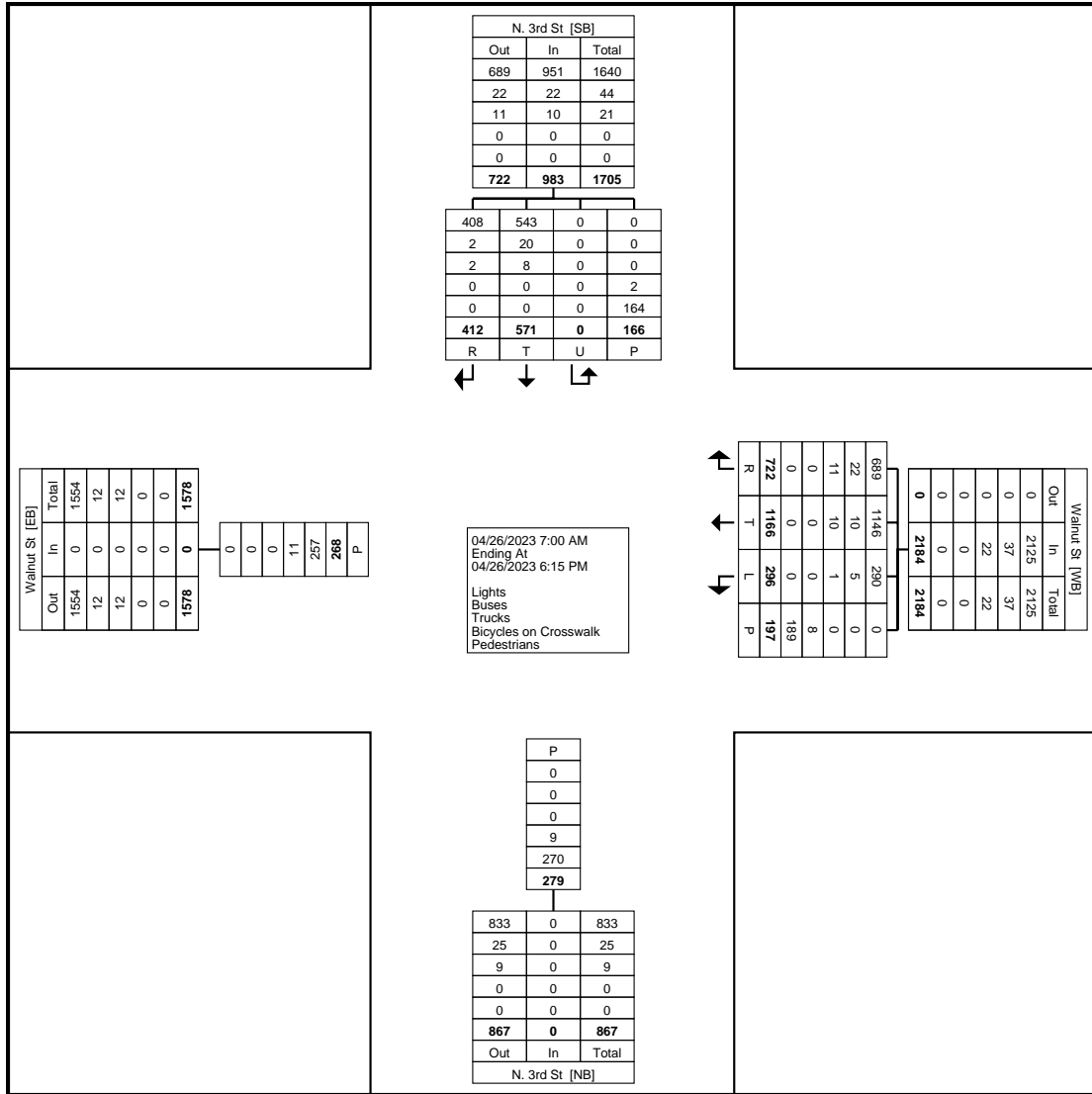
Harrisburg, PA
Walnut St & 3rd St
Wednesday, April 26, 2023
Location: 40.261648, -
76.882215

Count Name: Walnut St & N. 3rd St
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Walnut St Eastbound		Walnut St Westbound					N. 3rd St Northbound		N. 3rd St Southbound					Int. Total		
	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total			
7:00 AM	13	0	6	39	8	16	4	69	13	0	19	12	2	0	3	33	102
7:15 AM	21	0	13	45	8	18	13	84	15	0	26	10	0	0	10	36	120
7:30 AM	12	0	21	53	13	23	11	110	25	0	35	16	0	0	13	51	161
7:45 AM	18	0	35	81	32	34	8	182	28	0	44	37	1	0	18	82	264
Hourly Total	64	0	75	218	61	91	36	445	81	0	124	75	3	0	44	202	647
8:00 AM	12	0	17	58	15	33	20	123	23	0	37	30	0	0	14	67	190
8:15 AM	10	0	11	65	23	33	10	132	17	0	36	26	0	0	12	62	194
8:30 AM	16	0	16	56	19	29	9	120	21	0	28	27	2	0	7	57	177
8:45 AM	15	0	12	45	18	30	25	105	14	0	30	26	1	0	13	57	162
Hourly Total	53	0	56	224	75	125	64	480	75	0	131	109	3	0	46	243	723
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	23	0	20	111	18	29	18	178	26	0	37	29	2	0	10	68	246
4:15 PM	21	0	16	98	9	30	14	153	16	0	45	36	0	0	9	81	234
4:30 PM	27	0	16	112	17	42	13	187	23	0	47	27	0	0	12	74	261
4:45 PM	16	0	24	92	10	31	7	157	10	0	55	27	0	0	11	82	239
Hourly Total	87	0	76	413	54	132	52	675	75	0	184	119	2	0	42	305	980
5:00 PM	24	0	25	108	22	24	18	179	23	0	31	35	1	0	9	67	246
5:15 PM	15	0	15	64	19	26	14	124	16	0	37	27	1	0	11	65	189
5:30 PM	10	0	24	76	21	29	7	150	4	0	32	20	1	0	3	53	203
5:45 PM	15	0	25	63	19	24	6	131	5	0	32	15	1	0	11	48	179
Hourly Total	64	0	89	311	81	103	45	584	48	0	132	97	4	0	34	233	817
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	268	0	296	1166	271	451	197	2184	279	0	571	400	12	0	166	983	3167
Approach %	-	-	13.6	53.4	12.4	20.7	-	-	-	-	58.1	40.7	1.2	0.0	-	-	-
Total %	-	0.0	9.3	36.8	8.6	14.2	-	69.0	-	0.0	18.0	12.6	0.4	0.0	-	31.0	-
Lights	-	0	290	1146	266	423	-	2125	-	0	543	396	12	0	-	951	3076
% Lights	-	-	98.0	98.3	98.2	93.8	-	97.3	-	-	95.1	99.0	100.0	-	-	96.7	97.1
Buses	-	0	5	10	3	19	-	37	-	0	20	2	0	0	-	22	59
% Buses	-	-	1.7	0.9	1.1	4.2	-	1.7	-	-	3.5	0.5	0.0	-	-	2.2	1.9
Trucks	-	0	1	10	2	9	-	22	-	0	8	2	0	0	-	10	32
% Trucks	-	-	0.3	0.9	0.7	2.0	-	1.0	-	-	1.4	0.5	0.0	-	-	1.0	1.0
Bicycles on Crosswalk	11	-	-	-	-	-	8	-	9	-	-	-	-	-	2	-	-
% Bicycles on Crosswalk	4.1	-	-	-	-	-	4.1	-	3.2	-	-	-	-	-	1.2	-	-
Pedestrians	257	-	-	-	-	-	189	-	270	-	-	-	-	-	164	-	-
% Pedestrians	95.9	-	-	-	-	-	95.9	-	96.8	-	-	-	-	-	98.8	-	-

Harrisburg, PA
Walnut St & 3rd St
Wednesday, April 26, 2023
Location: 40.261648, -
76.882215



Turning Movement Data Plot



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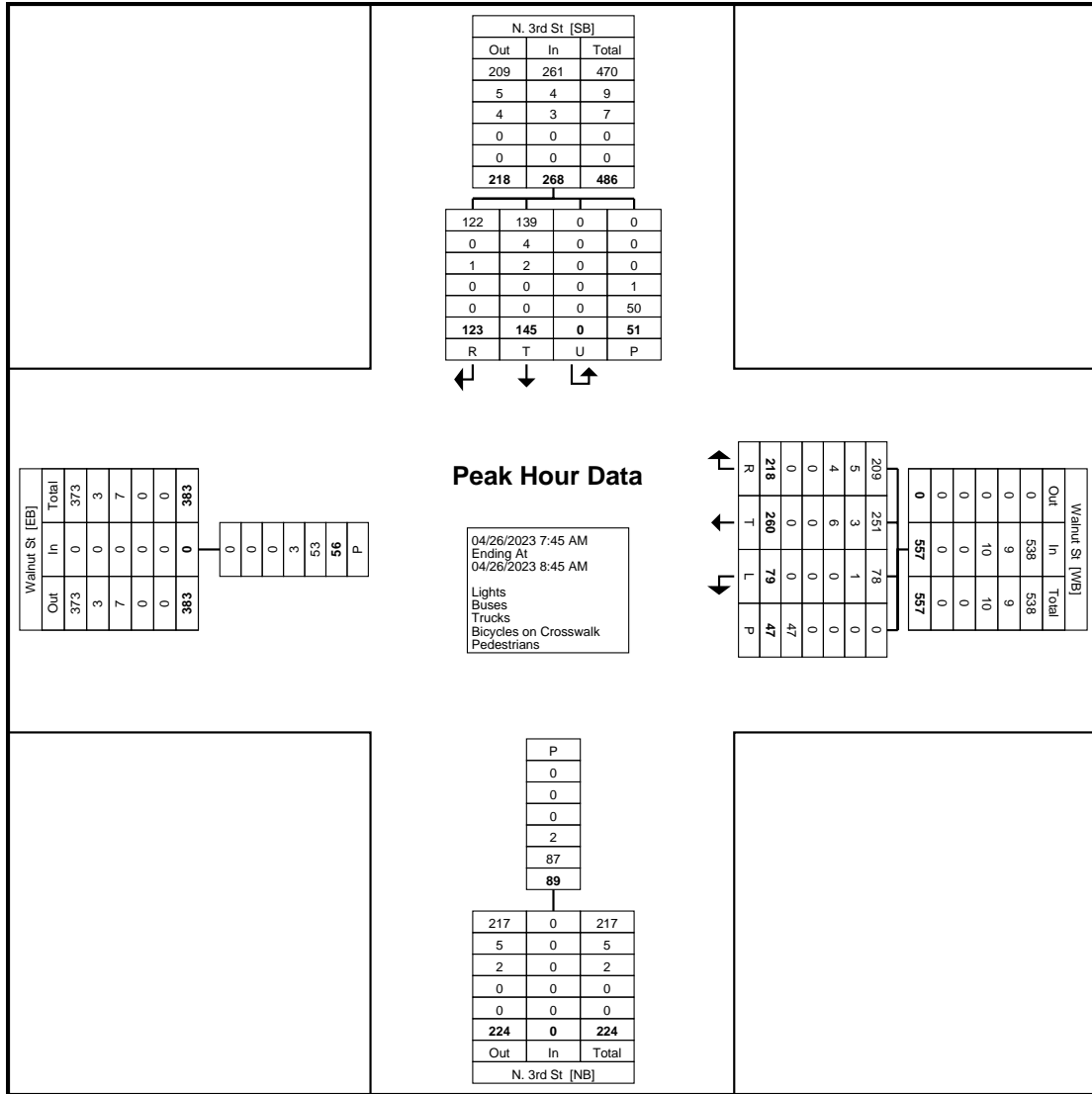
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Harrisburg, PA
Walnut St & 3rd St
Wednesday, April 26, 2023
Location: 40.261648, -
76.882215

Count Name: Walnut St & N. 3rd St
Site Code:
Start Date: 04/26/2023
Page No: 3

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Walnut St Eastbound		Walnut St Westbound					N. 3rd St Northbound		N. 3rd St Southbound					Int. Total		
	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total			
7:45 AM	18	0	35	81	32	34	8	182	28	0	44	37	1	0	18	82	264
8:00 AM	12	0	17	58	15	33	20	123	23	0	37	30	0	0	14	67	190
8:15 AM	10	0	11	65	23	33	10	132	17	0	36	26	0	0	12	62	194
8:30 AM	16	0	16	56	19	29	9	120	21	0	28	27	2	0	7	57	177
Total	56	0	79	260	89	129	47	557	89	0	145	120	3	0	51	268	825
Approach %	-	-	14.2	46.7	16.0	23.2	-	-	-	-	54.1	44.8	1.1	0.0	-	-	-
Total %	-	0.0	9.6	31.5	10.8	15.6	-	67.5	-	0.0	17.6	14.5	0.4	0.0	-	32.5	-
PHF	-	0.000	0.564	0.802	0.695	0.949	-	0.765	-	0.000	0.824	0.811	0.375	0.000	-	0.817	0.781
Lights	-	0	78	251	87	122	-	538	-	0	139	119	3	0	-	261	799
% Lights	-	-	98.7	96.5	97.8	94.6	-	96.6	-	-	95.9	99.2	100.0	-	-	97.4	96.8
Buses	-	0	1	3	1	4	-	9	-	0	4	0	0	0	-	4	13
% Buses	-	-	1.3	1.2	1.1	3.1	-	1.6	-	-	2.8	0.0	0.0	-	-	1.5	1.6
Trucks	-	0	0	6	1	3	-	10	-	0	2	1	0	0	-	3	13
% Trucks	-	-	0.0	2.3	1.1	2.3	-	1.8	-	-	1.4	0.8	0.0	-	-	1.1	1.6
Bicycles on Crosswalk	3	-	-	-	-	-	0	-	2	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	5.4	-	-	-	-	-	0.0	-	2.2	-	-	-	-	-	2.0	-	-
Pedestrians	53	-	-	-	-	-	47	-	87	-	-	-	-	-	50	-	-
% Pedestrians	94.6	-	-	-	-	-	100.0	-	97.8	-	-	-	-	-	98.0	-	-



Turning Movement Peak Hour Data Plot (7:45 AM)



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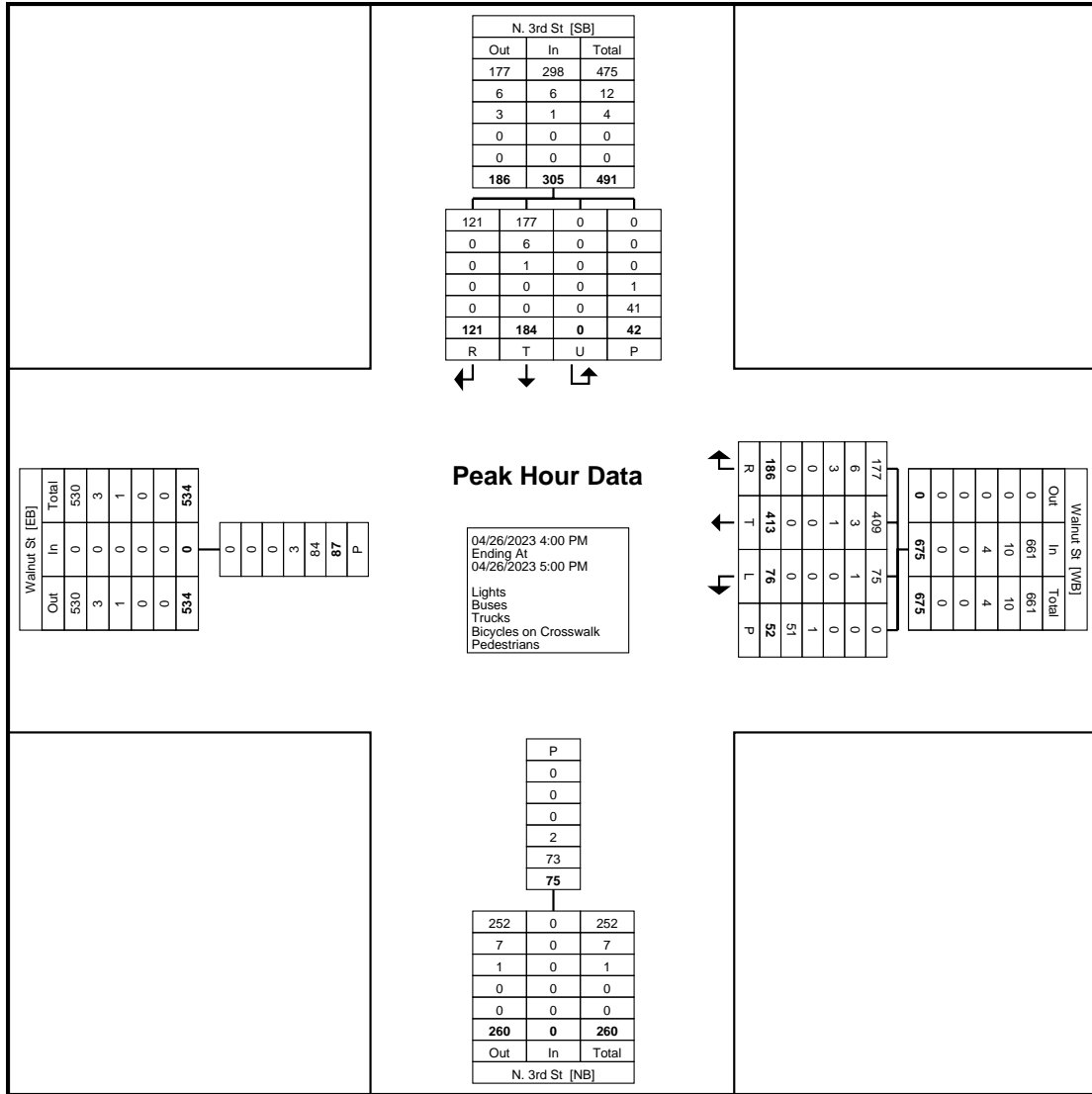
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Harrisburg, PA
Walnut St & 3rd St
Wednesday, April 26, 2023
Location: 40.261648, -
76.882215

Count Name: Walnut St & N. 3rd St
Site Code:
Start Date: 04/26/2023
Page No: 5

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Walnut St Eastbound		Walnut St Westbound				N. 3rd St Northbound		N. 3rd St Southbound					Int. Total			
	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds		App. Total		
4:00 PM	23	0	20	111	18	29	18	178	26	0	37	29	2	0	10	68	246
4:15 PM	21	0	16	98	9	30	14	153	16	0	45	36	0	0	9	81	234
4:30 PM	27	0	16	112	17	42	13	187	23	0	47	27	0	0	12	74	261
4:45 PM	16	0	24	92	10	31	7	157	10	0	55	27	0	0	11	82	239
Total	87	0	76	413	54	132	52	675	75	0	184	119	2	0	42	305	980
Approach %	-	-	11.3	61.2	8.0	19.6	-	-	-	-	60.3	39.0	0.7	0.0	-	-	-
Total %	-	0.0	7.8	42.1	5.5	13.5	-	68.9	-	0.0	18.8	12.1	0.2	0.0	-	31.1	-
PHF	-	0.000	0.792	0.922	0.750	0.786	-	0.902	-	0.000	0.836	0.826	0.250	0.000	-	0.930	0.939
Lights	-	0	75	409	53	124	-	661	-	0	177	119	2	0	-	298	959
% Lights	-	-	98.7	99.0	98.1	93.9	-	97.9	-	-	96.2	100.0	100.0	-	-	97.7	97.9
Buses	-	0	1	3	0	6	-	10	-	0	6	0	0	0	-	6	16
% Buses	-	-	1.3	0.7	0.0	4.5	-	1.5	-	-	3.3	0.0	0.0	-	-	2.0	1.6
Trucks	-	0	0	1	1	2	-	4	-	0	1	0	0	0	-	1	5
% Trucks	-	-	0.0	0.2	1.9	1.5	-	0.6	-	-	0.5	0.0	0.0	-	-	0.3	0.5
Bicycles on Crosswalk	3	-	-	-	-	-	1	-	2	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	3.4	-	-	-	-	-	1.9	-	2.7	-	-	-	-	-	2.4	-	-
Pedestrians	84	-	-	-	-	-	51	-	73	-	-	-	-	-	41	-	-
% Pedestrians	96.6	-	-	-	-	-	98.1	-	97.3	-	-	-	-	-	97.6	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)



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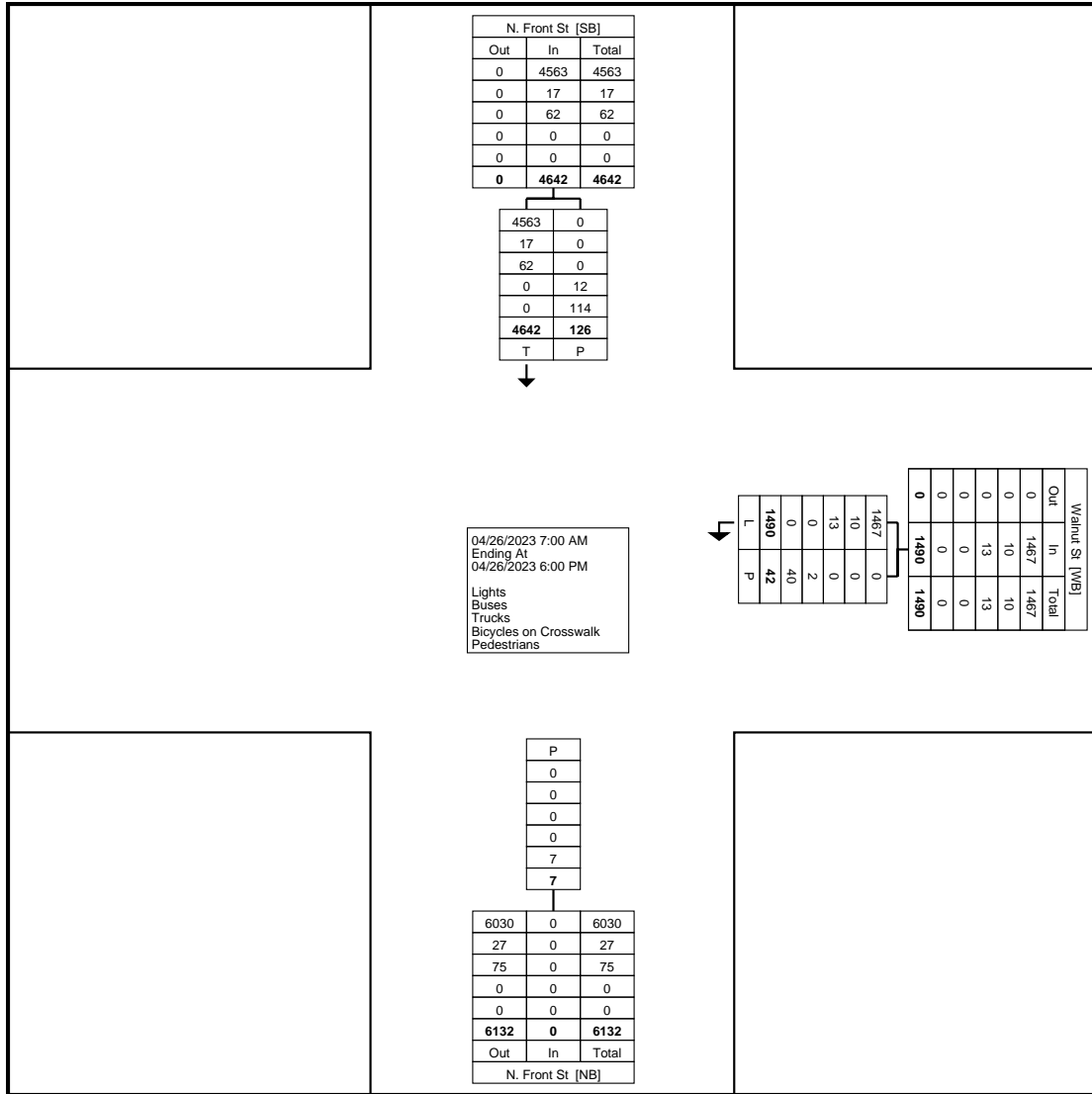
Coatesville, Pennsylvania, United States 19320
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Harrisburg, PA
Walnut St & N Front St
Wednesday, April 26, 2023
Location: 40.259356, -
76.884319

Count Name: Walnut St & N.
Front St
Site Code:
Start Date: 04/26/2023
Page No: 1

Turning Movement Data

Start Time	Walnut St Westbound			N. Front St Northbound		N. Front St Southbound			Int. Total
	Left	Peds	App. Total	Peds	App. Total	Thru	Peds	App. Total	
7:00 AM	36	0	36	0	0	208	1	208	244
7:15 AM	33	0	33	0	0	235	1	235	268
7:30 AM	34	2	34	0	0	275	4	275	309
7:45 AM	54	6	54	0	0	338	7	338	392
Hourly Total	157	8	157	0	0	1056	13	1056	1213
8:00 AM	48	2	48	2	0	318	4	318	366
8:15 AM	45	2	45	1	0	260	3	260	305
8:30 AM	45	0	45	0	0	229	3	229	274
8:45 AM	58	1	58	0	0	236	18	236	294
Hourly Total	196	5	196	3	0	1043	28	1043	1239
9:00 AM	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0
4:00 PM	170	4	170	0	0	365	9	365	535
4:15 PM	158	3	158	0	0	301	6	301	459
4:30 PM	149	1	149	0	0	316	7	316	465
4:45 PM	193	8	193	0	0	351	14	351	544
Hourly Total	670	16	670	0	0	1333	36	1333	2003
5:00 PM	153	2	153	0	0	360	16	360	513
5:15 PM	116	3	116	0	0	303	11	303	419
5:30 PM	105	4	105	3	0	277	12	277	382
5:45 PM	93	4	93	1	0	270	10	270	363
Hourly Total	467	13	467	4	0	1210	49	1210	1677
Grand Total	1490	42	1490	7	0	4642	126	4642	6132
Approach %	100.0	-	-	-	-	100.0	-	-	-
Total %	24.3	-	24.3	-	0.0	75.7	-	75.7	-
Lights	1467	-	1467	-	0	4563	-	4563	6030
% Lights	98.5	-	98.5	-	-	98.3	-	98.3	98.3
Buses	10	-	10	-	0	17	-	17	27
% Buses	0.7	-	0.7	-	-	0.4	-	0.4	0.4
Trucks	13	-	13	-	0	62	-	62	75
% Trucks	0.9	-	0.9	-	-	1.3	-	1.3	1.2
Bicycles on Crosswalk	-	2	-	0	-	-	12	-	-
% Bicycles on Crosswalk	-	4.8	-	0.0	-	-	9.5	-	-
Pedestrians	-	40	-	7	-	-	114	-	-
% Pedestrians	-	95.2	-	100.0	-	-	90.5	-	-



Turning Movement Data Plot



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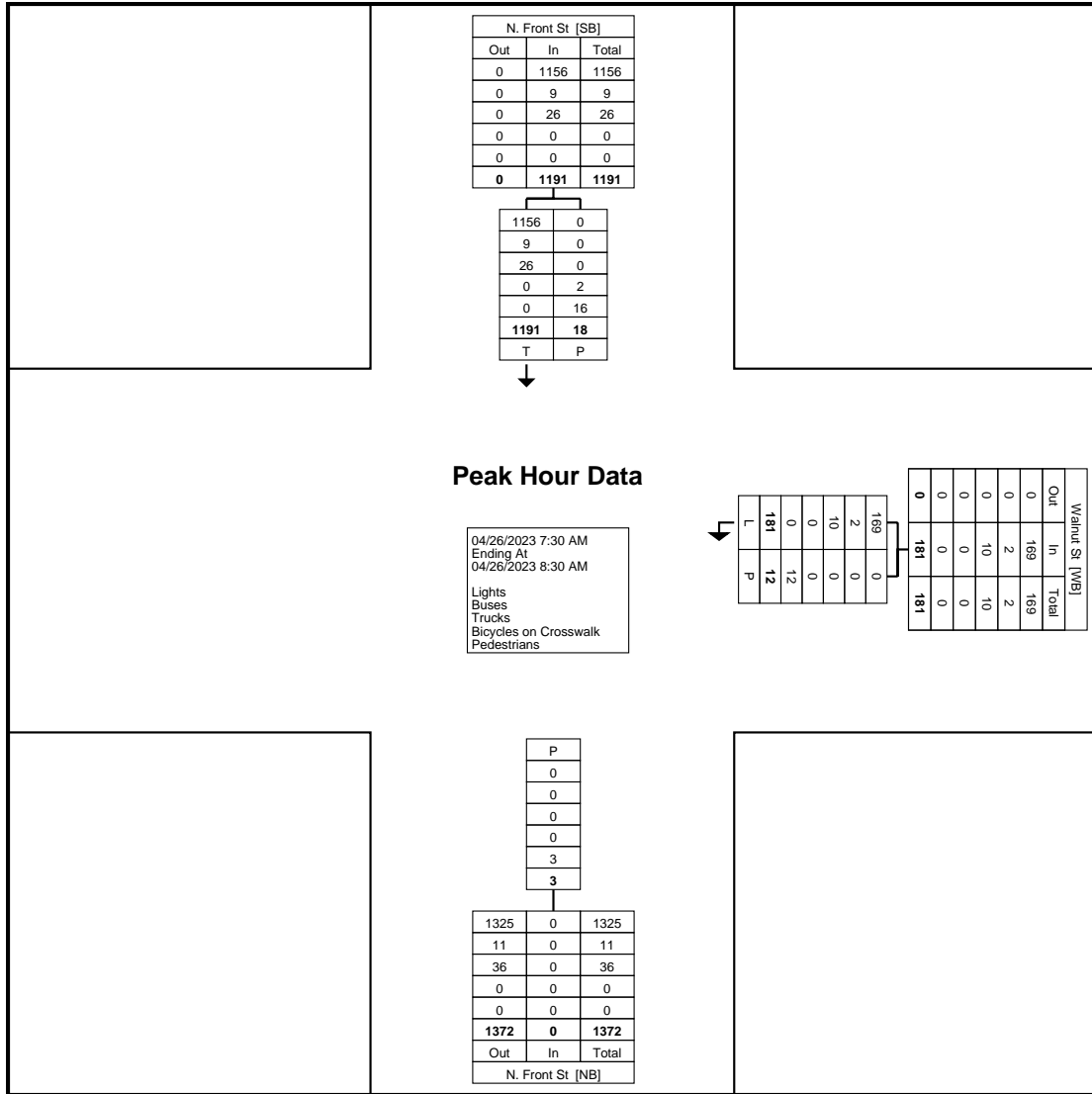
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Harrisburg, PA
Walnut St & N Front St
Wednesday, April 26, 2023
Location: 40.259356, -
76.884319

Count Name: Walnut St & N.
Front St
Site Code:
Start Date: 04/26/2023
Page No: 3

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Walnut St Westbound			N. Front St Northbound		N. Front St Southbound			Int. Total
	Left	Peds	App. Total	Peds	App. Total	Thru	Peds	App. Total	
7:30 AM	34	2	34	0	0	275	4	275	309
7:45 AM	54	6	54	0	0	338	7	338	392
8:00 AM	48	2	48	2	0	318	4	318	366
8:15 AM	45	2	45	1	0	260	3	260	305
Total	181	12	181	3	0	1191	18	1191	1372
Approach %	100.0	-	-	-	-	100.0	-	-	-
Total %	13.2	-	13.2	-	0.0	86.8	-	86.8	-
PHF	0.838	-	0.838	-	0.000	0.881	-	0.881	0.875
Lights	169	-	169	-	0	1156	-	1156	1325
% Lights	93.4	-	93.4	-	-	97.1	-	97.1	96.6
Buses	2	-	2	-	0	9	-	9	11
% Buses	1.1	-	1.1	-	-	0.8	-	0.8	0.8
Trucks	10	-	10	-	0	26	-	26	36
% Trucks	5.5	-	5.5	-	-	2.2	-	2.2	2.6
Bicycles on Crosswalk	-	0	-	0	-	-	2	-	-
% Bicycles on Crosswalk	-	0.0	-	0.0	-	-	11.1	-	-
Pedestrians	-	12	-	3	-	-	16	-	-
% Pedestrians	-	100.0	-	100.0	-	-	88.9	-	-



Turning Movement Peak Hour Data Plot (7:30 AM)



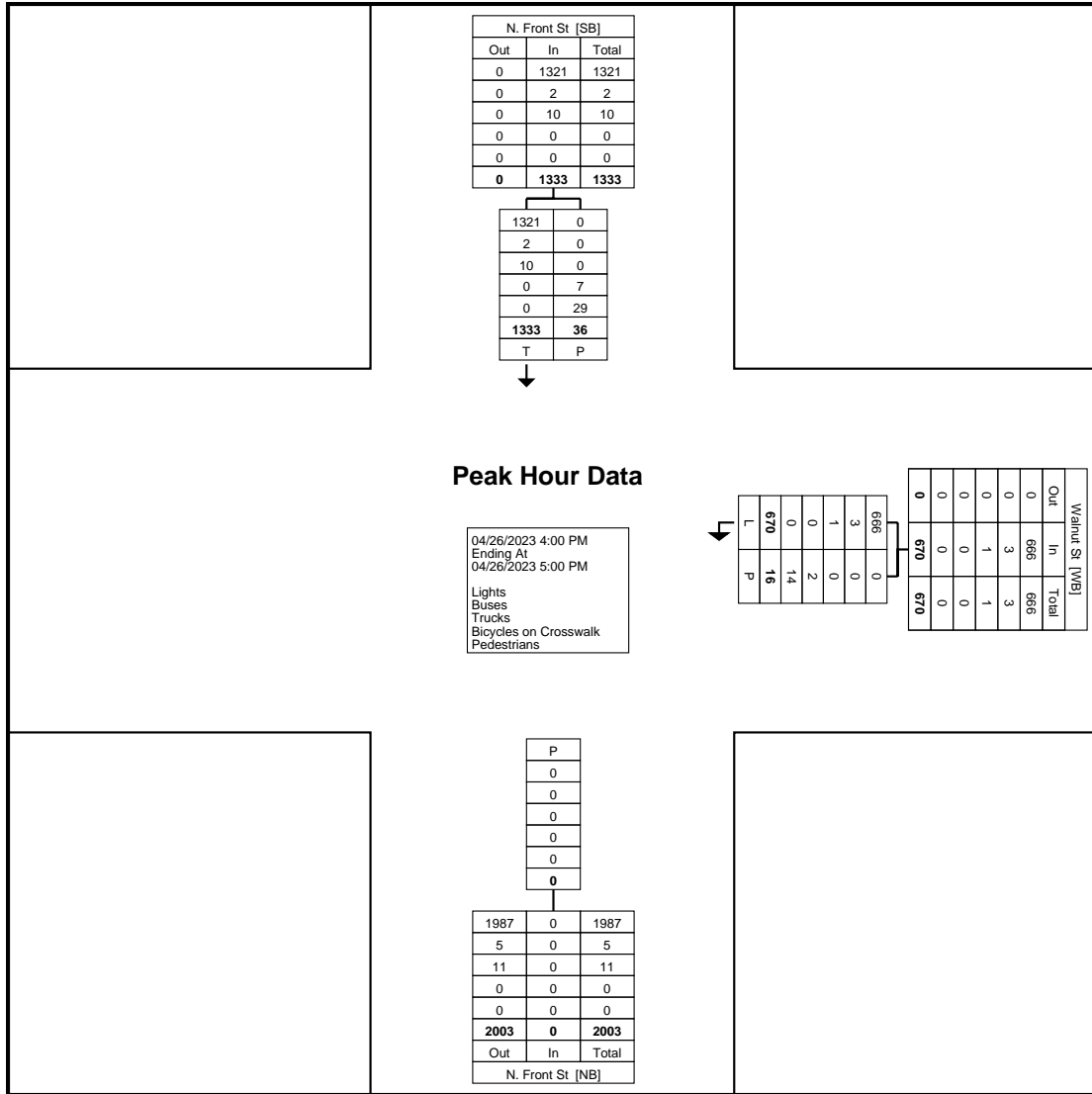
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Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Count Name: Walnut St & N.
Front St
Site Code:
Start Date: 04/26/2023
Page No: 5

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Walnut St Westbound			N. Front St Northbound		N. Front St Southbound			Int. Total
	Left	Peds	App. Total	Peds	App. Total	Thru	Peds	App. Total	
4:00 PM	170	4	170	0	0	365	9	365	535
4:15 PM	158	3	158	0	0	301	6	301	459
4:30 PM	149	1	149	0	0	316	7	316	465
4:45 PM	193	8	193	0	0	351	14	351	544
Total	670	16	670	0	0	1333	36	1333	2003
Approach %	100.0	-	-	-	-	100.0	-	-	-
Total %	33.4	-	33.4	-	0.0	66.6	-	66.6	-
PHF	0.868	-	0.868	-	0.000	0.913	-	0.913	0.920
Lights	666	-	666	-	0	1321	-	1321	1987
% Lights	99.4	-	99.4	-	-	99.1	-	99.1	99.2
Buses	3	-	3	-	0	2	-	2	5
% Buses	0.4	-	0.4	-	-	0.2	-	0.2	0.2
Trucks	1	-	1	-	0	10	-	10	11
% Trucks	0.1	-	0.1	-	-	0.8	-	0.8	0.5
Bicycles on Crosswalk	-	2	-	0	-	-	7	-	-
% Bicycles on Crosswalk	-	12.5	-	-	-	-	19.4	-	-
Pedestrians	-	14	-	0	-	-	29	-	-
% Pedestrians	-	87.5	-	-	-	-	80.6	-	-



Turning Movement Peak Hour Data Plot (4:00 PM)



Appendix B Crash Data

Pennsylvania Crash Information Tool

Crash Data- 3rd St to Cameron

Sorted by County, Route, Segment, Offset

Date Range: 01/01/2018 to 12/31/2022

USER ID / QUERY ID:
b-brtutuska / 0320230509908



CRN	CO	DATE	DAY	TIME	LIGHTING	ROAD SURF	WEATHER	FAT	INJ	PED	VEH	MAX SEVERITY
1	2021000754	22	01/01/2021	FRI	23:59	STREET LT	WET RAIN	0	1	0	3	SUSPECTED MINOR INJURY SAME DIR SIDESW
ENV RDWY FACTORS: NONE MIDB 3014/0010/0443 VEH: 1 AUTOMOBILE TRAVELING NORTH IN RIGHT LANE GOING STRAIGHT ALC TEST: 96 VEH EVENTS: HIT UNIT 02 DVR ACTIONS: SPEEDING TOO FAST FOR CONDITIONS DRIVER INEXPERIENCED												
2	2018132305	22	12/11/2018	TUE	17:34	STREET LT	DRY CLEAR	0	1	0	2	POSSIBLE INJURY ANGLE
ENV RDWY FACTORS: NONE 4WAY 3014/0015/0226 ABERDEEN ST COMMONWEALTH AV VEH: 1 AUTOMOBILE TRAVELING WEST IN RIGHT LANE GOING STRAIGHT VEH EVENTS: STRUCK BY UNIT 02 DVR ACTIONS: RUNNING RED LIGHT VEH: 2 AUTOMOBILE TRAVELING SOUTH IN RIGHT LANE GOING STRAIGHT VEH EVENTS: HIT UNIT 01 DVR ACTIONS: NO CONTRIBUTING ACTION												
3	2018010917	22	01/23/2018	TUE	12:20	DAYLIGHT	WET RAIN	0	0	0	2	PROP DMG ONLY SAME DIR SIDESW
ENV RDWY FACTORS: OTHER WEATHER CONDITIONS MIDB 3014/0015/0417 VEH: 1 AUTOMOBILE TRAVELING WEST IN LEFT LANE CHANGING LANES OR MERGING VEH EVENTS: HIT UNIT 02 DVR ACTIONS: CARELESS PASS OR LANE CHANGE VEH: 2 AUTOMOBILE TRAVELING WEST IN RIGHT LANE GOING STRAIGHT VEH EVENTS: STRUCK BY UNIT 01 DVR ACTIONS: NO CONTRIBUTING ACTION												
4	2019005876	22	01/14/2019	MON	16:23	DAYLIGHT	DRY CLEAR	0	1	1	1	UNK SEVERITY PEDESTRIAN
ENV RDWY FACTORS: NONE T-INT 3014/0020/0000 3014/0021/0068 5TH ST VEH: 1 AUTOMOBILE TRAVELING NORTH IN LEFT TURN LANE TURNING LEFT ON RED VEH EVENTS: HIT UNIT 02 DVR ACTIONS: UNKNOWN VEH: 2 VEH EVENTS: STRUCK BY UNIT 01												
5	2021057743	22	06/17/2021	THR	23:28	STREET LT	DRY CLEAR	0	1	0	2	SUSPECTED MINOR INJURY ANGLE
ENV RDWY FACTORS: NONE MIDB 0230/0040/1149 VEH: 1 AUTOMOBILE TRAVELING WEST IN RIGHT LANE ENTERING TRAFFIC LANE VEH EVENTS: STRUCK BY UNIT 02 DVR ACTIONS: IMPROPER ENTRANCE TO HIGHWAY VEH: 2 AUTOMOBILE TRAVELING NORTH IN RIGHT LANE GOING STRAIGHT VEH EVENTS: HIT UNIT 01 DVR ACTIONS: NO CONTRIBUTING ACTION												

Pennsylvania Crash Information Tool

Crash Data- 3rd St to Cameron

Sorted by County, Route, Segment, Offset

Date Range: 01/01/2018 to 12/31/2022

USER ID / QUERY ID:
b-brtutuska / 0320230509908



CRN	CO	DATE	DAY	TIME	LIGHTING	ROAD SURF	WEATHER	FAT	INJ	PED	VEH	MAX SEVERITY	
6	2020089149	22	10/23/2020	FRI	19:48	STREET LT	DRY	CLEAR	0	1	0	2	SUSPECTED MINOR INJURY ANGLE
ENV RDWY FACTORS: NONE MIDB 0230/0041/1139 VEH: 1 AUTOMOBILE TRAVELING SOUTH IN LEFT LANE TURNING LEFT VEH EVENTS: STRUCK BY UNIT 02 DVR ACTIONS: IMPROPER/CARELESS TURN VEH: 2 AUTOMOBILE TRAVELING NORTH IN LEFT LANE GOING STRAIGHT VEH EVENTS: HIT UNIT 01 DVR ACTIONS: NO CONTRIBUTING ACTION													
7	2021017206	22	02/13/2021	SAT	15:56	DAYLIGHT	DRY	CLEAR	0	1	0	2	SUSPECTED MINOR INJURY ANGLE
ENV RDWY FACTORS: NONE MIDB 0230/0041/1153 VEH: 1 AUTOMOBILE TRAVELING SOUTH IN RIGHT LANE TURNING LEFT VEH EVENTS: HIT UNIT 02 DVR ACTIONS: IMPROPER/CARELESS TURN VEH: 2 AUTOMOBILE TRAVELING NORTH IN RIGHT LANE GOING STRAIGHT VEH EVENTS: STRUCK BY UNIT 01 DVR ACTIONS: NO CONTRIBUTING ACTION													
8	2018001811	22	01/03/2018	WED	11:20	DAYLIGHT	DRY	CLEAR	0	1	0	2	UNK SEVERITY SAME DIR SIDESW
ENV RDWY FACTORS: NONE MIDB 0230/0041/1352 VEH: 3 SMALL TRUCK TRAVELING NORTH IN LEFT LANE AVOIDING VEH EVENTS: HIT UNIT 04 DVR ACTIONS: TAILGATING VEH: 4 AUTOMOBILE TRAVELING NORTH IN RIGHT LANE AVOIDING VEH EVENTS: STRUCK BY UNIT 03 HIT UTILITY POLE DVR ACTIONS: NO CONTRIBUTING ACTION													
9	2018127154	22	11/26/2018	MON	17:04	STREET LT	WET	RAIN	1	0	1	1	FATAL PEDESTRIAN
ENV RDWY FACTORS: OTHER WEATHER CONDITIONS 4WAY 3RD ST CHESTNUT ST VEH: 1 VAN TRAVELING EAST IN RIGHT LANE GOING STRAIGHT VEH EVENTS: HIT UNIT 02 DVR ACTIONS: RUNNING RED LIGHT FAILED MAINTAIN PROPER SPEED VEH: 2 VEH EVENTS: STRUCK BY UNIT 01													
10	2019036767	22	04/06/2019	SAT	02:12	STREET LT	WET	RAIN	0	0	0	2	PROP DMG ONLY ANGLE
ENV RDWY FACTORS: SLIPPERY ROAD (ICE/SNOW) MIDB S 3RD ST VEH: 1 AUTOMOBILE TRAVELING SOUTH IN ONCOMING TRAFFIC LANE STOPPED IN TRAFFIC LANE VEH EVENTS: STRUCK BY UNIT 02 DVR ACTIONS: NO CONTRIBUTING ACTION VEH: 2 SUV TRAVELING SOUTH IN OTHER FWD MOVING LANE SLOWING OR STOPPING IN LANE VEH EVENTS: HIT UNIT 01 DVR ACTIONS: SUDDEN SLOWING / STOPPING													

Pennsylvania Crash Information Tool

Crash Data- 3rd St to Cameron

Sorted by County, Route, Segment, Offset

Date Range: 01/01/2018 to 12/31/2022

USER ID / QUERY ID:
b-brtutuska / 0320230509908



CRN	CO	DATE	DAY	TIME	LIGHTING	ROAD SURF	WEATHER	FAT	INJ	PED	VEH	MAX SEVERITY
11	2019046020	22 05/05/2019	SUN	10:30	DAYLIGHT	WET	RAIN	0	0	0	2	PROP DMG ONLY
ENV RDWY FACTORS: OTHER WEATHER CONDITIONS 4WAY MARKET ST N 3RD ST ANGLE ----- VEH: 1 AUTOMOBILE TRAVELING EAST IN RIGHT LANE GOING STRAIGHT VEH EVENTS: HIT UNIT 02 DVR ACTIONS: NO CONTRIBUTING ACTION ----- VEH: 2 SUV TRAVELING EAST IN LEFT TURN LANE TURNING LEFT VEH EVENTS: HIT UNIT 01 DVR ACTIONS: NO CONTRIBUTING ACTION												
12	2019070507	22 07/11/2019	THR	15:51	DAYLIGHT	WET	RAIN	0	1	0	2	UNK SEVERITY
ENV RDWY FACTORS: UNKNOWN MIDB MARKET SQ ANGLE ----- VEH: 1 AUTOMOBILE TRAVELING WEST IN RIGHT LANE GOING STRAIGHT VEH EVENTS: STRUCK BY UNIT 02 DVR ACTIONS: UNKNOWN ----- VEH: 2 AUTOMOBILE TRAVELING EAST IN LEFT LANE UNKNOWN VEH EVENTS: HIT UNIT 01 DVR ACTIONS: UNKNOWN												
13	2020110896	22 12/22/2020	TUE	12:30	DAYLIGHT	DRY	CLEAR	0	1	0	5	SUSPECTED MINOR INJURY ANGLE
ENV RDWY FACTORS: NONE 4WAY 3RD ST MARKET ST ----- VEH: 1 AUTOMOBILE TRAVELING EAST IN LEFT TURN LANE TURNING LEFT ON RED VEH EVENTS: HIT UNIT 02 HIT UNIT 03 HIT UNIT 04 HIT UNIT 05 DVR ACTIONS: FLEEING POLICE (CHASE) ALC TEST: 95 ----- VEH: 2 SMALL TRUCK TRAVELING EAST IN RIGHT LANE GOING STRAIGHT VEH EVENTS: STRUCK BY UNIT 01 DVR ACTIONS: NO CONTRIBUTING ACTION ----- VEH: 3 AUTOMOBILE TRAVELING EAST IN OTHER FWD MOVING LANE GOING STRAIGHT VEH EVENTS: STRUCK BY UNIT 01 DVR ACTIONS: NO CONTRIBUTING ACTION ----- VEH: 5 AUTOMOBILE TRAVELING EAST IN OTHER FWD MOVING LANE STOPPED IN TRAFFIC LANE VEH EVENTS: STRUCK BY UNIT 01 DVR ACTIONS: NO CONTRIBUTING ACTION												
14	2021076881	22 08/09/2021	MON	08:05	DAYLIGHT	DRY	CLEAR	0	0	0	1	PROP DMG ONLY
ENV RDWY FACTORS: NONE T-INT 5TH ST STRAWBERRY SQ HIT FIXED OBJ ----- VEH: 1 AUTOMOBILE TRAVELING NORTH IN OTHER FWD MOVING LANE GOING STRAIGHT VEH EVENTS: UNKNOWN WHAT WAS HIT DVR ACTIONS: SPEEDING												

Pennsylvania Crash Information Tool

Crash Data- 3rd St to Cameron

Sorted by County, Route, Segment, Offset

Date Range: 01/01/2018 to 12/31/2022

USER ID / QUERY ID:
b-brtutuska / 0320230509908



CRN	CO	DATE	DAY	TIME	LIGHTING	ROAD SURF	WEATHER	FAT	INJ	PED	VEH	MAX SEVERITY	
15	2022044579	22	04/13/2022	WED	13:49	DAYLIGHT	DRY	CLEAR	0	1	1	1	SUSPECTED MINOR INJURY PEDESTRIAN
ENV RDWY FACTORS: UNKNOWN MIDB CHESTNUT ST ----- VEH: 1 VEH EVENTS: STRUCK BY UNIT 02 ----- VEH: 2 VAN TRAVELING EAST IN RIGHT LANE GOING STRAIGHT VEH EVENTS: HIT UNIT 01 DVR ACTIONS: SUDDEN SLOWING / STOPPING													

Pennsylvania Crash Information Tool

Crash Data- 3rd St to Cameron

Sorted by County, Route, Segment, Offset

NOTES:

- 1 Injury Severity Disclaimer
Please note that beginning January 1, 2016, PennDOT adopted the Federal standard for collecting injury severity data. The field descriptions and definitions changed from the state standard that had been in use for decades. This resulted in a substantial shift in severity levels. Therefore, comparison of the "Suspected Serious Injury", "Suspected Minor Injury" and "Possible Injury" categories will not be consistent for crashes taking place before versus after the adoption of the new standard.

REPORT PARAMETERS:

Query ID: 0320230509908

User ID: b-brtutuska

Title: Crash Data- 3rd St to Camer

Date Range: 01/01/2018 to 12/31/2022

Selected Shapes: Line - 1755.648980 Feet,Line - 1755.648980 Feet - Buffer (40 feet),Line - 2293.691883 Feet,Line - 2293.691883 Feet - Buffer (40 feet).Line - 182.538063 Feet.Line - 182.538063 Feet - Buffer (40

Filter Characteristics:

This report counts the number of crashes.

Pennsylvania Crash Information Tool

Crash Data- 3rd St to West Shore

Sorted by County, Route, Segment, Offset

Date Range: 01/01/2018 to 12/31/2022

USER ID / QUERY ID:

b-brtutuska / 0320230509885



CRN	CO	DATE	DAY	TIME	LIGHTING	ROAD SURF	WEATHER	FAT	INJ	PED	VEH	MAX SEVERITY	
1	2018106981	22	10/13/2018	SAT	00:45	STREET LT	DRY	CLEAR	0	1	0	1	SUSPECTED MINOR INJURY HIT FIXED OBJ
ENV RDWY FACTORS: NONE MIDB 3012 MARKET ST VEH: 1 AUTOMOBILE TRAVELING EAST IN ONCOMING TRAFFIC LANE CHANGING LANES OR MERGING VEH EVENTS: HIT CONCRETE / LONGIT BARRIER DVR ACTIONS: UNKNOWN													
2	2022024941	22	03/10/2022	THR	07:05	DAYLIGHT	ICE/FROST	CLEAR	0	0	0	1	PROP DMG ONLY HIT FIXED OBJ
ENV RDWY FACTORS: SLIPPERY ROAD (ICE/SNOW) MIDB 3012/0010/0436 VEH: 1 SUV TRAVELING EAST IN RIGHT LANE GOING STRAIGHT VEH EVENTS: HIT BRIDGE RAIL DVR ACTIONS: NO CONTRIBUTING ACTION													
3	2019037583	22	04/08/2019	MON	17:04	DAYLIGHT	DRY	CLEAR	0	1	0	2	POSSIBLE INJURY REAR-END
ENV RDWY FACTORS: NONE T-INT 3012/0020/0165 3012/0021/0165 CITY ISLAND (RAMP N) RD VEH: 1 AUTOMOBILE TRAVELING EAST IN RIGHT LANE TURNING LEFT VEH EVENTS: STRUCK BY UNIT 02 DVR ACTIONS: IMPROPER/CARELESS TURN VEH: 2 AUTOMOBILE TRAVELING EAST IN RIGHT LANE GOING STRAIGHT VEH EVENTS: HIT UNIT 01 DVR ACTIONS: NO CONTRIBUTING ACTION													
4	2019049675	22	05/14/2019	TUE	22:15	STREET LT	DRY	CLEAR	0	1	0	1	SUSPECTED MINOR INJURY NON-COLLISION
ENV RDWY FACTORS: NONE MIDB 3012/0020/0251 VEH: 1 MOTORCYCLE TRAVELING EAST IN RIGHT LANE GOING STRAIGHT VEH EVENTS: OTHER NON-COLLISION DVR ACTIONS: OTHER IMPROPER DRIV ACTIONS													
5	2019092677	22	09/15/2019	SUN	15:09	DAYLIGHT	DRY	CLEAR	0	1	0	2	SUSPECTED MINOR INJURY REAR-END
ENV RDWY FACTORS: NONE MIDB 3012/0020/0251 VEH: 1 SUV TRAVELING EAST IN RIGHT LANE GOING STRAIGHT VEH EVENTS: HIT UNIT 02 DVR ACTIONS: DRIVER WAS DISTRACTED VEH: 2 SUV TRAVELING EAST IN RIGHT LANE GOING STRAIGHT VEH EVENTS: STRUCK BY UNIT 01 DVR ACTIONS: NO CONTRIBUTING ACTION													

Pennsylvania Crash Information Tool

Crash Data- 3rd St to West Shore

Sorted by County, Route, Segment, Offset

Date Range: 01/01/2018 to 12/31/2022

USER ID / QUERY ID:
b-brtutuska / 0320230509885



CRN	CO	DATE	DAY	TIME	LIGHTING	ROAD SURF	WEATHER	FAT	INJ	PED	VEH	MAX SEVERITY	
6	2019023600	22	02/27/2019	WED	17:17	DAYLIGHT	DRY	CLEAR	0	0	0	4	PROP DMG ONLY
ENV RDWY FACTORS: NONE												REAR-END	
MIDB 3012/0020/0465													
VEH: 1 SUV TRAVELING WEST IN RIGHT LANE GOING STRAIGHT													
VEH EVENTS: HIT UNIT 02													
DVR ACTIONS: TAILGATING													
VEH: 2 SUV TRAVELING WEST IN RIGHT LANE SLOWING OR STOPPING IN LANE													
VEH EVENTS: STRUCK BY UNIT 01													
DVR ACTIONS: NO CONTRIBUTING ACTION													
VEH: 3 SUV TRAVELING WEST IN RIGHT LANE SLOWING OR STOPPING IN LANE													
VEH EVENTS: STRUCK BY UNIT 02													
DVR ACTIONS: NO CONTRIBUTING ACTION													
VEH: 4 SUV TRAVELING WEST IN RIGHT LANE STOPPED IN TRAFFIC LANE													
VEH EVENTS: STRUCK BY UNIT 03													
DVR ACTIONS: NO CONTRIBUTING ACTION													
7	2022073083	22	08/13/2022	SAT	19:54	DAYLIGHT	DRY	CLEAR	0	1	0	3	SUSPECTED SERIOUS INJURY ANGLE
ENV RDWY FACTORS: NONE													
MIDB 3012/0021/0242													
VEH: 1 SMALL TRUCK TRAVELING SOUTH IN LEFT LANE TURNING LEFT													
VEH EVENTS: HIT UNIT 03 HIT UNIT 02													
DVR ACTIONS: IMPROPER/CARELESS TURN													
VEH: 2 AUTOMOBILE TRAVELING EAST IN RIGHT LANE TURNING RIGHT													
VEH EVENTS: STRUCK BY UNIT 01													
DVR ACTIONS: NO CONTRIBUTING ACTION													
VEH: 3 SUV TRAVELING EAST IN OTHER FWD MOVING LANE GOING STRAIGHT													
VEH EVENTS: STRUCK BY UNIT 01													
DVR ACTIONS: NO CONTRIBUTING ACTION													
8	2021104067	22	10/17/2021	SUN	19:14	DARK	DRY	CLEAR	0	1	0	4	UNK SEVERITY
ENV RDWY FACTORS: NONE												SAME DIR SIDESW	
MIDB 3012/0030/0348													
VEH: 1 VAN TRAVELING EAST IN LEFT LANE GOING STRAIGHT													
VEH EVENTS: HIT UNIT 02 HIT UNIT 03 HIT UNIT 04													
DVR ACTIONS: TOO FAST FOR CONDITIONS													
VEH: 4 AUTOMOBILE TRAVELING EAST IN RIGHT LANE SLOWING OR STOPPING IN LANE													
VEH EVENTS: STRUCK BY UNIT 01													
DVR ACTIONS: NO CONTRIBUTING ACTION													
9	2019036759	22	04/05/2019	FRI	23:00	STREET LT	WET	CLEAR	0	0	0	1	PROP DMG ONLY
ENV RDWY FACTORS: NONE												HIT FIXED OBJ	
MIDB 3012/0030/0815													
VEH: 1 SUV TRAVELING EAST IN RIGHT LANE GOING STRAIGHT													
VEH EVENTS: HIT FENCE OR WALL													
DVR ACTIONS: NO CONTRIBUTING ACTION													

Pennsylvania Crash Information Tool

Crash Data- 3rd St to West Shore

Sorted by County, Route, Segment, Offset

Date Range: 01/01/2018 to 12/31/2022

USER ID / QUERY ID:

b-brtutuska / 0320230509885



CRN	CO	DATE	DAY	TIME	LIGHTING	ROAD SURF	WEATHER	FAT	INJ	PED	VEH	MAX SEVERITY	
10	2019011377	22	01/25/2019	FRI	15:46	DAYLIGHT	DRY	CLEAR	0	0	0	2	PROP DMG ONLY
ENV RDWY FACTORS: NONE												REAR-END	
MIDB 3012/0030/1393													
VEH: 1 SUV TRAVELING WEST IN RIGHT LANE GOING STRAIGHT												ALC TEST: 96	
VEH EVENTS: HIT UNIT 02													
DVR ACTIONS: TAILGATING													
VEH: 2 SMALL TRUCK TRAVELING WEST IN RIGHT LANE STOPPED IN TRAFFIC LANE													
VEH EVENTS: STRUCK BY UNIT 01													
DVR ACTIONS: NO CONTRIBUTING ACTION													
11	2019047905	22	05/10/2019	FRI	16:53	DAYLIGHT	DRY	CLEAR	0	1	0	2	SUSPECTED MINOR INJURY REAR-END
ENV RDWY FACTORS: NONE													
MIDB 3012/0031/0512													
VEH: 1 SUV TRAVELING WEST IN RIGHT LANE GOING STRAIGHT													
VEH EVENTS: HIT UNIT 02													
DVR ACTIONS: TAILGATING													
VEH: 2 SUV TRAVELING WEST IN RIGHT LANE SLOWING OR STOPPING IN LANE													
VEH EVENTS: STRUCK BY UNIT 01													
DVR ACTIONS: NO CONTRIBUTING ACTION													
12	2018040391	22	04/06/2018	FRI	14:56	DAYLIGHT	DRY	CLEAR	0	0	0	2	PROP DMG ONLY
ENV RDWY FACTORS: NONE												REAR-END	
T-INT 3009/0031/1685 BLACKBERRY ST													
VEH: 1 AUTOMOBILE TRAVELING SOUTH IN OTHER FWD MOVING LANE GOING STRAIGHT													
VEH EVENTS: HIT UNIT 02													
DVR ACTIONS: DRIVER WAS DISTRACTED TAILGATING SUDDEN SLOWING / STOPPING													
VEH: 2 AUTOMOBILE TRAVELING WEST IN OTHER FWD MOVING LANE GOING STRAIGHT													
VEH EVENTS: STRUCK BY UNIT 01													
DVR ACTIONS: SUDDEN SLOWING / STOPPING OTHER IMPROPER DRIV ACTIONS													
13	2018011487	22	01/21/2018	SUN	01:18	STREET LT	DRY	CLEAR	0	0	0	1	PROP DMG ONLY
ENV RDWY FACTORS: NONE												HIT FIXED OBJ	
T-INT 3009/0041/0259 STRAWBERRY ST													
VEH: 1 AUTOMOBILE TRAVELING SOUTH IN LEFT LANE GOING STRAIGHT												ALC TEST: 99	
VEH EVENTS: HIT CURB HIT UTILITY POLE													
DVR ACTIONS: AFFECTED BY PHYSICAL COND DRIVER WAS DISTRACTED													
14	2018096761	22	09/16/2018	SUN	13:33	DAYLIGHT	DRY	CLEAR	0	1	0	2	SUSPECTED MINOR INJURY HIT FIXED OBJ
ENV RDWY FACTORS: NONE													
T-INT 3009/0041/0259 STRAWBERRY ST													
VEH: 1 AUTOMOBILE TRAVELING SOUTH IN LEFT LANE GOING STRAIGHT													
VEH EVENTS: HIT CURB HIT OTHER FIXED OBJECT HIT TREE OR SHRUBBERY													
DVR ACTIONS: OTHER IMPROPER DRIV ACTIONS													
15	2022017599	21	02/11/2022	FRI	06:46	DAWN	DRY	CLEAR	0	1	0	1	SUSPECTED MINOR INJURY HIT FIXED OBJ
ENV RDWY FACTORS: NONE													
MIDB 1010/0121/1830													
VEH: 1 AUTOMOBILE TRAVELING WEST IN RIGHT LANE NEGOTIATING CURVE - LEFT													
VEH EVENTS: HIT EMBANKMENT													
DVR ACTIONS: DRIVER WAS DISTRACTED													

Pennsylvania Crash Information Tool

Crash Data- 3rd St to West Shore

Sorted by County, Route, Segment, Offset

Date Range: 01/01/2018 to 12/31/2022

USER ID / QUERY ID:
b-brtutuska / 0320230509885



CRN	CO	DATE	DAY	TIME	LIGHTING	ROAD SURF	WEATHER	FAT	INJ	PED	VEH	MAX SEVERITY	
16	2018102469	22	10/01/2018	MON	15:43	DAYLIGHT	DRY	CLEAR	1	0	1	1	FATAL
ENV RDWY FACTORS: NONE												PEDESTRIAN	
MIDB MARKET ST													
VEH: 1												ALC TEST: 00	
VEH EVENTS: STRUCK BY UNIT 02													
VEH: 2 BUS TRAVELING NORTH IN OTHER TURNING LEFT													
VEH EVENTS: HIT UNIT 01													
DVR ACTIONS: UNKNOWN													
17	2019007798	22	01/22/2019	TUE	12:22	DAYLIGHT	DRY	CLEAR	0	1	0	2	POSSIBLE INJURY
ENV RDWY FACTORS: NONE												REAR-END	
MIDB WALNUT ST													
VEH: 1 SUV TRAVELING WEST IN RIGHT LANE GOING STRAIGHT													
VEH EVENTS: HIT UNIT 02													
DVR ACTIONS: TAILGATING												TOO FAST FOR CONDITIONS	
												OTHER IMPROPER DRIV ACTIONS	
VEH: 2 SUV TRAVELING WEST IN RIGHT LANE SLOWING OR STOPPING IN LANE													
VEH EVENTS: STRUCK BY UNIT 01													
DVR ACTIONS: NO CONTRIBUTING ACTION													
18	2019064914	22	06/23/2019	SUN	01:50	STREET LT	DRY	CLEAR	0	0	0	3	PROP DMG ONLY
ENV RDWY FACTORS: NONE												ANGLE	
MIDB 2ND ST													
VEH: 1 SUV TRAVELING NORTH IN LEFT LANE CHANGING LANES OR MERGING													
VEH EVENTS: HIT UNIT 02													
DVR ACTIONS: CARELESS PASS OR LANE CHANGE													
VEH: 2 SUV TRAVELING NORTH IN OTHER FWD MOVING LANE GOING STRAIGHT													
VEH EVENTS: STRUCK BY UNIT 01													
DVR ACTIONS: NO CONTRIBUTING ACTION													
19	2019071332	22	07/16/2019	TUE	08:54	DAYLIGHT	DRY	CLEAR	0	0	0	2	PROP DMG ONLY
ENV RDWY FACTORS: NONE												ANGLE	
MIDB CHESTNUT ST													
VEH: 1 AUTOMOBILE TRAVELING NORTH IN RIGHT OF TRAFFICWAY TURNING LEFT													
VEH EVENTS: HIT UNIT 02													
DVR ACTIONS: IMPROPER/CARELESS TURN												PROCEED W/O CLEARANCE	
												IMPROPER ENTRANCE TO HIGHWAY	
VEH: 2 SUV TRAVELING EAST IN RIGHT LANE GOING STRAIGHT													
VEH EVENTS: STRUCK BY UNIT 01													
DVR ACTIONS: NO CONTRIBUTING ACTION													
20	2019088259	22	08/28/2019	WED	20:39	STREET LT	DRY	CLEAR	0	0	0	3	PROP DMG ONLY
ENV RDWY FACTORS: NONE												ANGLE	
MIDB 2ND ST													
VEH: 1 AUTOMOBILE TRAVELING NORTH IN OTHER FWD MOVING LANE GOING STRAIGHT													
VEH EVENTS: HIT UNIT 02												HIT UNIT 03	
DVR ACTIONS: OTHER IMPROPER DRIV ACTIONS													

Pennsylvania Crash Information Tool

Crash Data- 3rd St to West Shore

Sorted by County, Route, Segment, Offset

NOTES:

- 1 Injury Severity Disclaimer
Please note that beginning January 1, 2016, PennDOT adopted the Federal standard for collecting injury severity data. The field descriptions and definitions changed from the state standard that had been in use for decades. This resulted in a substantial shift in severity levels. Therefore, comparison of the "Suspected Serious Injury", "Suspected Minor Injury" and "Possible Injury" categories will not be consistent for crashes taking place before versus after the adoption of the new standard.

REPORT PARAMETERS:

Query ID: 0320230509885

User ID: b-brtutuska

Title: Crash Data- 3rd St to West S

Date Range: 01/01/2018 to 12/31/2022

Selected Shapes: Line - 5134.835346 Feet,Line - 5134.835346 Feet - Buffer (40 feet),Line - 150.841763 Feet,Line - 150.841763 Feet - Buffer (40 feet).Line - 1020.074603 Feet.Line - 1020.074603 Feet - Buffer (40

Filter Characteristics:

This report counts the number of crashes.



Appendix C
Capacity and Queue
Analysis Results- Existing
Conditions

Synchro AM Peak Results

Queues

42: Cameron St & Market St

05/16/2023



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	239	121	88	257	965	77	634
v/c Ratio	0.54	0.59	0.20	0.45	0.47	0.20	0.37
Control Delay	37.5	50.0	1.1	7.8	13.3	7.5	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	50.0	1.1	7.8	13.3	7.5	16.1
Queue Length 50th (ft)	66	74	0	42	164	11	113
Queue Length 95th (ft)	92	118	0	104	294	35	207
Internal Link Dist (ft)	305	673			343		286
Turn Bay Length (ft)				250		220	
Base Capacity (vph)	951	340	562	633	2069	386	1709
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.36	0.16	0.41	0.47	0.20	0.37

Intersection Summary

HCM Signalized Intersection Capacity Analysis

42: Cameron St & Market St

05/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔	↔	↔	↔↔		↔	↔↔	
Traffic Volume (vph)	81	96	41	36	74	80	234	854	25	70	465	112
Future Volume (vph)	81	96	41	36	74	80	234	854	25	70	465	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	11	12	10	11	12	10	11	12
Grade (%)		3%			-2%			2%			4%	
Total Lost time (s)		6.0			6.7	6.7	5.7	6.8		5.7	6.9	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.97			1.00	0.85	1.00	1.00		1.00	0.97	
Flt Protected		0.98			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3326			1789	1599	1635	3373		1619	3255	
Flt Permitted		0.80			0.77	1.00	0.34	1.00		0.29	1.00	
Satd. Flow (perm)		2718			1407	1599	589	3373		497	3255	
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)	89	105	45	40	81	88	257	938	27	77	511	123
RTOR Reduction (vph)	0	25	0	0	0	75	0	1	0	0	14	0
Lane Group Flow (vph)	0	214	0	0	121	13	257	964	0	77	620	0
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)		15.4			14.7	14.7	71.8	60.2		58.0	52.1	
Effective Green, g (s)		15.4			14.7	14.7	71.8	60.2		58.0	52.1	
Actuated g/C Ratio		0.15			0.15	0.15	0.72	0.60		0.58	0.52	
Clearance Time (s)		6.0			6.7	6.7	5.7	6.8		5.7	6.9	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		418			206	235	568	2030		354	1695	
v/s Ratio Prot							c0.06	c0.29		0.01	0.19	
v/s Ratio Perm		0.08			c0.09	0.01	0.26			0.11		
v/c Ratio		0.51			0.59	0.06	0.45	0.47		0.22	0.37	
Uniform Delay, d1		38.8			39.8	36.7	5.5	11.1		9.3	14.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.1			4.2	0.1	0.6	0.8		0.3	0.6	
Delay (s)		39.9			44.1	36.8	6.0	11.9		9.6	14.8	
Level of Service		D			D	D	A	B		A	B	
Approach Delay (s)		39.9			41.0			10.7			14.2	
Approach LOS		D			D			B			B	

Intersection Summary

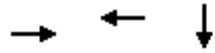
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	25.3
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

4: N.Front St & Market St

05/15/2023



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	622	141	1463
v/c Ratio	0.62	0.14	0.49
Control Delay	28.6	4.4	15.4
Queue Delay	0.0	0.0	0.3
Total Delay	28.6	4.4	15.7
Queue Length 50th (ft)	152	1	243
Queue Length 95th (ft)	212	3	292
Internal Link Dist (ft)	2011	397	440
Turn Bay Length (ft)			
Base Capacity (vph)	998	990	2995
Starvation Cap Reductn	0	0	825
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.62	0.14	0.67
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

4: N.Front St & Market St

05/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑						↑↑↑	
Traffic Volume (vph)	0	324	236	0	127	0	0	0	0	141	1002	174
Future Volume (vph)	0	324	236	0	127	0	0	0	0	141	1002	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	12	10	12	12	12	12	13	12	13
Grade (%)		-1%			0%			0%				0%
Total Lost time (s)		5.0			5.0							5.0
Lane Util. Factor		0.95			0.95							0.91
Frt		0.94			1.00							0.98
Flt Protected		1.00			1.00							0.99
Satd. Flow (prot)		3110			3303							4958
Flt Permitted		1.00			1.00							0.99
Satd. Flow (perm)		3110			3303							4958
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	360	262	0	141	0	0	0	0	157	1113	193
RTOR Reduction (vph)	0	65	0	0	0	0	0	0	0	0	20	0
Lane Group Flow (vph)	0	557	0	0	141	0	0	0	0	0	1443	0
Turn Type		NA			NA					Perm	NA	
Protected Phases		2			2							1
Permitted Phases										1		
Actuated Green, G (s)		30.0			30.0							60.0
Effective Green, g (s)		30.0			30.0							60.0
Actuated g/C Ratio		0.30			0.30							0.60
Clearance Time (s)		5.0			5.0							5.0
Vehicle Extension (s)		3.0			3.0							3.0
Lane Grp Cap (vph)		933			990							2974
v/s Ratio Prot		c0.18			0.04							
v/s Ratio Perm												0.29
v/c Ratio		0.60			0.14							0.49
Uniform Delay, d1		29.8			25.6							11.3
Progression Factor		1.00			0.16							1.35
Incremental Delay, d2		2.8			0.3							0.5
Delay (s)		32.7			4.4							15.8
Level of Service		C			A							B
Approach Delay (s)		32.7			4.4			0.0				15.8
Approach LOS		C			A			A				B

Intersection Summary

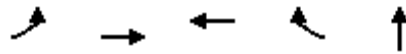
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

9: Greyhound Driveway/5th St & Market St

05/17/2023



Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	455	264	203	204	4
v/c Ratio	0.59	0.12	0.55	0.55	0.04
Control Delay	14.9	2.7	13.1	12.4	46.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	2.7	13.1	12.4	46.2
Queue Length 50th (ft)	72	10	12	11	2
Queue Length 95th (ft)	#202	29	71	68	14
Internal Link Dist (ft)		165	826		109
Turn Bay Length (ft)					
Base Capacity (vph)	765	2278	367	373	94
Starvation Cap Reductn	1	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.12	0.55	0.55	0.04




















Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

9: Greyhound Driveway/5th St & Market St

05/17/2023

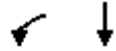
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 				
Traffic Volume (vph)	419	243	0	0	6	368	0	3	1	0	0	0
Future Volume (vph)	419	243	0	0	6	368	0	3	1	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	12	12	12	12	12	12	12	12	12
Grade (%)		-6%			6%			-10%				0%
Total Lost time (s)	7.0	7.0			7.0	7.0		7.5				
Lane Util. Factor	1.00	0.95			0.95	0.95		1.00				
Frt	1.00	1.00			0.86	0.85		0.97				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1823	3645			1468	1459		1890				
Flt Permitted	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (perm)	1823	3645			1468	1459		1890				
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)	455	264	0	0	7	400	0	3	1	0	0	0
RTOR Reduction (vph)	0	0	0	0	181	189	0	0	0	0	0	0
Lane Group Flow (vph)	455	264	0	0	22	15	0	4	0	0	0	0
Turn Type	Prot	NA			NA	Prot		NA				
Protected Phases	1	6			2	2	3	3				
Permitted Phases												
Actuated Green, G (s)	42.0	56.5			7.5	7.5		1.0				
Effective Green, g (s)	42.0	56.5			7.5	7.5		1.0				
Actuated g/C Ratio	0.42	0.56			0.08	0.08		0.01				
Clearance Time (s)	7.0	7.0			7.0	7.0		7.5				
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)	765	2059			110	109		18				
v/s Ratio Prot	c0.25	0.07			c0.01	0.01		c0.00				
v/s Ratio Perm												
v/c Ratio	0.59	0.13			0.20	0.14		0.22				
Uniform Delay, d1	22.4	10.2			43.4	43.2		49.1				
Progression Factor	0.46	0.31			1.07	1.14		1.00				
Incremental Delay, d2	3.2	0.1			3.8	2.5		6.2				
Delay (s)	13.5	3.3			50.2	51.7		55.3				
Level of Service	B	A			D	D		E				
Approach Delay (s)		9.7			51.0			55.3			0.0	
Approach LOS		A			D			E			A	
Intersection Summary												
HCM 2000 Control Delay			24.8				HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)		23.5			
Intersection Capacity Utilization			60.5%				ICU Level of Service		B			
Analysis Period (min)			15									

c Critical Lane Group

Queues

10: N.Front St & Walnut St

05/15/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	206	1353
v/c Ratio	0.24	0.41
Control Delay	9.8	8.8
Queue Delay	0.0	0.0
Total Delay	9.8	8.8
Queue Length 50th (ft)	14	135
Queue Length 95th (ft)	26	158
Internal Link Dist (ft)	439	727
Turn Bay Length (ft)		
Base Capacity (vph)	861	3322
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.24	0.41
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

10: N.Front St & Walnut St

05/15/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶↷					↶↶↶
Traffic Volume (vph)	181	0	0	0	0	1191
Future Volume (vph)	181	0	0	0	0	1191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12
Grade (%)	-1%		0%			-1%
Total Lost time (s)	5.0					5.0
Lane Util. Factor	0.97					0.91
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	3051					5111
Flt Permitted	0.95					1.00
Satd. Flow (perm)	3051					5111
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	206	0	0	0	0	1353
RTOR Reduction (vph)	98	0	0	0	0	0
Lane Group Flow (vph)	108	0	0	0	0	1353
Parking (#/hr)	1					
Turn Type	Prot					NA
Protected Phases	3					2
Permitted Phases						
Actuated Green, G (s)	25.0					65.0
Effective Green, g (s)	25.0					65.0
Actuated g/C Ratio	0.25					0.65
Clearance Time (s)	5.0					5.0
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	762					3322
v/s Ratio Prot	c0.04					c0.26
v/s Ratio Perm						
v/c Ratio	0.14					0.41
Uniform Delay, d1	29.2					8.3
Progression Factor	0.79					1.00
Incremental Delay, d2	0.4					0.4
Delay (s)	23.3					8.7
Level of Service	C					A
Approach Delay (s)	23.3		0.0			8.7
Approach LOS	C		A			A
Intersection Summary						
HCM 2000 Control Delay			10.6		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.33			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			92.8%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						

Queues

15: 2nd St & Walnut St

05/15/2023



Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	227	64	1274
v/c Ratio	0.23	0.13	0.55
Control Delay	21.6	8.5	10.0
Queue Delay	0.0	0.0	0.0
Total Delay	21.6	8.5	10.0
Queue Length 50th (ft)	51	1	212
Queue Length 95th (ft)	70	16	130
Internal Link Dist (ft)	194		432
Turn Bay Length (ft)			
Base Capacity (vph)	982	484	2335
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.23	0.13	0.55
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

15: 2nd St & Walnut St

05/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑↑↑				
Traffic Volume (vph)	0	0	0	0	209	59	148	1024	0	0	0	0
Future Volume (vph)	0	0	0	0	209	59	148	1024	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	11	11	10	12	12	12
Grade (%)		0%			-1%			1%			0%	
Total Lost time (s)					5.4	5.4		5.0				
Lane Util. Factor					0.95	1.00		0.91				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					3320	1485		4860				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					3320	1485		4860				
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	227	64	161	1113	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	45	0	32	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	227	19	0	1242	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					29.6	29.6		46.2				
Effective Green, g (s)					29.6	29.6		46.2				
Actuated g/C Ratio					0.30	0.30		0.46				
Clearance Time (s)					5.4	5.4		5.0				
Vehicle Extension (s)					3.0	3.0		3.0				
Lane Grp Cap (vph)					982	439		2245				
v/s Ratio Prot					c0.07							
v/s Ratio Perm						0.01		0.26				
v/c Ratio					0.23	0.04		0.55				
Uniform Delay, d1					26.6	25.1		19.4				
Progression Factor					0.78	1.14		0.47				
Incremental Delay, d2					0.5	0.2		0.8				
Delay (s)					21.4	28.7		9.9				
Level of Service					C	C		A				
Approach Delay (s)		0.0			23.0			9.9			0.0	
Approach LOS		A			C			A			A	

Intersection Summary

HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

21: 3rd St & Market St

05/15/2023



Lane Group	EBT	SBT
Lane Group Flow (vph)	601	254
v/c Ratio	0.27	0.32
Control Delay	15.2	23.9
Queue Delay	0.0	0.0
Total Delay	15.2	23.9
Queue Length 50th (ft)	84	102
Queue Length 95th (ft)	95	174
Internal Link Dist (ft)	324	433
Turn Bay Length (ft)		
Base Capacity (vph)	2213	796
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.27	0.32
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

21: 3rd St & Market St

05/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑↑										↖	
Traffic Volume (vph)	0	478	39	0	0	0	0	0	0	119	100	0	
Future Volume (vph)	0	478	39	0	0	0	0	0	0	119	100	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	11	11	11	12	12	12	12	12	12	12	16	12	
Grade (%)		-1%			0%			0%				0%	
Total Lost time (s)		5.7										5.7	
Lane Util. Factor		0.91										1.00	
Frt		0.99										1.00	
Flt Protected		1.00										0.97	
Satd. Flow (prot)		4885										1839	
Flt Permitted		1.00										0.97	
Satd. Flow (perm)		4885										1839	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Adj. Flow (vph)	0	556	45	0	0	0	0	0	0	138	116	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	601	0	0	0	0	0	0	0	0	254	0	
Parking (#/hr)												1	
Turn Type		NA								Split		NA	
Protected Phases		2								4		4	
Permitted Phases													
Actuated Green, G (s)		45.3										43.3	
Effective Green, g (s)		45.3										43.3	
Actuated g/C Ratio		0.45										0.43	
Clearance Time (s)		5.7										5.7	
Vehicle Extension (s)		3.0										3.0	
Lane Grp Cap (vph)		2212										796	
v/s Ratio Prot		c0.12										c0.14	
v/s Ratio Perm													
v/c Ratio		0.27										0.32	
Uniform Delay, d1		17.1										18.7	
Progression Factor		0.87										1.20	
Incremental Delay, d2		0.3										1.0	
Delay (s)		15.1										23.5	
Level of Service		B										C	
Approach Delay (s)		15.1			0.0			0.0				23.5	
Approach LOS		B			A			A				C	
Intersection Summary													
HCM 2000 Control Delay			17.6									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.32										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	17.4
Intersection Capacity Utilization			31.5%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

16: 2nd St & Market St

05/15/2023



Lane Group	EBT	NBL	NBT
Lane Group Flow (vph)	500	137	1406
v/c Ratio	2.55dl	0.16	0.58
Control Delay	38.6	14.7	21.4
Queue Delay	0.0	0.0	0.0
Total Delay	38.6	14.7	21.4
Queue Length 50th (ft)	151	70	348
Queue Length 95th (ft)	#243	m89	396
Internal Link Dist (ft)	397		236
Turn Bay Length (ft)			
Base Capacity (vph)	597	875	2426
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.84	0.16	0.58

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

HCM Signalized Intersection Capacity Analysis

16: 2nd St & Market St

05/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↑		↔	↑↑↑				
Traffic Volume (vph)	176	289	0	0	0	0	127	996	312	0	0	0
Future Volume (vph)	176	289	0	0	0	0	127	996	312	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			1%			0%	
Total Lost time (s)		6.0					6.0	6.0				
Lane Util. Factor		0.95					1.00	0.91				
Frt		1.00					1.00	0.96				
Flt Protected		0.98					0.95	1.00				
Satd. Flow (prot)		3474					1761	4879				
Flt Permitted		0.59					0.95	1.00				
Satd. Flow (perm)		2097					1761	4879				
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)	189	311	0	0	0	0	137	1071	335	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	500	0	0	0	0	137	1406	0	0	0	0
Turn Type	Perm	NA					Perm	NA				
Protected Phases		4			8	3		2				
Permitted Phases	4						2					
Actuated Green, G (s)		28.5					46.5	46.5				
Effective Green, g (s)		28.5					46.5	46.5				
Actuated g/C Ratio		0.28					0.46	0.46				
Clearance Time (s)		6.0					6.0	6.0				
Vehicle Extension (s)		3.0					3.0	3.0				
Lane Grp Cap (vph)		597					818	2268				
v/s Ratio Prot								c0.29				
v/s Ratio Perm		c0.24					0.08					
v/c Ratio		2.55dl					0.17	0.62				
Uniform Delay, d1		33.6					15.5	20.1				
Progression Factor		0.79					0.88	1.06				
Incremental Delay, d2		8.3					0.3	0.8				
Delay (s)		34.9					14.0	22.2				
Level of Service		C					B	C				
Approach Delay (s)		34.9			0.0			21.5			0.0	
Approach LOS		C			A			C			A	

Intersection Summary

HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Queues

22: 3rd St & Walnut St

05/17/2023



Lane Group	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	434	279	186	158
v/c Ratio	0.26	0.34	0.24	0.24
Control Delay	18.1	10.0	19.6	19.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	18.1	10.0	19.6	19.7
Queue Length 50th (ft)	65	34	75	63
Queue Length 95th (ft)	91	59	104	92
Internal Link Dist (ft)	408		564	
Turn Bay Length (ft)				
Base Capacity (vph)	1677	809	765	672
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.26	0.34	0.24	0.24
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

22: 3rd St & Walnut St

05/17/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↕↕	↗					↕	↗	
Traffic Volume (vph)	0	0	0	79	260	218	0	0	0	0	145	123	
Future Volume (vph)	0	0	0	79	260	218	0	0	0	0	145	123	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12	
Grade (%)		0%			-1%			0%			-1%		
Total Lost time (s)					5.7	5.7					5.7	5.7	
Lane Util. Factor					0.95	1.00					1.00	1.00	
Frt					1.00	0.85					1.00	0.85	
Flt Protected					0.99	1.00					1.00	1.00	
Satd. Flow (prot)					3516	1424					1810	1591	
Flt Permitted					0.99	1.00					1.00	1.00	
Satd. Flow (perm)					3516	1424					1810	1591	
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	
Adj. Flow (vph)	0	0	0	101	333	279	0	0	0	0	186	158	
RTOR Reduction (vph)	0	0	0	0	51	150	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	383	129	0	0	0	0	186	158	
Parking (#/hr)				1		1							
Turn Type				Perm	NA	Perm					NA	Perm	
Protected Phases					4						2		
Permitted Phases				4		4						2	
Actuated Green, G (s)					46.3	46.3					42.3	42.3	
Effective Green, g (s)					46.3	46.3					42.3	42.3	
Actuated g/C Ratio					0.46	0.46					0.42	0.42	
Clearance Time (s)					5.7	5.7					5.7	5.7	
Vehicle Extension (s)					3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)					1627	659					765	672	
v/s Ratio Prot											c0.10		
v/s Ratio Perm					0.11	0.09						0.10	
v/c Ratio					0.24	0.20					0.24	0.24	
Uniform Delay, d1					16.2	15.9					18.6	18.5	
Progression Factor					1.40	4.32					1.00	1.00	
Incremental Delay, d2					0.3	0.6					0.8	0.8	
Delay (s)					23.0	69.1					19.3	19.3	
Level of Service					C	E					B	B	
Approach Delay (s)		0.0			41.1			0.0			19.3		
Approach LOS		A			D			A			B		
Intersection Summary													
HCM 2000 Control Delay			34.0		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.26										
Actuated Cycle Length (s)			100.0		Sum of lost time (s)						17.4		
Intersection Capacity Utilization			51.2%		ICU Level of Service						A		
Analysis Period (min)			15										
c Critical Lane Group													

Queues

26: 4th St & Market St

05/15/2023



Lane Group	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	678	300	10	80
v/c Ratio	0.40	0.44	0.03	0.12
Control Delay	19.6	16.8	1.1	1.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	19.6	16.8	1.1	1.2
Queue Length 50th (ft)	43	44	0	1
Queue Length 95th (ft)	85	183	m0	2
Internal Link Dist (ft)	407	432		435
Turn Bay Length (ft)				
Base Capacity (vph)	1696	681	293	640
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.40	0.44	0.03	0.13

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

26: 4th St & Market St

05/15/2023

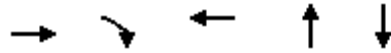


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔↕↔						↔		↕	↔		
Traffic Volume (vph)	96	447	54	0	0	0	0	126	138	9	70	0	
Future Volume (vph)	96	447	54	0	0	0	0	126	138	9	70	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	11	11	11	12	12	12	12	12	12	10	10	12	
Grade (%)		0%			0%			-1%			1%		
Total Lost time (s)		5.0						5.0		5.0	5.0		
Lane Util. Factor		0.91						1.00		1.00	1.00		
Frt		0.99						0.93		1.00	1.00		
Flt Protected		0.99						1.00		0.95	1.00		
Satd. Flow (prot)		4811						1740		1643	1730		
Flt Permitted		0.99						1.00		0.46	1.00		
Satd. Flow (perm)		4811						1740		793	1730		
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)	109	508	61	0	0	0	0	143	157	10	80	0	
RTOR Reduction (vph)	0	12	0	0	0	0	0	38	0	0	0	0	
Lane Group Flow (vph)	0	666	0	0	0	0	0	262	0	10	80	0	
Parking (#/hr)	1												
Turn Type	Perm	NA						NA		Perm	NA		
Protected Phases		4						2			6		
Permitted Phases	4									6			
Actuated Green, G (s)		35.0						37.0		37.0	37.0		
Effective Green, g (s)		35.0						37.0		37.0	37.0		
Actuated g/C Ratio		0.35						0.37		0.37	0.37		
Clearance Time (s)		5.0						5.0		5.0	5.0		
Vehicle Extension (s)		3.0						3.0		3.0	3.0		
Lane Grp Cap (vph)		1683						643		293	640		
v/s Ratio Prot								c0.15			0.05		
v/s Ratio Perm		0.14								0.01			
v/c Ratio		0.40						0.41		0.03	0.12		
Uniform Delay, d1		24.5						23.4		20.1	20.8		
Progression Factor		0.79						0.78		0.05	0.04		
Incremental Delay, d2		0.7						1.9		0.2	0.4		
Delay (s)		20.0						20.1		1.1	1.2		
Level of Service		C						C		A	A		
Approach Delay (s)		20.0			0.0			20.1			1.2		
Approach LOS		C			A			C			A		
Intersection Summary													
HCM 2000 Control Delay			18.5									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.33										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	12.0
Intersection Capacity Utilization			97.6%									ICU Level of Service	F
Analysis Period (min)			15										
c Critical Lane Group													

Queues

27: 4th St & Chestnut St/Amtrak Driveway

05/15/2023



Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	233	105	41	249	139
v/c Ratio	0.72	0.20	0.09	0.24	0.15
Control Delay	42.5	8.7	24.7	10.0	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	8.7	24.7	10.0	10.0
Queue Length 50th (ft)	141	6	19	61	41
Queue Length 95th (ft)	177	19	36	121	72
Internal Link Dist (ft)	412		305	245	432
Turn Bay Length (ft)					
Base Capacity (vph)	747	1108	1012	1041	933
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.31	0.09	0.04	0.24	0.15
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

27: 4th St & Chestnut St/Amtrak Driveway

05/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖	↗		↔			↕			↕		
Traffic Volume (vph)	169	24	87	12	21	2	100	96	11	9	49	57	
Future Volume (vph)	169	24	87	12	21	2	100	96	11	9	49	57	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	10	10	16	12	12	12	14	14	14	11	11	11	
Grade (%)		5%			-3%			-8%			4%		
Total Lost time (s)		5.0	5.0		5.0			5.0			5.0		
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00		
Frt		1.00	0.85		0.99			0.99			0.93		
Flt Protected		0.96	1.00		0.98			0.98			1.00		
Satd. Flow (prot)		1624	1750		1847			2004			1468		
Flt Permitted		0.72	1.00		0.88			0.80			0.98		
Satd. Flow (perm)		1226	1750		1659			1632			1438		
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	
Adj. Flow (vph)	204	29	105	14	25	2	120	116	13	11	59	69	
RTOR Reduction (vph)	0	0	77	0	1	0	0	1	0	0	18	0	
Lane Group Flow (vph)	0	233	28	0	40	0	0	248	0	0	121	0	
Parking (#/hr)										1	1	1	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4		4	8			2			6			
Actuated Green, G (s)		26.3	26.3		26.3			63.7			63.7		
Effective Green, g (s)		26.3	26.3		26.3			63.7			63.7		
Actuated g/C Ratio		0.26	0.26		0.26			0.64			0.64		
Clearance Time (s)		5.0	5.0		5.0			5.0			5.0		
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0		
Lane Grp Cap (vph)		322	460		436			1039			916		
v/s Ratio Prot													
v/s Ratio Perm		c0.19	0.02		0.02			c0.15			0.08		
v/c Ratio		0.72	0.06		0.09			0.24			0.13		
Uniform Delay, d1		33.5	27.6		27.8			7.8			7.2		
Progression Factor		0.92	1.73		1.04			1.00			1.53		
Incremental Delay, d2		7.7	0.1		0.1			0.5			0.3		
Delay (s)		38.5	47.8		29.1			8.3			11.3		
Level of Service		D	D		C			A			B		
Approach Delay (s)		41.4			29.1			8.3			11.3		
Approach LOS		D			C			A			B		
Intersection Summary													
HCM 2000 Control Delay			24.5									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.38										
Actuated Cycle Length (s)			100.0								10.0		
Intersection Capacity Utilization			43.5%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

30: 5th St/Forum Driveway & Walnut St

05/15/2023



Lane Group	WBT	NBL	NBR	SBL	SBR
Lane Group Flow (vph)	512	381	256	7	2
v/c Ratio	0.32	0.27	0.42	0.07	0.01
Control Delay	15.8	0.5	5.9	45.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	0.5	5.9	45.6	0.0
Queue Length 50th (ft)	98	0	0	4	0
Queue Length 95th (ft)	136	0	58	19	0
Internal Link Dist (ft)	349				
Turn Bay Length (ft)	150				
Base Capacity (vph)	1618	1430	605	116	180
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.27	0.42	0.06	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis

30: 5th St/Forum Driveway & Walnut St

05/15/2023

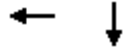


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑		↗↘		↗	↘		↗
Traffic Volume (vph)	0	0	0	0	481	0	358	0	241	7	0	2
Future Volume (vph)	0	0	0	0	481	0	358	0	241	7	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	16	11	12	11	12	12	12
Grade (%)		0%			-1%			7%				0%
Total Lost time (s)					5.0		5.4		5.4	5.4		5.4
Lane Util. Factor					0.95		0.97		1.00	1.00		1.00
Frt					1.00		1.00		0.85	1.00		0.85
Flt Protected					1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)					3258		3202		1477	1770		1583
Flt Permitted					1.00		0.95		1.00	0.95		1.00
Satd. Flow (perm)					3258		3202		1477	1770		1583
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	0	512	0	381	0	256	7	0	2
RTOR Reduction (vph)	0	0	0	0	0	0	272	0	183	0	0	2
Lane Group Flow (vph)	0	0	0	0	512	0	109	0	73	7	0	0
Parking (#/hr)					1							
Turn Type					NA		Prot		Prot	Prot		Perm
Protected Phases					2		3		3	4		
Permitted Phases												4
Actuated Green, G (s)					49.7		28.6		28.6	5.9		5.9
Effective Green, g (s)					49.7		28.6		28.6	5.9		5.9
Actuated g/C Ratio					0.50		0.29		0.29	0.06		0.06
Clearance Time (s)					5.0		5.4		5.4	5.4		5.4
Vehicle Extension (s)					3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)					1619		915		422	104		93
v/s Ratio Prot					c0.16		0.03		c0.05	c0.00		
v/s Ratio Perm												0.00
v/c Ratio					0.32		0.12		0.17	0.07		0.00
Uniform Delay, d1					15.0		26.4		26.8	44.5		44.3
Progression Factor					1.00		1.00		1.00	1.00		1.00
Incremental Delay, d2					0.5		0.3		0.9	0.3		0.0
Delay (s)					15.5		26.7		27.7	44.7		44.3
Level of Service					B		C		C	D		D
Approach Delay (s)		0.0			15.5			27.1			44.6	
Approach LOS		A			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			22.1		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.25									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)				15.8			
Intersection Capacity Utilization			46.4%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

31: Aberdeen St & Walnut St

05/15/2023



Lane Group	WBT	SBT
Lane Group Flow (vph)	935	189
v/c Ratio	0.31	0.34
Control Delay	1.7	22.5
Queue Delay	0.2	0.0
Total Delay	1.9	22.5
Queue Length 50th (ft)	14	69
Queue Length 95th (ft)	21	129
Internal Link Dist (ft)	172	900
Turn Bay Length (ft)		
Base Capacity (vph)	3034	554
Starvation Cap Reductn	1228	0
Spillback Cap Reductn	4	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.52	0.34
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

31: Aberdeen St & Walnut St

05/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑						↑	
Traffic Volume (vph)	0	0	0	104	439	298	0	0	0	0	86	84
Future Volume (vph)	0	0	0	104	439	298	0	0	0	0	86	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	16	12
Grade (%)		0%			-1%			0%				-3%
Total Lost time (s)					5.0							5.0
Lane Util. Factor					0.91							1.00
Frt					0.95							0.93
Flt Protected					0.99							1.00
Satd. Flow (prot)					4809							1790
Flt Permitted					0.99							1.00
Satd. Flow (perm)					4809							1790
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	116	488	331	0	0	0	0	96	93
RTOR Reduction (vph)	0	0	0	0	99	0	0	0	0	0	35	0
Lane Group Flow (vph)	0	0	0	0	836	0	0	0	0	0	154	0
Parking (#/hr)				1		1						1
Turn Type				Split	NA							NA
Protected Phases				2	2							4
Permitted Phases												
Actuated Green, G (s)					61.0							29.0
Effective Green, g (s)					61.0							29.0
Actuated g/C Ratio					0.61							0.29
Clearance Time (s)					5.0							5.0
Vehicle Extension (s)					3.0							3.0
Lane Grp Cap (vph)					2933							519
v/s Ratio Prot					c0.17							c0.09
v/s Ratio Perm												
v/c Ratio					0.28							0.30
Uniform Delay, d1					9.2							27.6
Progression Factor					0.22							1.00
Incremental Delay, d2					0.2							1.5
Delay (s)					2.2							29.0
Level of Service					A							C
Approach Delay (s)		0.0			2.2			0.0				29.0
Approach LOS		A			A			A				C
Intersection Summary												
HCM 2000 Control Delay			6.7		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.29									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)					10.0		
Intersection Capacity Utilization			61.7%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

32: 4th St/Captial Parking Driveway & Walnut St

05/15/2023



Lane Group	WBT	NBL	SBT
Lane Group Flow (vph)	608	173	6
v/c Ratio	0.38	0.26	0.01
Control Delay	20.0	5.9	7.4
Queue Delay	1.1	0.0	0.0
Total Delay	21.1	5.9	7.4
Queue Length 50th (ft)	78	27	1
Queue Length 95th (ft)	97	73	6
Internal Link Dist (ft)	145		257
Turn Bay Length (ft)			
Base Capacity (vph)	1606	678	990
Starvation Cap Reductn	712	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.68	0.26	0.01
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 32: 4th St/Captial Parking Driveway & Walnut St

05/15/2023

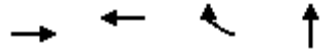


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑↑		↑				↑		
Traffic Volume (vph)	0	0	0	111	412	0	149	0	0	0	3	3	
Future Volume (vph)	0	0	0	111	412	0	149	0	0	0	3	3	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	10	10	10	12	12	12	
Grade (%)		0%			-1%			-3%			0%		
Total Lost time (s)					5.1		5.0				5.0		
Lane Util. Factor					0.91		1.00				1.00		
Frt					1.00		1.00				0.93		
Flt Protected					0.99		0.95				1.00		
Satd. Flow (prot)					4880		1500				1737		
Flt Permitted					0.99		0.75				1.00		
Satd. Flow (perm)					4880		1191				1737		
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Adj. Flow (vph)	0	0	0	129	479	0	173	0	0	0	3	3	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	1	0	
Lane Group Flow (vph)	0	0	0	0	608	0	173	0	0	0	5	0	
Parking (#/hr)				1	1		1						
Turn Type				Perm	NA		D.Pm				NA		
Protected Phases					2						3		
Permitted Phases				2			3						
Actuated Green, G (s)					32.9		57.0				57.0		
Effective Green, g (s)					32.9		57.0				57.0		
Actuated g/C Ratio					0.33		0.57				0.57		
Clearance Time (s)					5.1		5.0				5.0		
Vehicle Extension (s)					3.0		3.0				3.0		
Lane Grp Cap (vph)					1605		678				990		
v/s Ratio Prot											0.00		
v/s Ratio Perm					0.12		c0.15						
v/c Ratio					0.38		0.26				0.00		
Uniform Delay, d1					25.7		10.8				9.3		
Progression Factor					0.75		0.45				1.00		
Incremental Delay, d2					0.7		0.8				0.0		
Delay (s)					19.9		5.7				9.3		
Level of Service					B		A				A		
Approach Delay (s)		0.0			19.9			5.7			9.3		
Approach LOS		A			B			A			A		
Intersection Summary													
HCM 2000 Control Delay			16.7		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.30										
Actuated Cycle Length (s)			100.0		Sum of lost time (s)					10.1			
Intersection Capacity Utilization			97.6%		ICU Level of Service					F			
Analysis Period (min)			15										
c Critical Lane Group													

Queues

44: 2nd St & Chestnut St

05/15/2023



Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	149	76	109	1911
v/c Ratio	0.28	0.24	0.38	0.78
Control Delay	21.5	40.6	44.0	22.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	21.5	40.6	44.0	22.7
Queue Length 50th (ft)	84	50	75	347
Queue Length 95th (ft)	142	95	130	411
Internal Link Dist (ft)	425	433		446
Turn Bay Length (ft)				
Base Capacity (vph)	534	313	289	2436
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.28	0.24	0.38	0.78

Intersection Summary

HCM Signalized Intersection Capacity Analysis

44: 2nd St & Chestnut St

05/15/2023



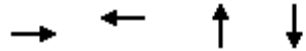
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↑	↗		↖	↖			
Traffic Volume (vph)	48	95	0	0	73	105	66	1439	329	0	0	0
Future Volume (vph)	48	95	0	0	73	105	66	1439	329	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	16	12	12	12	12	12	12
Grade (%)		0%			0%			1%			0%	
Total Lost time (s)		6.1			6.1	6.1		5.5				
Lane Util. Factor		1.00			1.00	1.00		0.91				
Frt		1.00			1.00	0.85		0.97				
Flt Protected		0.98			1.00	1.00		1.00				
Satd. Flow (prot)		1530			1739	1606		4743				
Flt Permitted		0.90			1.00	1.00		1.00				
Satd. Flow (perm)		1397			1739	1606		4743				
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)	50	99	0	0	76	109	69	1499	343	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	149	0	0	76	109	0	1911	0	0	0	0
Parking (#/hr)		1				1	1	1	1			
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)		37.0			18.0	18.0		51.4				
Effective Green, g (s)		37.0			18.0	18.0		51.4				
Actuated g/C Ratio		0.37			0.18	0.18		0.51				
Clearance Time (s)		6.1			6.1	6.1		5.5				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		534			313	289		2437				
v/s Ratio Prot		c0.04			0.04							
v/s Ratio Perm		0.07				c0.07		0.40				
v/c Ratio		0.28			0.24	0.38		0.78				
Uniform Delay, d1		22.1			35.2	36.1		19.8				
Progression Factor		0.90			1.09	1.10		1.00				
Incremental Delay, d2		1.2			1.8	3.7		2.6				
Delay (s)		21.2			40.0	43.3		22.4				
Level of Service		C			D	D		C				
Approach Delay (s)		21.2			41.9			22.4			0.0	
Approach LOS		C			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.7
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		
c	Critical Lane Group		

Queues

45: 3rd St & Chestnut St

05/15/2023



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	217	156	53	159
v/c Ratio	0.25	0.09	0.10	0.32
Control Delay	14.5	6.8	23.8	25.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	14.5	6.8	23.8	25.0
Queue Length 50th (ft)	73	14	23	62
Queue Length 95th (ft)	m112	22	49	79
Internal Link Dist (ft)	433	412	443	437
Turn Bay Length (ft)				
Base Capacity (vph)	857	1716	509	494
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.25	0.09	0.10	0.32

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

45: 3rd St & Chestnut St

05/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑↑			↕			↕	
Traffic Volume (vph)	0	187	0	0	134	0	15	0	31	62	0	75
Future Volume (vph)	0	187	0	0	134	0	15	0	31	62	0	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	16	16	16	16	16	16
Grade (%)		1%			2%			3%			0%	
Total Lost time (s)		5.6			5.6			5.6			5.6	
Lane Util. Factor		1.00			0.95			1.00			1.00	
Frt		1.00			1.00			0.91			0.93	
Flt Protected		1.00			1.00			0.98			0.98	
Satd. Flow (prot)		1548			3099			1664			1711	
Flt Permitted		1.00			1.00			0.90			0.85	
Satd. Flow (perm)		1548			3099			1525			1480	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	217	0	0	156	0	17	0	36	72	0	87
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	217	0	0	156	0	0	53	0	0	159	0
Parking (#/hr)		1			1		1	1	1	1	1	1
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)		55.4			55.4			33.4			33.4	
Effective Green, g (s)		55.4			55.4			33.4			33.4	
Actuated g/C Ratio		0.55			0.55			0.33			0.33	
Clearance Time (s)		5.6			5.6			5.6			5.6	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		857			1716			509			494	
v/s Ratio Prot		c0.14			0.05							
v/s Ratio Perm								0.03			c0.11	
v/c Ratio		0.25			0.09			0.10			0.32	
Uniform Delay, d1		11.6			10.5			23.0			24.8	
Progression Factor		1.18			0.63			1.00			0.92	
Incremental Delay, d2		0.5			0.1			0.4			1.7	
Delay (s)		14.2			6.7			23.4			24.4	
Level of Service		B			A			C			C	
Approach Delay (s)		14.2			6.7			23.4			24.4	
Approach LOS		B			A			C			C	

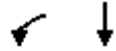
Intersection Summary

HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	31.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

46: N.Front St & Chestnut St

05/15/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	146	1333
v/c Ratio	0.46	0.39
Control Delay	31.2	6.0
Queue Delay	0.0	0.0
Total Delay	31.2	6.0
Queue Length 50th (ft)	48	143
Queue Length 95th (ft)	m71	174
Internal Link Dist (ft)	425	455
Turn Bay Length (ft)		
Base Capacity (vph)	320	3427
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.46	0.39

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

46: N.Front St & Chestnut St

05/15/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰					↱↱↱
Traffic Volume (vph)	133	0	0	0	223	990
Future Volume (vph)	133	0	0	0	223	990
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11
Grade (%)	-1%		0%			-1%
Total Lost time (s)	5.0					5.0
Lane Util. Factor	1.00					0.91
Frt	1.00					1.00
Flt Protected	0.95					0.99
Satd. Flow (prot)	1601					4895
Flt Permitted	0.95					0.99
Satd. Flow (perm)	1601					4895
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	146	0	0	0	245	1088
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	146	0	0	0	0	1333
Parking (#/hr)	0					
Turn Type	Prot				Perm	NA
Protected Phases	8					6
Permitted Phases					6	
Actuated Green, G (s)	20.0					70.0
Effective Green, g (s)	20.0					70.0
Actuated g/C Ratio	0.20					0.70
Clearance Time (s)	5.0					5.0
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	320					3426
v/s Ratio Prot	c0.09					
v/s Ratio Perm						0.27
v/c Ratio	0.46					0.39
Uniform Delay, d1	35.2					6.2
Progression Factor	0.75					0.91
Incremental Delay, d2	4.1					0.3
Delay (s)	30.6					5.9
Level of Service	C					A
Approach Delay (s)	30.6		0.0			5.9
Approach LOS	C		A			A

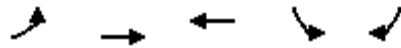
Intersection Summary

HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

1: Market St & S. Front St

05/15/2023



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	460	388	303	255	304
v/c Ratio	0.66	0.18	0.47	0.66	0.25
Control Delay	24.4	7.0	19.4	33.9	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.4	7.0	19.4	33.9	1.2
Queue Length 50th (ft)	152	35	40	100	0
Queue Length 95th (ft)	285	59	77	185	22
Internal Link Dist (ft)		522	1732	480	
Turn Bay Length (ft)	400			340	
Base Capacity (vph)	854	2784	1210	512	1339
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.54	0.14	0.25	0.50	0.23

Intersection Summary

HCM Signalized Intersection Capacity Analysis

1: Market St & S. Front St

05/15/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑↑	↑↑		↙	↗
Traffic Volume (vph)	409	345	174	95	227	271
Future Volume (vph)	409	345	174	95	227	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	16	13	11	12	11	14
Grade (%)		-2%	-4%		-1%	
Total Lost time (s)	4.0	6.4	6.4		6.2	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	2026	3694	3305		1719	1697
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	2026	3694	3305		1719	1697
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	460	388	196	107	255	304
RTOR Reduction (vph)	0	0	89	0	0	129
Lane Group Flow (vph)	460	388	214	0	255	175
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	2	1 2	1		4	2
Permitted Phases						4
Actuated Green, G (s)	22.8	38.0	11.2		14.8	37.6
Effective Green, g (s)	22.8	34.0	11.2		14.8	37.6
Actuated g/C Ratio	0.35	0.52	0.17		0.23	0.57
Clearance Time (s)	4.0		6.4		6.2	4.0
Vehicle Extension (s)	4.0		4.0		3.0	4.0
Lane Grp Cap (vph)	706	1920	565		389	975
v/s Ratio Prot	c0.23	0.11	c0.06		c0.15	0.06
v/s Ratio Perm						0.04
v/c Ratio	0.65	0.20	0.38		0.66	0.18
Uniform Delay, d1	18.0	8.4	24.0		23.0	6.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.4	0.1	0.6		3.9	0.1
Delay (s)	20.3	8.5	24.6		26.9	6.7
Level of Service	C	A	C		C	A
Approach Delay (s)		14.9	24.6		15.9	
Approach LOS		B	C		B	

Intersection Summary

HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	65.4	Sum of lost time (s)	16.6
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

5: Market St & City Island Ramp

05/15/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Volume (veh/h)	0	572	265	36	0	4
Future Volume (Veh/h)	0	572	265	36	0	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	636	294	40	0	4
Pedestrians		6				
Lane Width (ft)		12.0				
Walking Speed (ft/s)		3.5				
Percent Blockage		1				
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	334				632	173
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	334				632	173
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1222				413	836
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	318	318	196	138	4	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	40	4	
cSH	1700	1700	1700	1700	836	
Volume to Capacity	0.19	0.19	0.12	0.08	0.00	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	0.0	0.0	0.0	0.0	9.3	
Lane LOS					A	
Approach Delay (s)	0.0		0.0		9.3	
Approach LOS					A	
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			27.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

7: City Island Ramp & Market St

05/15/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	542	30	0	301	0	18
Future Volume (Veh/h)	542	30	0	301	0	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	602	33	0	334	0	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			635		786	318
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			635		786	318
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			944		329	678
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	401	234	167	167	20	
Volume Left	0	0	0	0	0	
Volume Right	0	33	0	0	20	
cSH	1700	1700	1700	1700	678	
Volume to Capacity	0.24	0.14	0.10	0.10	0.03	
Queue Length 95th (ft)	0	0	0	0	2	
Control Delay (s)	0.0	0.0	0.0	0.0	10.5	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		10.5	
Approach LOS					B	
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			25.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

28: Aberdeen St & Market St

05/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖					↗		↖	
Traffic Volume (veh/h)	0	595	5	5	0	0	0	0	0	67	8	0
Future Volume (Veh/h)	0	595	5	5	0	0	0	0	0	67	8	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	654	5	5	0	0	0	0	0	74	9	0
Pedestrians					89			37				
Lane Width (ft)					12.0			12.0				
Walking Speed (ft/s)					3.5			3.5				
Percent Blockage					8			4				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		244			245							
pX, platoon unblocked				0.93			0.93	0.93	0.93	0.93	0.93	
vC, conflicting volume	0			696			708	704	346	317	706	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			416			429	424	41	9	427	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	91	98	100
cM capacity (veh/h)	1622			1024			438	465	840	833	464	1084

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	NB 1	SB 1
Volume Total	262	262	136	5	0	83
Volume Left	0	0	0	5	0	74
Volume Right	0	0	5	0	0	0
cSH	1700	1700	1700	1024	1700	766
Volume to Capacity	0.15	0.15	0.08	0.00	0.00	0.11
Queue Length 95th (ft)	0	0	0	0	0	9
Control Delay (s)	0.0	0.0	0.0	8.5	0.0	10.3
Lane LOS				A	A	B
Approach Delay (s)	0.0			8.5	0.0	10.3
Approach LOS				A	A	B

Intersection Summary

Average Delay	1.2
Intersection Capacity Utilization	37.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

52: 10th St & Market St

05/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	10	204	30	51	359	10	2	0	10	4	2	13
Future Volume (Veh/h)	10	204	30	51	359	10	2	0	10	4	2	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	11	234	34	59	413	11	2	0	11	5	2	15
Pedestrians					14						3	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						0	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		906			385							
pX, platoon unblocked												
vC, conflicting volume	427			268			614	818	148	704	830	215
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	427			268			614	818	148	704	830	215
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			99	100	99	98	99	98
cM capacity (veh/h)	1126			1293			351	291	860	301	287	788

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	128	151	266	218	13	22
Volume Left	11	0	59	0	2	5
Volume Right	0	34	0	11	11	15
cSH	1126	1700	1293	1700	703	516
Volume to Capacity	0.01	0.09	0.05	0.13	0.02	0.04
Queue Length 95th (ft)	1	0	4	0	1	3
Control Delay (s)	0.8	0.0	2.1	0.0	10.2	12.3
Lane LOS	A		A		B	B
Approach Delay (s)	0.4		1.1		10.2	12.3
Approach LOS					B	B

Intersection Summary

Average Delay	1.3
Intersection Capacity Utilization	35.8%
ICU Level of Service	A
Analysis Period (min)	15

Synchro PM Peak Results

Queues

42: Cameron St & Market St

05/16/2023



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	517	119	97	59	928	109	753
v/c Ratio	0.72	0.43	0.19	0.15	0.58	0.33	0.44
Control Delay	36.2	35.7	0.9	9.8	21.7	11.4	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.2	35.7	0.9	9.8	21.7	11.4	17.7
Queue Length 50th (ft)	143	64	0	13	211	25	156
Queue Length 95th (ft)	181	107	2	35	337	58	243
Internal Link Dist (ft)	305	673			343		286
Turn Bay Length (ft)				250		220	
Base Capacity (vph)	953	301	547	395	1612	354	1730
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.40	0.18	0.15	0.58	0.31	0.44

Intersection Summary

HCM Signalized Intersection Capacity Analysis

42: Cameron St & Market St

05/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕	↕	↕	↕↕		↕	↕↕	
Traffic Volume (vph)	166	195	130	35	78	92	56	806	76	104	680	35
Future Volume (vph)	166	195	130	35	78	92	56	806	76	104	680	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	11	12	10	11	12	10	11	12
Grade (%)		3%			-2%			2%			4%	
Total Lost time (s)		6.0			6.7	6.7	5.7	6.8		5.7	6.9	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.96			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3292			1791	1599	1635	3343		1619	3328	
Flt Permitted		0.81			0.63	1.00	0.33	1.00		0.21	1.00	
Satd. Flow (perm)		2699			1140	1599	574	3343		366	3328	
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)	175	205	137	37	82	97	59	848	80	109	716	37
RTOR Reduction (vph)	0	41	0	0	0	73	0	6	0	0	3	0
Lane Group Flow (vph)	0	476	0	0	119	24	59	922	0	109	750	0
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)		25.0			24.3	24.3	53.7	48.0		59.2	50.7	
Effective Green, g (s)		25.0			24.3	24.3	53.7	48.0		59.2	50.7	
Actuated g/C Ratio		0.25			0.24	0.24	0.54	0.48		0.59	0.51	
Clearance Time (s)		6.0			6.7	6.7	5.7	6.8		5.7	6.9	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		674			277	388	368	1604		323	1687	
v/s Ratio Prot							0.01	c0.28		c0.03	c0.23	
v/s Ratio Perm		c0.18			0.10	0.01	0.08			0.17		
v/c Ratio		0.71			0.43	0.06	0.16	0.57		0.34	0.44	
Uniform Delay, d1		34.2			32.0	29.1	11.2	18.7		10.4	15.7	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.4			1.1	0.1	0.2	1.5		0.6	0.9	
Delay (s)		37.5			33.1	29.1	11.4	20.2		11.0	16.5	
Level of Service		D			C	C	B	C		B	B	
Approach Delay (s)		37.5			31.3			19.7			15.8	
Approach LOS		D			C			B			B	

Intersection Summary

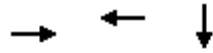
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	25.3
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

4: N.Front St & Market St

05/15/2023



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	586	380	2225
v/c Ratio	0.61	0.37	0.73
Control Delay	36.6	31.5	10.4
Queue Delay	0.0	0.0	0.0
Total Delay	36.6	31.5	10.5
Queue Length 50th (ft)	193	163	220
Queue Length 95th (ft)	255	215	181
Internal Link Dist (ft)	2011	397	440
Turn Bay Length (ft)			
Base Capacity (vph)	966	1018	3028
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	57
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.61	0.37	0.75
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

4: N.Front St & Market St

05/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑						↑↑↑	
Traffic Volume (vph)	0	265	263	0	342	0	0	0	0	90	1470	443
Future Volume (vph)	0	265	263	0	342	0	0	0	0	90	1470	443
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	12	10	12	12	12	12	13	12	13
Grade (%)		-1%			0%			0%				0%
Total Lost time (s)		5.0			5.0							5.0
Lane Util. Factor		0.95			0.95							0.91
Frt		0.93			1.00							0.97
Flt Protected		1.00			1.00							1.00
Satd. Flow (prot)		3072			3303							4906
Flt Permitted		1.00			1.00							1.00
Satd. Flow (perm)		3072			3303							4906
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	294	292	0	380	0	0	0	0	100	1633	492
RTOR Reduction (vph)	0	20	0	0	0	0	0	0	0	0	43	0
Lane Group Flow (vph)	0	566	0	0	380	0	0	0	0	0	2182	0
Turn Type		NA			NA					Perm		NA
Protected Phases		2			2							1
Permitted Phases										1		
Actuated Green, G (s)		37.0			37.0							73.0
Effective Green, g (s)		37.0			37.0							73.0
Actuated g/C Ratio		0.31			0.31							0.61
Clearance Time (s)		5.0			5.0							5.0
Vehicle Extension (s)		3.0			3.0							3.0
Lane Grp Cap (vph)		947			1018							2984
v/s Ratio Prot		c0.18			0.12							
v/s Ratio Perm												0.44
v/c Ratio		0.60			0.37							0.73
Uniform Delay, d1		35.2			32.4							16.6
Progression Factor		1.00			0.93							0.57
Incremental Delay, d2		2.8			0.9							1.4
Delay (s)		38.0			31.2							10.8
Level of Service		D			C							B
Approach Delay (s)		38.0			31.2			0.0				10.8
Approach LOS		D			C			A				B

Intersection Summary

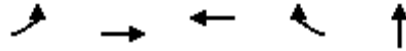
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues

9: Greyhound Driveway/5th St & Market St

05/17/2023



Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	326	488	104	102	4
v/c Ratio	0.41	0.20	0.29	0.27	0.04
Control Delay	26.5	7.7	13.4	6.3	55.0
Queue Delay	0.8	0.0	0.0	0.0	0.0
Total Delay	27.4	7.7	13.4	6.3	55.0
Queue Length 50th (ft)	163	60	9	0	3
Queue Length 95th (ft)	294	117	61	34	15
Internal Link Dist (ft)		165	826		109
Turn Bay Length (ft)					
Base Capacity (vph)	792	2496	358	379	98
Starvation Cap Reductn	230	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.58	0.20	0.29	0.27	0.04

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: Greyhound Driveway/5th St & Market St

05/17/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑			↘	↗		↕				
Traffic Volume (vph)	293	439	0	0	13	173	0	2	2	0	0	0
Future Volume (vph)	293	439	0	0	13	173	0	2	2	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	12	12	12	12	12	12	12	12	12
Grade (%)		-6%			6%			-10%			0%	
Total Lost time (s)	7.0	7.0			7.0	7.0		7.5				
Lane Util. Factor	1.00	0.95			0.95	0.95		1.00				
Frt	1.00	1.00			0.87	0.85		0.93				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1823	3645			1494	1459		1824				
Flt Permitted	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (perm)	1823	3645			1494	1459		1824				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	326	488	0	0	14	192	0	2	2	0	0	0
RTOR Reduction (vph)	0	0	0	0	77	88	0	0	0	0	0	0
Lane Group Flow (vph)	326	488	0	0	27	14	0	4	0	0	0	0
Turn Type	Prot	NA			NA	Prot		NA				
Protected Phases	1	6			2	2	3	3				
Permitted Phases							3					
Actuated Green, G (s)	52.2	76.2			17.0	17.0		1.3				
Effective Green, g (s)	52.2	76.2			17.0	17.0		1.3				
Actuated g/C Ratio	0.44	0.64			0.14	0.14		0.01				
Clearance Time (s)	7.0	7.0			7.0	7.0		7.5				
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)	793	2314			211	206		19				
v/s Ratio Prot	c0.18	c0.13			0.02	0.01		c0.00				
v/s Ratio Perm												
v/c Ratio	0.41	0.21			0.13	0.07		0.21				
Uniform Delay, d1	23.3	9.2			45.0	44.6		58.8				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	1.6	0.2			1.2	0.7		5.5				
Delay (s)	24.9	9.4			46.2	45.3		64.3				
Level of Service	C	A			D	D		E				
Approach Delay (s)		15.6			45.8			64.3			0.0	
Approach LOS		B			D			E			A	

Intersection Summary

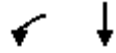
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues

10: N.Front St & Walnut St

05/15/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	728	1449
v/c Ratio	0.64	0.51
Control Delay	9.8	17.1
Queue Delay	0.0	0.0
Total Delay	9.8	17.1
Queue Length 50th (ft)	37	242
Queue Length 95th (ft)	80	282
Internal Link Dist (ft)	439	727
Turn Bay Length (ft)		
Base Capacity (vph)	1133	2853
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.64	0.51
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

10: N.Front St & Walnut St

05/15/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙↘					↑↑↑
Traffic Volume (vph)	670	0	0	0	0	1333
Future Volume (vph)	670	0	0	0	0	1333
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12
Grade (%)	-1%		0%		-1%	
Total Lost time (s)	5.0				5.0	
Lane Util. Factor	0.97				0.91	
Frt	1.00				1.00	
Flt Protected	0.95				1.00	
Satd. Flow (prot)	3051				5111	
Flt Permitted	0.95				1.00	
Satd. Flow (perm)	3051				5111	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	728	0	0	0	0	1449
RTOR Reduction (vph)	40	0	0	0	0	0
Lane Group Flow (vph)	688	0	0	0	0	1449
Parking (#/hr)	1					
Turn Type	Prot				NA	
Protected Phases	3				2	
Permitted Phases						
Actuated Green, G (s)	43.0				67.0	
Effective Green, g (s)	43.0				67.0	
Actuated g/C Ratio	0.36				0.56	
Clearance Time (s)	5.0				5.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	1093				2853	
v/s Ratio Prot	c0.23				c0.28	
v/s Ratio Perm						
v/c Ratio	0.63				0.51	
Uniform Delay, d1	31.9				16.3	
Progression Factor	0.25				1.00	
Incremental Delay, d2	2.5				0.6	
Delay (s)	10.4				17.0	
Level of Service	B				B	
Approach Delay (s)	10.4		0.0			17.0
Approach LOS	B		A			B
Intersection Summary						
HCM 2000 Control Delay			14.8		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.56			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			92.8%		ICU Level of Service	F
Analysis Period (min)	15					
c Critical Lane Group						

Queues

15: 2nd St & Walnut St

05/15/2023



Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	613	69	957
v/c Ratio	0.51	0.12	0.52
Control Delay	17.4	2.4	12.8
Queue Delay	0.0	0.0	0.0
Total Delay	17.4	2.4	12.8
Queue Length 50th (ft)	101	0	68
Queue Length 95th (ft)	121	5	80
Internal Link Dist (ft)	194		432
Turn Bay Length (ft)			
Base Capacity (vph)	1206	583	1857
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.51	0.12	0.52
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

15: 2nd St & Walnut St

05/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑↑↑				
Traffic Volume (vph)	0	0	0	0	576	65	71	828	0	0	0	0
Future Volume (vph)	0	0	0	0	576	65	71	828	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	11	11	10	12	12	12
Grade (%)		0%			-1%			1%			0%	
Total Lost time (s)					5.4	5.4		5.0				
Lane Util. Factor					0.95	1.00		0.91				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		1.00				
Satd. Flow (prot)					3320	1485		4872				
Flt Permitted					1.00	1.00		1.00				
Satd. Flow (perm)					3320	1485		4872				
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	0	613	69	76	881	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	44	0	31	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	613	25	0	926	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					43.6	43.6		45.0				
Effective Green, g (s)					43.6	43.6		45.0				
Actuated g/C Ratio					0.36	0.36		0.38				
Clearance Time (s)					5.4	5.4		5.0				
Vehicle Extension (s)					3.0	3.0		3.0				
Lane Grp Cap (vph)					1206	539		1827				
v/s Ratio Prot					c0.18							
v/s Ratio Perm						0.02		0.19				
v/c Ratio					0.51	0.05		0.51				
Uniform Delay, d1					29.8	24.7		28.9				
Progression Factor					0.53	0.33		0.43				
Incremental Delay, d2					1.5	0.2		0.9				
Delay (s)					17.3	8.2		13.3				
Level of Service					B	A		B				
Approach Delay (s)		0.0			16.4			13.3			0.0	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			14.6		HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)				13.4			
Intersection Capacity Utilization			69.2%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

16: 2nd St & Market St

05/15/2023



Lane Group	EBT	NBL	NBT
Lane Group Flow (vph)	362	349	896
v/c Ratio	2.26dl	0.52	0.48
Control Delay	38.6	17.2	15.2
Queue Delay	0.0	0.3	0.0
Total Delay	38.6	17.5	15.2
Queue Length 50th (ft)	65	87	81
Queue Length 95th (ft)	92	116	95
Internal Link Dist (ft)	397		236
Turn Bay Length (ft)			
Base Capacity (vph)	531	675	1869
Starvation Cap Reductn	0	63	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.68	0.57	0.48

Intersection Summary

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

HCM Signalized Intersection Capacity Analysis

16: 2nd St & Market St

05/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↑			↑		↔	↑↑↑				
Traffic Volume (vph)	137	218	0	0	0	0	342	666	212	0	0	0
Future Volume (vph)	137	218	0	0	0	0	342	666	212	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			1%			0%	
Total Lost time (s)		6.0					6.0	6.0				
Lane Util. Factor		0.95					1.00	0.91				
Frt		1.00					1.00	0.96				
Flt Protected		0.98					0.95	1.00				
Satd. Flow (prot)		3472					1761	4877				
Flt Permitted		0.60					0.95	1.00				
Satd. Flow (perm)		2128					1761	4877				
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)	140	222	0	0	0	0	349	680	216	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	362	0	0	0	0	349	896	0	0	0	0
Turn Type	Perm	NA					Perm	NA				
Protected Phases		4			8 3			2				
Permitted Phases	4						2					
Actuated Green, G (s)		25.2					42.8	42.8				
Effective Green, g (s)		25.2					42.8	42.8				
Actuated g/C Ratio		0.21					0.36	0.36				
Clearance Time (s)		6.0					6.0	6.0				
Vehicle Extension (s)		3.0					3.0	3.0				
Lane Grp Cap (vph)		446					628	1739				
v/s Ratio Prot								0.18				
v/s Ratio Perm		c0.17					c0.20					
v/c Ratio		2.26dl					0.56	0.52				
Uniform Delay, d1		45.1					31.0	30.4				
Progression Factor		0.60					0.51	0.51				
Incremental Delay, d2		8.4					3.1	1.0				
Delay (s)		35.6					18.8	16.6				
Level of Service		D					B	B				
Approach Delay (s)		35.6			0.0		17.2				0.0	
Approach LOS		D			A		B				A	

Intersection Summary

HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	39.0%	ICU Level of Service	A
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Queues

21: 3rd St & Market St

05/15/2023



Lane Group	EBT	SBT
Lane Group Flow (vph)	462	271
v/c Ratio	0.23	0.30
Control Delay	17.2	13.0
Queue Delay	0.0	0.0
Total Delay	17.2	13.0
Queue Length 50th (ft)	66	68
Queue Length 95th (ft)	85	96
Internal Link Dist (ft)	324	433
Turn Bay Length (ft)		
Base Capacity (vph)	2009	910
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.23	0.30
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

21: 3rd St & Market St

05/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑↑									↔		
Traffic Volume (vph)	0	400	30	0	0	0	0	0	0	131	121	0	
Future Volume (vph)	0	400	30	0	0	0	0	0	0	131	121	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	11	11	11	12	12	12	12	12	12	12	16	12	
Grade (%)		-1%			0%			0%				0%	
Total Lost time (s)		5.7										5.7	
Lane Util. Factor		0.91										1.00	
Frt		0.99										1.00	
Flt Protected		1.00										0.97	
Satd. Flow (prot)		4889										1842	
Flt Permitted		1.00										0.97	
Satd. Flow (perm)		4889										1842	
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	430	32	0	0	0	0	0	0	141	130	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	462	0	0	0	0	0	0	0	0	271	0	
Parking (#/hr)												1	
Turn Type		NA								Split	NA		
Protected Phases		2								4	4		
Permitted Phases													
Actuated Green, G (s)		49.3										59.3	
Effective Green, g (s)		49.3										59.3	
Actuated g/C Ratio		0.41										0.49	
Clearance Time (s)		5.7										5.7	
Vehicle Extension (s)		3.0										3.0	
Lane Grp Cap (vph)		2008										910	
v/s Ratio Prot		c0.09										c0.15	
v/s Ratio Perm													
v/c Ratio		0.23										0.30	
Uniform Delay, d1		23.0										18.0	
Progression Factor		0.73										0.67	
Incremental Delay, d2		0.3										0.8	
Delay (s)		17.1										12.8	
Level of Service		B										B	
Approach Delay (s)		17.1			0.0			0.0				12.8	
Approach LOS		B			A			A				B	
Intersection Summary													
HCM 2000 Control Delay			15.5									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.28										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	17.4
Intersection Capacity Utilization			31.5%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

22: 3rd St & Walnut St

05/17/2023



Lane Group	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	520	198	196	129
v/c Ratio	0.38	0.30	0.24	0.18
Control Delay	20.8	8.1	21.2	20.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	20.8	8.1	21.2	20.4
Queue Length 50th (ft)	181	88	91	58
Queue Length 95th (ft)	244	149	143	99
Internal Link Dist (ft)	408		564	
Turn Bay Length (ft)				
Base Capacity (vph)	1352	650	819	719
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.38	0.30	0.24	0.18
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

22: 3rd St & Walnut St

05/17/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↕↕	↗					↕	↗	
Traffic Volume (vph)	0	0	0	76	413	186	0	0	0	0	184	121	
Future Volume (vph)	0	0	0	76	413	186	0	0	0	0	184	121	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12	
Grade (%)		0%			-1%			0%			-1%		
Total Lost time (s)					5.7	5.7					5.7	5.7	
Lane Util. Factor					0.95	1.00					1.00	1.00	
Frt					1.00	0.85					1.00	0.85	
Flt Protected					0.99	1.00					1.00	1.00	
Satd. Flow (prot)					3529	1424					1810	1591	
Flt Permitted					0.99	1.00					1.00	1.00	
Satd. Flow (perm)					3529	1424					1810	1591	
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	81	439	198	0	0	0	0	196	129	
RTOR Reduction (vph)	0	0	0	0	50	125	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	470	73	0	0	0	0	196	129	
Parking (#/hr)				1		1							
Turn Type				Perm	NA	Perm					NA	Perm	
Protected Phases					4						2		
Permitted Phases				4		4						2	
Actuated Green, G (s)					44.3	44.3					54.3	54.3	
Effective Green, g (s)					44.3	44.3					54.3	54.3	
Actuated g/C Ratio					0.37	0.37					0.45	0.45	
Clearance Time (s)					5.7	5.7					5.7	5.7	
Vehicle Extension (s)					3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)					1302	525					819	719	
v/s Ratio Prot											c0.11		
v/s Ratio Perm					0.13	0.05						0.08	
v/c Ratio					0.36	0.14					0.24	0.18	
Uniform Delay, d1					27.5	25.2					20.2	19.6	
Progression Factor					0.85	1.93					1.00	1.00	
Incremental Delay, d2					0.8	0.5					0.7	0.5	
Delay (s)					24.2	49.2					20.9	20.1	
Level of Service					C	D					C	C	
Approach Delay (s)		0.0			31.1			0.0			20.6		
Approach LOS		A			C			A			C		
Intersection Summary													
HCM 2000 Control Delay				27.8	HCM 2000 Level of Service							C	
HCM 2000 Volume to Capacity ratio				0.28									
Actuated Cycle Length (s)				120.0	Sum of lost time (s)						17.4		
Intersection Capacity Utilization				68.1%	ICU Level of Service						C		
Analysis Period (min)				15									
c	Critical Lane Group												

Queues

26: 4th St & Market St

05/15/2023



Lane Group	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	640	244	35	136
v/c Ratio	0.42	0.32	0.09	0.19
Control Delay	27.8	13.6	19.0	19.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	27.8	13.6	19.0	19.8
Queue Length 50th (ft)	115	62	13	54
Queue Length 95th (ft)	136	104	31	87
Internal Link Dist (ft)	407	432		435
Turn Bay Length (ft)				
Base Capacity (vph)	1509	758	385	709
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.42	0.32	0.09	0.19

Intersection Summary

HCM Signalized Intersection Capacity Analysis

26: 4th St & Market St

05/15/2023



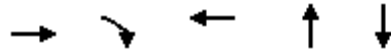
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↔		↕	↔	
Traffic Volume (vph)	53	437	41	0	0	0	0	81	121	29	113	0
Future Volume (vph)	53	437	41	0	0	0	0	81	121	29	113	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	12	12	10	10	12
Grade (%)		0%			0%			-1%			1%	
Total Lost time (s)		5.0						5.0		5.0	5.0	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frt		0.99						0.92		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		4835						1721		1643	1730	
Flt Permitted		1.00						1.00		0.54	1.00	
Satd. Flow (perm)		4835						1721		942	1730	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	64	527	49	0	0	0	0	98	146	35	136	0
RTOR Reduction (vph)	0	10	0	0	0	0	0	54	0	0	0	0
Lane Group Flow (vph)	0	630	0	0	0	0	0	190	0	35	136	0
Parking (#/hr)	1											
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		31.0						41.0		41.0	41.0	
Effective Green, g (s)		31.0						41.0		41.0	41.0	
Actuated g/C Ratio		0.31						0.41		0.41	0.41	
Clearance Time (s)		5.0						5.0		5.0	5.0	
Vehicle Extension (s)		3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)		1498						705		386	709	
v/s Ratio Prot								c0.11			0.08	
v/s Ratio Perm		0.13								0.04		
v/c Ratio		0.42						0.27		0.09	0.19	
Uniform Delay, d1		27.4						19.6		18.1	18.9	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.9						0.9		0.5	0.6	
Delay (s)		28.2						20.5		18.5	19.5	
Level of Service		C						C		B	B	
Approach Delay (s)		28.2			0.0			20.5			19.3	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues

27: 4th St & Chestnut St/Amtrak Driveway

05/15/2023



Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	177	155	52	156	204
v/c Ratio	0.71	0.34	0.15	0.13	0.19
Control Delay	70.5	18.1	37.1	6.1	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	70.5	18.1	37.1	6.1	5.4
Queue Length 50th (ft)	143	34	33	31	34
Queue Length 95th (ft)	135	35	57	62	69
Internal Link Dist (ft)	412		305	245	432
Turn Bay Length (ft)					
Base Capacity (vph)	456	713	622	1215	1081
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.39	0.22	0.08	0.13	0.19

Intersection Summary

HCM Signalized Intersection Capacity Analysis

27: 4th St & Chestnut St/Amtrak Driveway

05/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕			↕	
Traffic Volume (vph)	118	27	127	7	34	2	53	67	7	11	94	62
Future Volume (vph)	118	27	127	7	34	2	53	67	7	11	94	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	16	12	12	12	14	14	14	11	11	11
Grade (%)		5%			-3%			-8%			4%	
Total Lost time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.99			0.99			0.95	
Flt Protected		0.96	1.00		0.99			0.98			1.00	
Satd. Flow (prot)		1629	1750		1865			2008			1495	
Flt Permitted		0.77	1.00		0.94			0.82			0.98	
Satd. Flow (perm)		1305	1750		1775			1673			1474	
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	144	33	155	9	41	2	65	82	9	13	115	76
RTOR Reduction (vph)	0	0	125	0	2	0	0	1	0	0	11	0
Lane Group Flow (vph)	0	177	30	0	50	0	0	155	0	0	193	0
Parking (#/hr)										1	1	1
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		22.9	22.9		22.9			87.1			87.1	
Effective Green, g (s)		22.9	22.9		22.9			87.1			87.1	
Actuated g/C Ratio		0.19	0.19		0.19			0.73			0.73	
Clearance Time (s)		5.0	5.0		5.0			5.0			5.0	
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)		249	333		338			1214			1069	
v/s Ratio Prot												
v/s Ratio Perm		c0.14	0.02		0.03			0.09			c0.13	
v/c Ratio		0.71	0.09		0.15			0.13			0.18	
Uniform Delay, d1		45.5	40.0		40.4			5.0			5.2	
Progression Factor		1.24	2.91		1.00			1.00			1.00	
Incremental Delay, d2		9.1	0.1		0.2			0.2			0.4	
Delay (s)		65.3	116.6		40.6			5.2			5.6	
Level of Service		E	F		D			A			A	
Approach Delay (s)		89.2			40.6			5.2			5.6	
Approach LOS		F			D			A			A	

Intersection Summary

HCM 2000 Control Delay	45.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

30: 5th St/Forum Driveway & Walnut St

05/15/2023



Lane Group	WBT	NBL	NBR
Lane Group Flow (vph)	276	360	432
v/c Ratio	0.31	0.17	0.43
Control Delay	35.5	0.2	2.7
Queue Delay	0.1	0.0	0.4
Total Delay	35.6	0.2	3.1
Queue Length 50th (ft)	89	0	0
Queue Length 95th (ft)	128	0	46
Internal Link Dist (ft)	349		
Turn Bay Length (ft)			150
Base Capacity (vph)	898	2173	1003
Starvation Cap Reductn	0	0	201
Spillback Cap Reductn	62	120	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.33	0.18	0.54
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 30: 5th St/Forum Driveway & Walnut St

05/15/2023

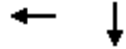


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑		↑↑		↑	↑		↑	
Traffic Volume (vph)	0	0	0	0	248	0	324	0	389	0	0	0	
Future Volume (vph)	0	0	0	0	248	0	324	0	389	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	11	16	11	12	11	12	12	12	
Grade (%)		0%			-1%			7%			0%		
Total Lost time (s)					5.0		5.4		5.4				
Lane Util. Factor					0.95		0.97		1.00				
Frt					1.00		1.00		0.85				
Flt Protected					1.00		0.95		1.00				
Satd. Flow (prot)					3258		3202		1477				
Flt Permitted					1.00		0.95		1.00				
Satd. Flow (perm)					3258		3202		1477				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	0	0	0	0	276	0	360	0	432	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	163	0	196	0	0	0	
Lane Group Flow (vph)	0	0	0	0	276	0	197	0	236	0	0	0	
Parking (#/hr)					1								
Turn Type					NA		Prot		Prot	Prot		Perm	
Protected Phases					2		3		3	4			
Permitted Phases												4	
Actuated Green, G (s)					33.1		65.6		65.6				
Effective Green, g (s)					33.1		65.6		65.6				
Actuated g/C Ratio					0.28		0.55		0.55				
Clearance Time (s)					5.0		5.4		5.4				
Vehicle Extension (s)					3.0		3.0		3.0				
Lane Grp Cap (vph)					898		1750		807				
v/s Ratio Prot					c0.08		0.06		c0.16				
v/s Ratio Perm													
v/c Ratio					0.31		0.11		0.29				
Uniform Delay, d1					34.4		13.1		14.7				
Progression Factor					1.00		1.00		1.00				
Incremental Delay, d2					0.9		0.1		0.9				
Delay (s)					35.3		13.3		15.6				
Level of Service					D		B		B				
Approach Delay (s)		0.0			35.3			14.5			0.0		
Approach LOS		A			D			B			A		
Intersection Summary													
HCM 2000 Control Delay			19.9		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.28										
Actuated Cycle Length (s)			120.0		Sum of lost time (s)					15.8			
Intersection Capacity Utilization			37.6%		ICU Level of Service					A			
Analysis Period (min)			15										
c Critical Lane Group													

Queues

31: Aberdeen St & Walnut St

05/15/2023



Lane Group	WBT	SBT
Lane Group Flow (vph)	629	279
v/c Ratio	0.34	0.27
Control Delay	27.8	8.6
Queue Delay	1.6	0.0
Total Delay	29.5	8.6
Queue Length 50th (ft)	143	59
Queue Length 95th (ft)	182	108
Internal Link Dist (ft)	172	900
Turn Bay Length (ft)		
Base Capacity (vph)	1848	1016
Starvation Cap Reductn	998	0
Spillback Cap Reductn	38	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.74	0.27
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

31: Aberdeen St & Walnut St

05/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					←↑↑↑						↑		
Traffic Volume (vph)	0	0	0	37	403	132	0	0	0	0	91	163	
Future Volume (vph)	0	0	0	37	403	132	0	0	0	0	91	163	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	12	16	12	12	16	12	
Grade (%)		0%			-1%			0%				-3%	
Total Lost time (s)					5.0							5.0	
Lane Util. Factor					0.91							1.00	
Frt					0.97							0.91	
Flt Protected					1.00							1.00	
Satd. Flow (prot)					4918							1752	
Flt Permitted					1.00							1.00	
Satd. Flow (perm)					4918							1752	
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	41	443	145	0	0	0	0	100	179	
RTOR Reduction (vph)	0	0	0	0	46	0	0	0	0	0	54	0	
Lane Group Flow (vph)	0	0	0	0	583	0	0	0	0	0	225	0	
Parking (#/hr)				1		1						1	
Turn Type				Split	NA							NA	
Protected Phases				2	2							4	
Permitted Phases													
Actuated Green, G (s)					44.0							66.0	
Effective Green, g (s)					44.0							66.0	
Actuated g/C Ratio					0.37							0.55	
Clearance Time (s)					5.0							5.0	
Vehicle Extension (s)					3.0							3.0	
Lane Grp Cap (vph)					1803							963	
v/s Ratio Prot					c0.12							c0.13	
v/s Ratio Perm													
v/c Ratio					0.32							0.23	
Uniform Delay, d1					27.3							13.9	
Progression Factor					1.13							1.00	
Incremental Delay, d2					0.5							0.6	
Delay (s)					31.3							14.5	
Level of Service					C							B	
Approach Delay (s)		0.0			31.3			0.0				14.5	
Approach LOS		A			C			A				B	
Intersection Summary													
HCM 2000 Control Delay			26.1									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.27										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	10.0
Intersection Capacity Utilization			62.5%									ICU Level of Service	B
Analysis Period (min)			15										
c	Critical Lane Group												

Queues

32: 4th St/Captial Parking Driveway & Walnut St

05/15/2023



Lane Group	WBT	NBL	SBT
Lane Group Flow (vph)	721	167	17
v/c Ratio	0.33	0.30	0.02
Control Delay	12.7	21.8	11.1
Queue Delay	0.5	0.0	0.0
Total Delay	13.2	21.8	11.1
Queue Length 50th (ft)	64	78	3
Queue Length 95th (ft)	77	123	15
Internal Link Dist (ft)	145		257
Turn Bay Length (ft)			
Base Capacity (vph)	2197	549	806
Starvation Cap Reductn	979	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.59	0.30	0.02

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 32: 4th St/Captial Parking Driveway & Walnut St

05/15/2023

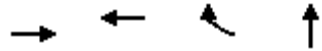


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←←←		←				←	
Traffic Volume (vph)	0	0	0	98	522	0	144	0	0	0	6	9
Future Volume (vph)	0	0	0	98	522	0	144	0	0	0	6	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	12	12	12
Grade (%)		0%			-1%			-3%			0%	
Total Lost time (s)					5.1		5.0				5.0	
Lane Util. Factor					0.91		1.00				1.00	
Frt					1.00		1.00				0.92	
Flt Protected					0.99		0.95				1.00	
Satd. Flow (prot)					4893		1500				1715	
Flt Permitted					0.99		0.75				1.00	
Satd. Flow (perm)					4893		1179				1715	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	114	607	0	167	0	0	0	7	10
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	0	0	0	721	0	167	0	0	0	12	0
Parking (#/hr)				1	1		1					
Turn Type				Perm	NA		D.Pm				NA	
Protected Phases					2						3	
Permitted Phases				2			3					
Actuated Green, G (s)					53.9		56.0				56.0	
Effective Green, g (s)					53.9		56.0				56.0	
Actuated g/C Ratio					0.45		0.47				0.47	
Clearance Time (s)					5.1		5.0				5.0	
Vehicle Extension (s)					3.0		3.0				3.0	
Lane Grp Cap (vph)					2197		550				800	
v/s Ratio Prot											0.01	
v/s Ratio Perm					0.15		c0.14					
v/c Ratio					0.33		0.30				0.01	
Uniform Delay, d1					21.4		19.9				17.2	
Progression Factor					0.57		1.00				1.00	
Incremental Delay, d2					0.4		1.4				0.0	
Delay (s)					12.6		21.3				17.2	
Level of Service					B		C				B	
Approach Delay (s)		0.0			12.6			21.3			17.2	
Approach LOS		A			B			C			B	
Intersection Summary												
HCM 2000 Control Delay			14.3		HCM 2000 Level of Service						B	
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)						10.1	
Intersection Capacity Utilization			97.6%		ICU Level of Service						F	
Analysis Period (min)			15									
c Critical Lane Group												

Queues

44: 2nd St & Chestnut St

05/15/2023



Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	132	212	152	1250
v/c Ratio	0.26	0.41	0.32	0.58
Control Delay	25.3	38.0	36.0	26.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	25.3	38.0	36.0	26.3
Queue Length 50th (ft)	97	149	94	260
Queue Length 95th (ft)	m156	229	163	308
Internal Link Dist (ft)	425	433		446
Turn Bay Length (ft)				
Base Capacity (vph)	517	520	480	2137
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.26	0.41	0.32	0.58

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

44: 2nd St & Chestnut St

05/15/2023



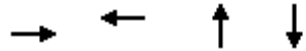
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↑	↗		↖↑↑				
Traffic Volume (vph)	74	54	0	0	206	147	108	993	112	0	0	0
Future Volume (vph)	74	54	0	0	206	147	108	993	112	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	16	12	12	12	12	12	12
Grade (%)		0%			0%			1%			0%	
Total Lost time (s)		6.1			6.1	6.1		5.5				
Lane Util. Factor		1.00			1.00	1.00		0.91				
Frt		1.00			1.00	0.85		0.99				
Flt Protected		0.97			1.00	1.00		1.00				
Satd. Flow (prot)		1512			1739	1606		4794				
Flt Permitted		0.65			1.00	1.00		1.00				
Satd. Flow (perm)		1015			1739	1606		4794				
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)	76	56	0	0	212	152	111	1024	115	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	132	0	0	212	152	0	1250	0	0	0	0
Parking (#/hr)		1				1	1	1	1			
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)		54.9			35.9	35.9		53.5				
Effective Green, g (s)		54.9			35.9	35.9		53.5				
Actuated g/C Ratio		0.46			0.30	0.30		0.45				
Clearance Time (s)		6.1			6.1	6.1		5.5				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		517			520	480		2137				
v/s Ratio Prot		c0.03			c0.12							
v/s Ratio Perm		0.09				0.09		0.26				
v/c Ratio		0.26			0.41	0.32		0.58				
Uniform Delay, d1		20.0			33.6	32.6		24.9				
Progression Factor		1.24			1.05	1.04		1.00				
Incremental Delay, d2		0.9			2.3	1.7		1.2				
Delay (s)		25.7			37.4	35.4		26.1				
Level of Service		C			D	D		C				
Approach Delay (s)		25.7			36.6			26.1			0.0	
Approach LOS		C			D			C			A	

Intersection Summary		
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.51	C
Actuated Cycle Length (s)	120.0	Sum of lost time (s)
Intersection Capacity Utilization	56.4%	21.7
Analysis Period (min)	15	ICU Level of Service
		B
c	Critical Lane Group	

Queues

45: 3rd St & Chestnut St

05/15/2023



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	172	205	77	156
v/c Ratio	0.29	0.17	0.12	0.23
Control Delay	23.7	25.8	20.2	30.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	23.7	25.8	20.2	30.4
Queue Length 50th (ft)	59	47	34	101
Queue Length 95th (ft)	89	96	65	164
Internal Link Dist (ft)	433	412	443	437
Turn Bay Length (ft)				
Base Capacity (vph)	585	1172	653	664
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.29	0.17	0.12	0.23

Intersection Summary

HCM Signalized Intersection Capacity Analysis

45: 3rd St & Chestnut St

05/15/2023

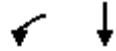


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑			↑↑			↕			↕		
Traffic Volume (vph)	0	167	0	0	199	0	31	0	44	61	0	90	
Future Volume (vph)	0	167	0	0	199	0	31	0	44	61	0	90	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	10	10	10	10	10	10	16	16	16	16	16	16	
Grade (%)		1%			2%			3%			0%		
Total Lost time (s)		5.6			5.6			5.6			5.6		
Lane Util. Factor		1.00			0.95			1.00			1.00		
Frt		1.00			1.00			0.92			0.92		
Flt Protected		1.00			1.00			0.98			0.98		
Satd. Flow (prot)		1548			3099			1679			1703		
Flt Permitted		1.00			1.00			0.86			0.86		
Satd. Flow (perm)		1548			3099			1469			1492		
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	172	0	0	205	0	32	0	45	63	0	93	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	172	0	0	205	0	0	77	0	0	156	0	
Parking (#/hr)		1			1		1	1	1	1	1	1	
Turn Type		NA			NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases							2			6			
Actuated Green, G (s)		45.4			45.4			53.4			53.4		
Effective Green, g (s)		45.4			45.4			53.4			53.4		
Actuated g/C Ratio		0.38			0.38			0.44			0.44		
Clearance Time (s)		5.6			5.6			5.6			5.6		
Vehicle Extension (s)		3.0			3.0			3.0			3.0		
Lane Grp Cap (vph)		585			1172			653			663		
v/s Ratio Prot		c0.11			0.07								
v/s Ratio Perm								0.05			c0.10		
v/c Ratio		0.29			0.17			0.12			0.24		
Uniform Delay, d1		26.1			24.8			19.5			20.6		
Progression Factor		0.85			1.02			1.00			1.41		
Incremental Delay, d2		1.1			0.3			0.4			0.8		
Delay (s)		23.3			25.6			19.9			29.9		
Level of Service		C			C			B			C		
Approach Delay (s)		23.3			25.6			19.9			29.9		
Approach LOS		C			C			B			C		
Intersection Summary													
HCM 2000 Control Delay			25.3									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.25										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	17.2
Intersection Capacity Utilization			29.5%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

Queues

46: N.Front St & Chestnut St

05/15/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	371	1960
v/c Ratio	0.77	0.65
Control Delay	34.2	10.7
Queue Delay	0.0	0.5
Total Delay	34.2	11.2
Queue Length 50th (ft)	127	301
Queue Length 95th (ft)	#414	335
Internal Link Dist (ft)	425	455
Turn Bay Length (ft)		
Base Capacity (vph)	480	3034
Starvation Cap Reductn	0	570
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.77	0.80

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

46: N.Front St & Chestnut St

05/15/2023

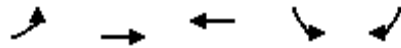


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰					↰↰↰
Traffic Volume (vph)	345	0	0	0	128	1694
Future Volume (vph)	345	0	0	0	128	1694
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11
Grade (%)	-1%		0%			-1%
Total Lost time (s)	5.0					5.0
Lane Util. Factor	1.00					0.91
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1601					4923
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1601					4923
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	371	0	0	0	138	1822
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	371	0	0	0	0	1960
Parking (#/hr)	0					
Turn Type	Prot				Perm	NA
Protected Phases	8					6
Permitted Phases					6	
Actuated Green, G (s)	36.0					74.0
Effective Green, g (s)	36.0					74.0
Actuated g/C Ratio	0.30					0.62
Clearance Time (s)	5.0					5.0
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	480					3035
v/s Ratio Prot	c0.23					
v/s Ratio Perm						0.40
v/c Ratio	0.77					0.65
Uniform Delay, d1	38.3					14.7
Progression Factor	0.59					0.67
Incremental Delay, d2	10.7					0.8
Delay (s)	33.3					10.6
Level of Service	C					B
Approach Delay (s)	33.3		0.0			10.6
Approach LOS	C		A			B
Intersection Summary						
HCM 2000 Control Delay			14.2		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.69			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			70.3%		ICU Level of Service	C
Analysis Period (min)			15			
c	Critical Lane Group					

Queues

1: Market St & S. Front St

05/15/2023



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	456	296	837	208	377
v/c Ratio	0.72	0.12	0.83	0.64	0.37
Control Delay	31.4	5.8	31.4	39.2	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	5.8	31.4	39.2	7.7
Queue Length 50th (ft)	195	25	177	98	68
Queue Length 95th (ft)	318	45	#297	167	117
Internal Link Dist (ft)		522	1732	480	
Turn Bay Length (ft)	400			340	
Base Capacity (vph)	734	2423	1070	440	1102
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.62	0.12	0.78	0.47	0.34

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

1: Market St & S. Front St

05/15/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗↗	↖↗		↖	↗
Traffic Volume (vph)	415	269	482	279	189	343
Future Volume (vph)	415	269	482	279	189	343
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	16	13	11	12	11	14
Grade (%)		-2%	-4%		-1%	
Total Lost time (s)	4.0	6.4	6.4		6.2	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.94		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	2026	3694	3298		1719	1697
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	2026	3694	3298		1719	1697
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	456	296	530	307	208	377
RTOR Reduction (vph)	0	0	95	0	0	36
Lane Group Flow (vph)	456	296	742	0	208	341
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	2	1 2	1		4	2
Permitted Phases						4
Actuated Green, G (s)	23.6	48.5	20.9		14.3	37.9
Effective Green, g (s)	23.6	44.5	20.9		14.3	37.9
Actuated g/C Ratio	0.31	0.59	0.28		0.19	0.50
Clearance Time (s)	4.0		6.4		6.2	4.0
Vehicle Extension (s)	4.0		4.0		3.0	4.0
Lane Grp Cap (vph)	634	2180	914		326	853
v/s Ratio Prot	c0.23	0.08	c0.22		c0.12	0.13
v/s Ratio Perm						0.08
v/c Ratio	0.72	0.14	0.81		0.64	0.40
Uniform Delay, d1	23.0	6.9	25.4		28.2	11.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.2	0.0	5.8		4.1	0.4
Delay (s)	27.1	6.9	31.2		32.2	12.1
Level of Service	C	A	C		C	B
Approach Delay (s)		19.2	31.2		19.3	
Approach LOS		B	C		B	

Intersection Summary

HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	75.4	Sum of lost time (s)	16.6
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

5: Market St & City Island Ramp

05/15/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↗
Traffic Volume (veh/h)	0	458	719	66	0	42
Future Volume (Veh/h)	0	458	719	66	0	42
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	503	790	73	0	46
Pedestrians		10				
Lane Width (ft)		12.0				
Walking Speed (ft/s)		3.5				
Percent Blockage		1				
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	863				1078	442
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	863				1078	442
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	92
cM capacity (veh/h)	775				213	558
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	252	252	527	336	46	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	73	46	
cSH	1700	1700	1700	1700	558	
Volume to Capacity	0.15	0.15	0.31	0.20	0.08	
Queue Length 95th (ft)	0	0	0	0	7	
Control Delay (s)	0.0	0.0	0.0	0.0	12.0	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		12.0	
Approach LOS					B	
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			35.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

7: City Island Ramp & Market St

05/15/2023















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	440	18	0	785	0	88
Future Volume (Veh/h)	440	18	0	785	0	88
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	484	20	0	863	0	97
Pedestrians				2		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				3.5		
Percent Blockage				0		
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			504		926	254
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			504		926	254
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	87
cM capacity (veh/h)			1057		268	744
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	323	181	432	432	97	
Volume Left	0	0	0	0	0	
Volume Right	0	20	0	0	97	
cSH	1700	1700	1700	1700	744	
Volume to Capacity	0.19	0.11	0.25	0.25	0.13	
Queue Length 95th (ft)	0	0	0	0	11	
Control Delay (s)	0.0	0.0	0.0	0.0	10.6	
Lane LOS						B
Approach Delay (s)	0.0		0.0		10.6	
Approach LOS						B
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			32.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

28: Aberdeen St & Market St

05/15/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵					↵		↵	
Traffic Volume (veh/h)	0	604	3	13	0	0	0	0	0	128	20	0
Future Volume (Veh/h)	0	604	3	13	0	0	0	0	0	128	20	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	686	3	15	0	0	0	0	0	145	23	0
Pedestrians					63			64				
Lane Width (ft)					12.0			12.0				
Walking Speed (ft/s)					3.5			3.5				
Percent Blockage					6			6				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		244			245							
pX, platoon unblocked				0.92			0.92	0.92	0.92	0.92	0.92	0.92
vC, conflicting volume	0			753			793	782	357	322	783	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			432			475	463	2	0	464	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			100	100	100	83	95	100
cM capacity (veh/h)	1622			972			369	421	879	834	420	1084
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	NB 1	SB 1						
Volume Total	274	274	140	15	0	168						
Volume Left	0	0	0	15	0	145						
Volume Right	0	0	3	0	0	0						
cSH	1700	1700	1700	972	1700	735						
Volume to Capacity	0.16	0.16	0.08	0.02	0.00	0.23						
Queue Length 95th (ft)	0	0	0	1	0	22						
Control Delay (s)	0.0	0.0	0.0	8.8	0.0	11.3						
Lane LOS				A	A	B						
Approach Delay (s)	0.0			8.8	0.0	11.3						
Approach LOS					A	B						
Intersection Summary												
Average Delay			2.3									
Intersection Capacity Utilization		43.6%		ICU Level of Service	A							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

52: 10th St & Market St

05/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (veh/h)	7	426	8	9	153	7	19	1	49	16	0	14
Future Volume (Veh/h)	7	426	8	9	153	7	19	1	49	16	0	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	8	468	9	10	168	8	21	1	54	18	0	15
Pedestrians												2
Lane Width (ft)												12.0
Walking Speed (ft/s)												3.5
Percent Blockage												0
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		906			385							
pX, platoon unblocked				0.98			0.98	0.98	0.98	0.98	0.98	
vC, conflicting volume	178			477			608	686	238	498	687	90
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	178			427			560	641	184	449	641	90
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			95	100	93	96	100	98
cM capacity (veh/h)	1393			1107			391	377	811	444	377	948
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	242	243	94	92	76	33						
Volume Left	8	0	10	0	21	18						
Volume Right	0	9	0	8	54	15						
cSH	1393	1700	1107	1700	618	585						
Volume to Capacity	0.01	0.14	0.01	0.05	0.12	0.06						
Queue Length 95th (ft)	0	0	1	0	10	4						
Control Delay (s)	0.3	0.0	1.0	0.0	11.6	11.5						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.1		0.5		11.6	11.5						
Approach LOS					B	B						
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			28.0%		ICU Level of Service				A			
Analysis Period (min)			15									

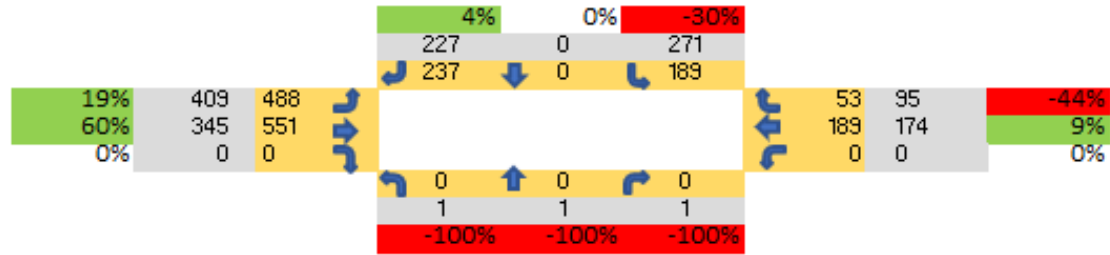


Appendix D Future Volumes

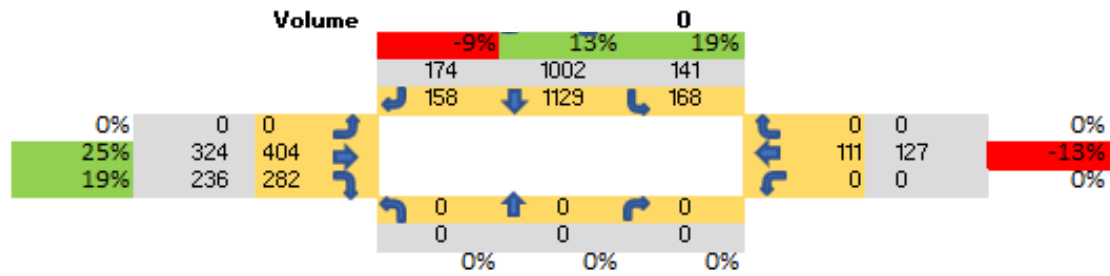
Future No Build Volumes AM

Legend	
	Future Volumes
	Existing Volumes

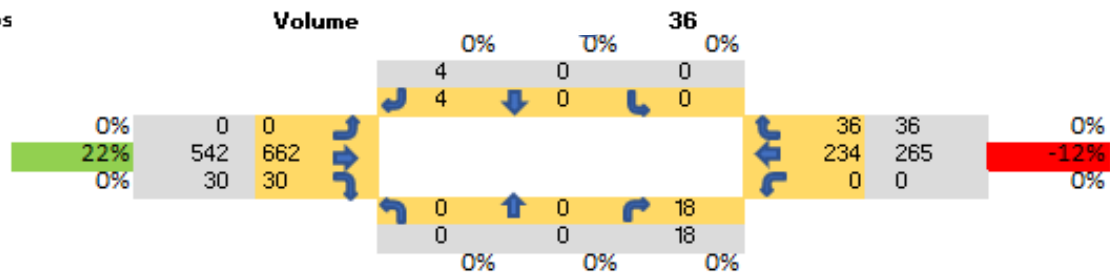
1 Market Street/Front Street



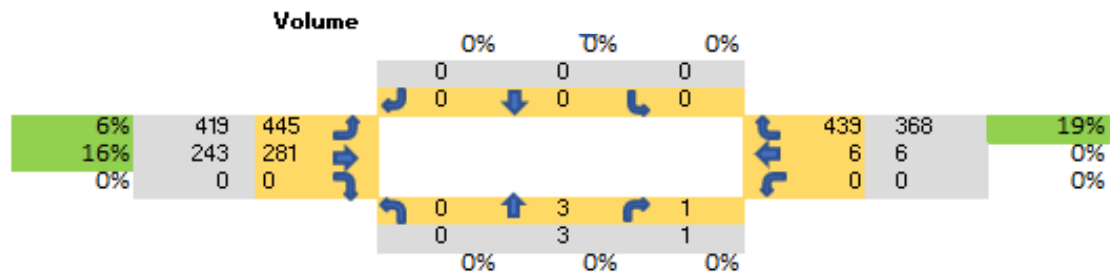
4 Market Street/IN Front Street



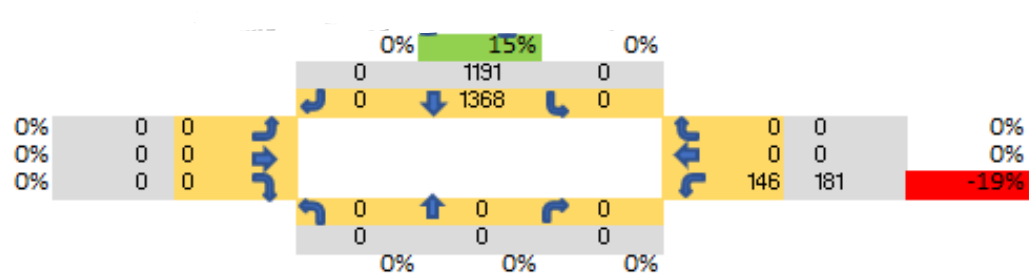
7 Market Street/City Island Ramps



9 Market Street/5th Street

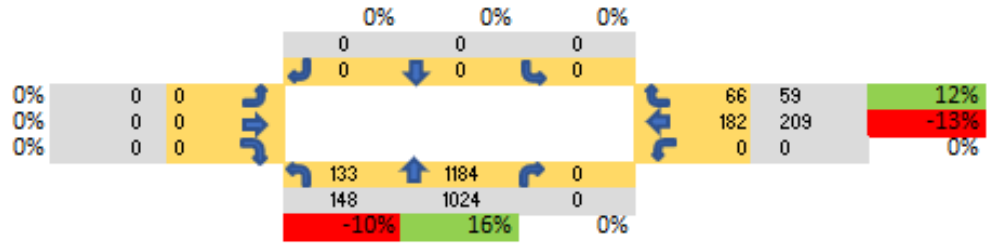


10 Walnut Street/IN Front Street

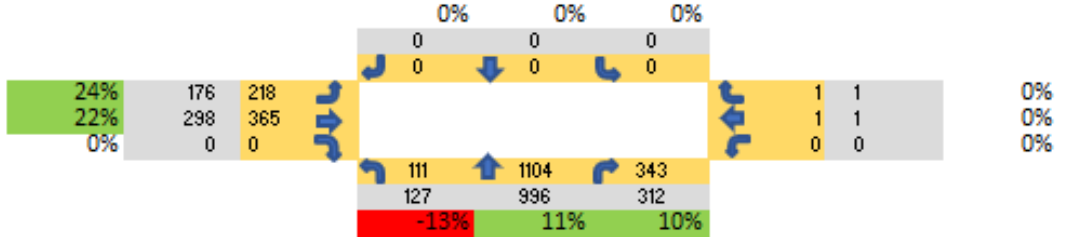


Future No Build Volumes AM

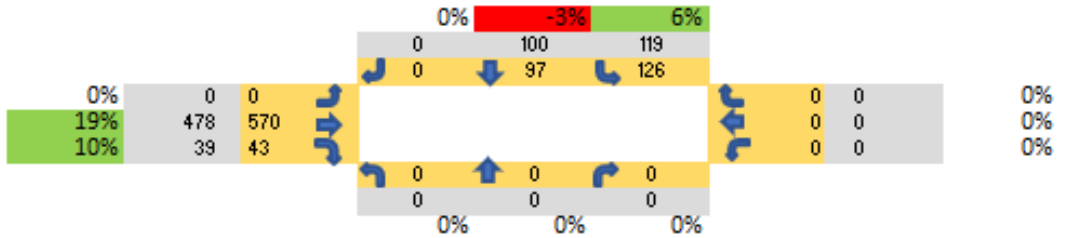
15 Walnut Street/2nd Street



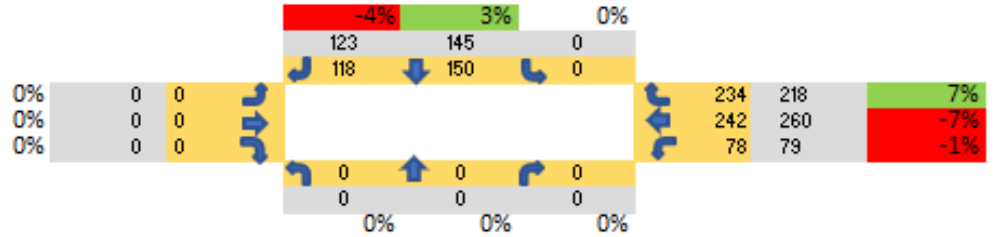
16 Market Street/2nd Street



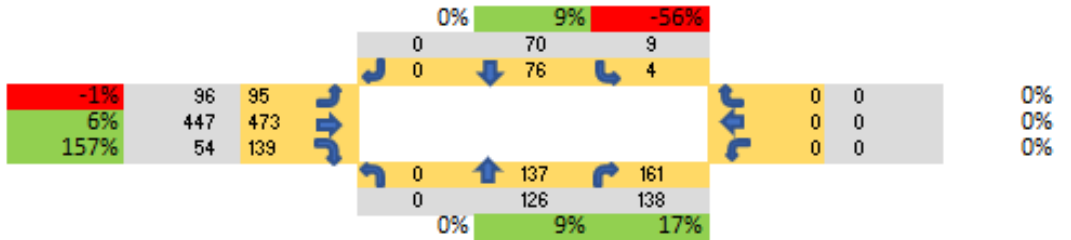
21 Market Street/3rd Street



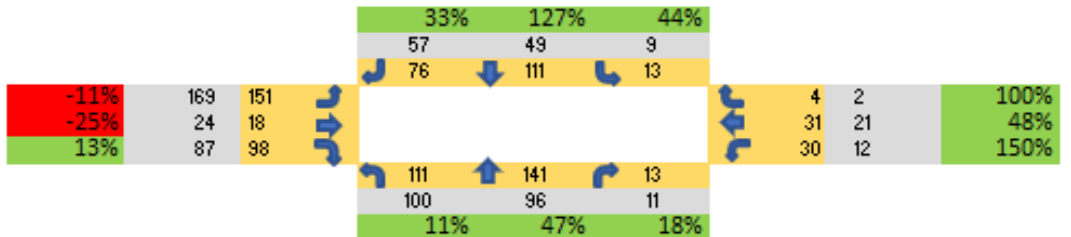
22 Walnut Street/3rd Street



26 Market Street/4th Street

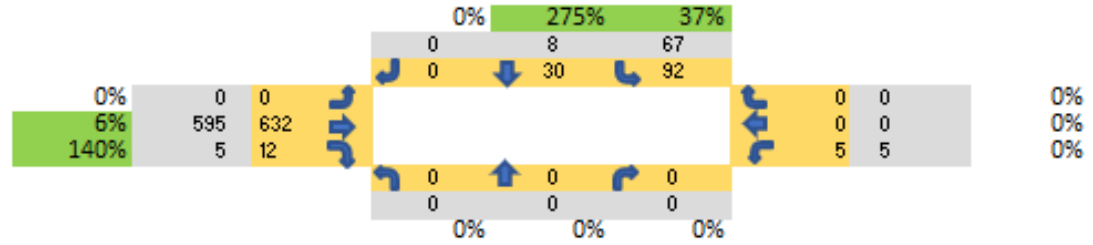


27 Chestnut Street/4th Street

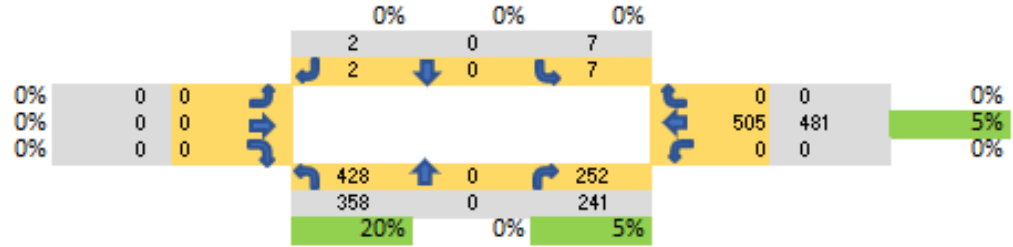


Future No Build Volumes AM

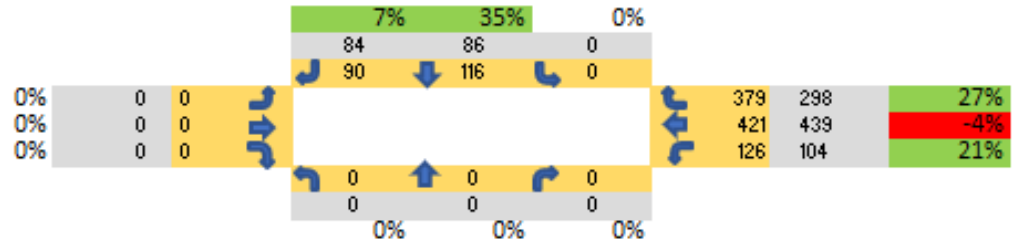
28 Market Street/Aberdeen St



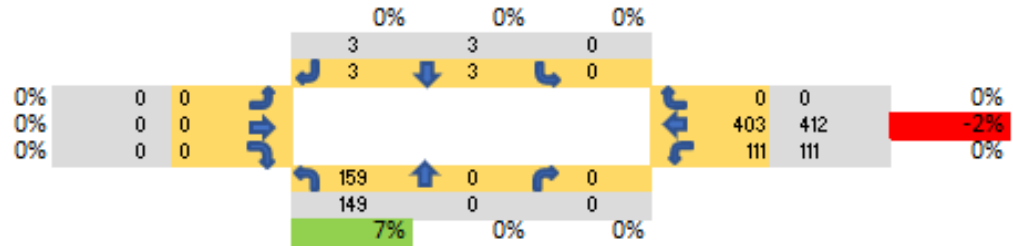
30 Walnut Street/5th Street



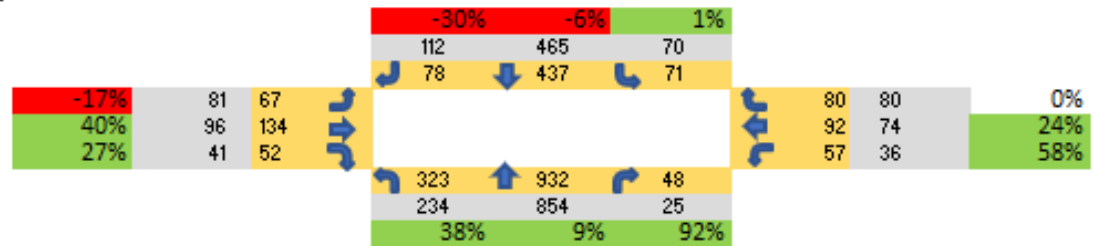
31 Walnut Street/Aberdeen St



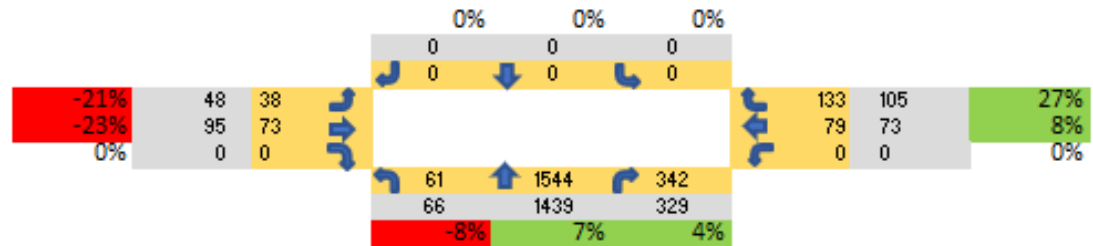
32 Walnut Street/4th Street



42 Market Street/Cameron Street

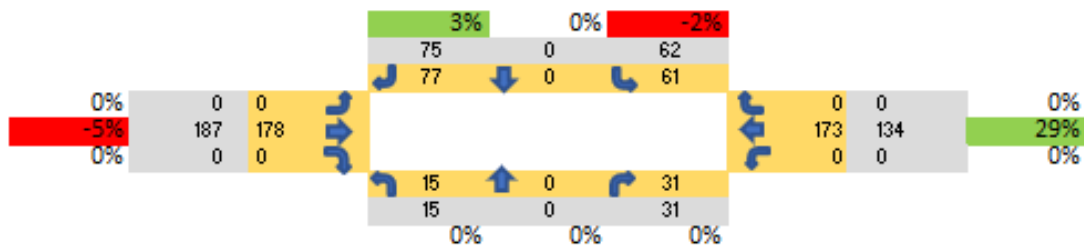


44 Chestnut Street/2nd Street

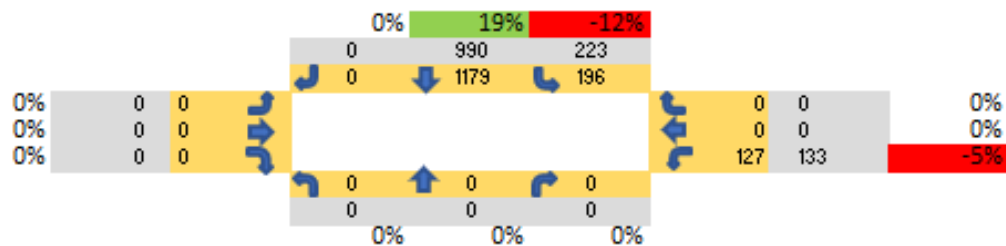


Future No Build Volumes AM

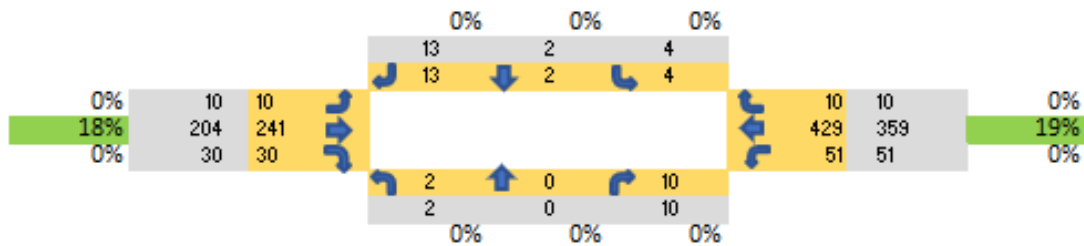
45 Chestnut Street/3rd Street



46 Chestnut Street/N Front Street



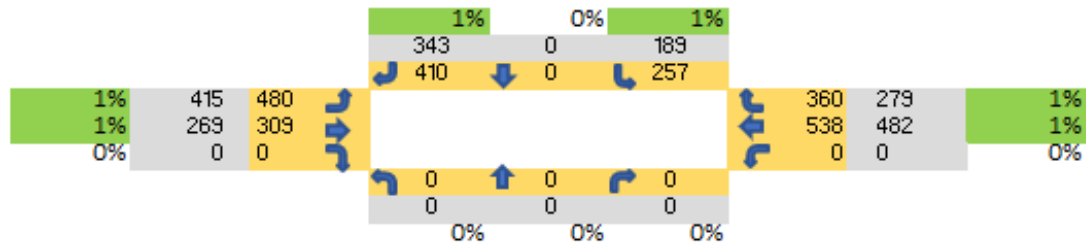
52 Market Street/10th Street



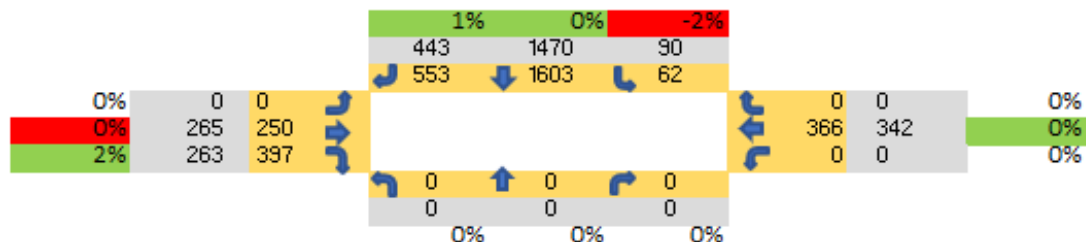
Future No Build Volumes PM

Legend	
	Future Volumes
	Existing Volumes

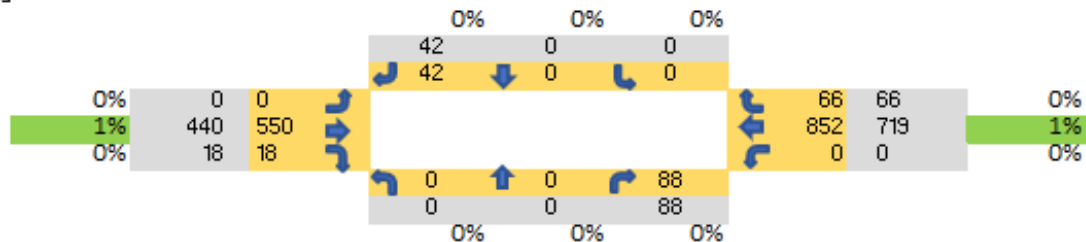
1 Market Street/Front Street



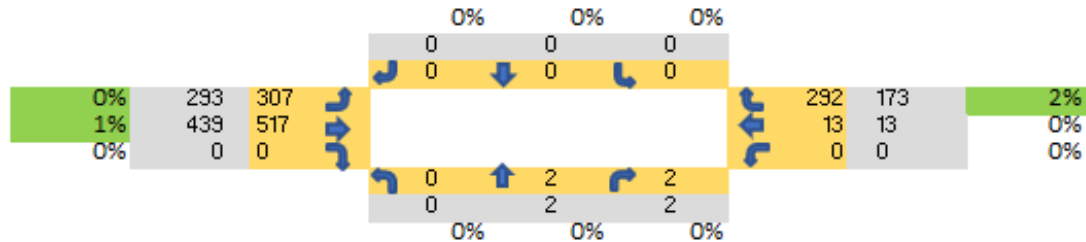
4 Market Street/N Front Street



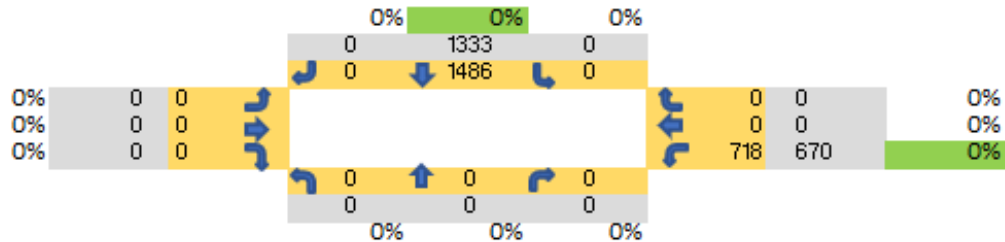
7 Market Street/City Island Ramps



9 Market Street/5th Street

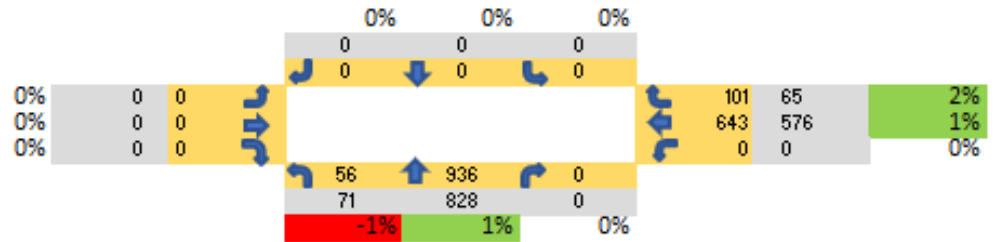


10 Walnut Street/N Front Street

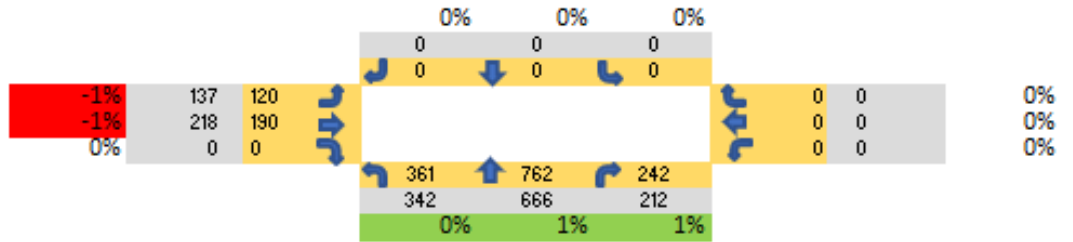


Future No Build Volumes PM

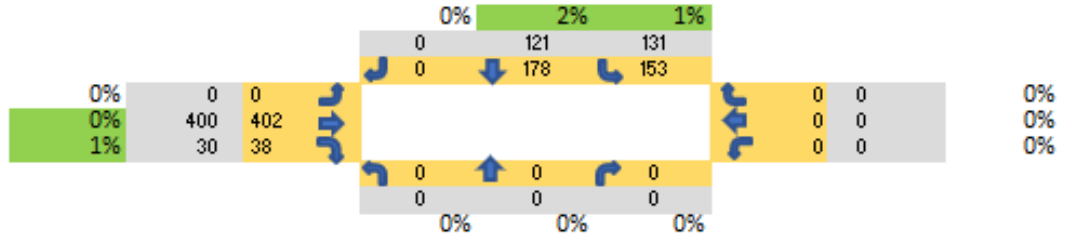
15 Walnut Street/2nd Street



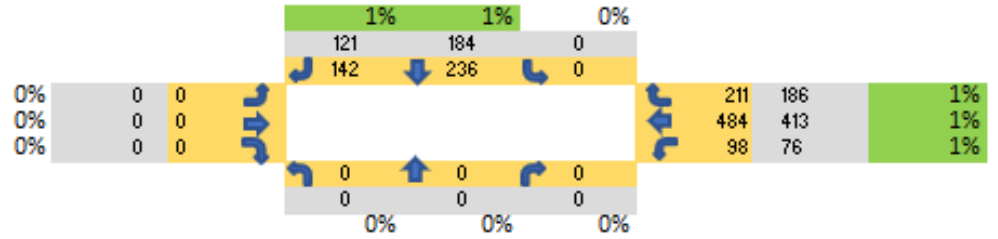
16 Market Street/2nd Street



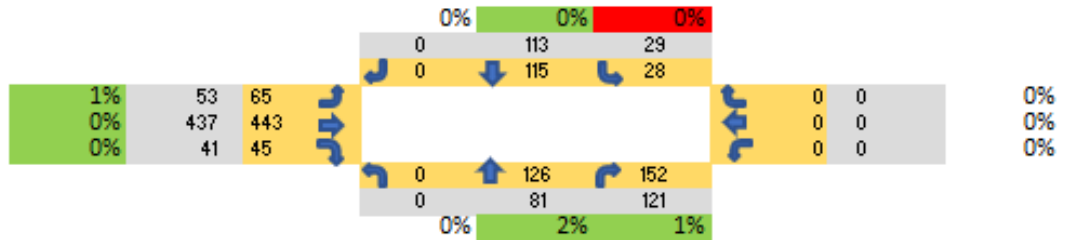
21 Market Street/3rd Street



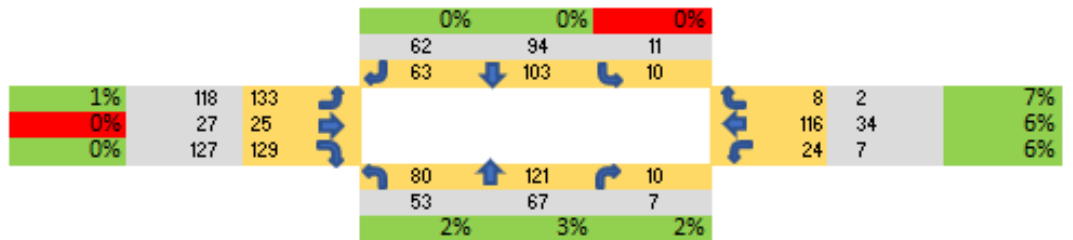
22 Walnut Street/3rd Street



26 Market Street/4th Street

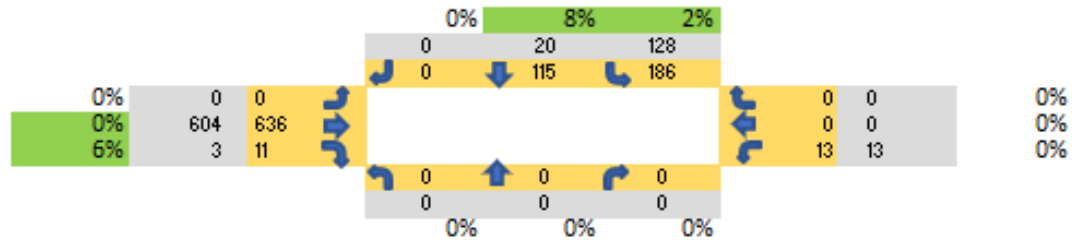


27 Chestnut Street/4th Street

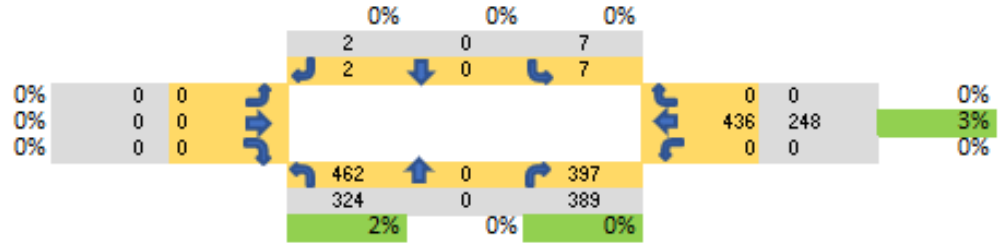


Future No Build Volumes PM

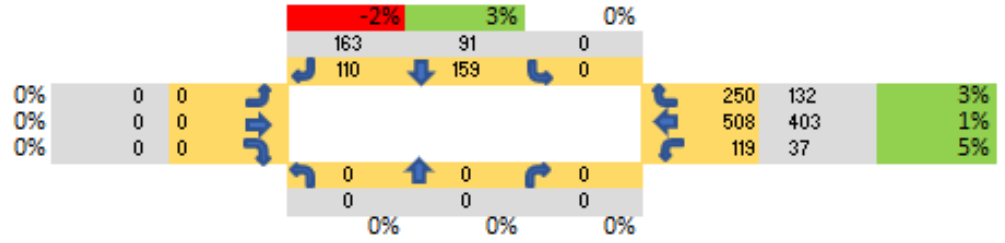
28 Market Street/Aberdeen St



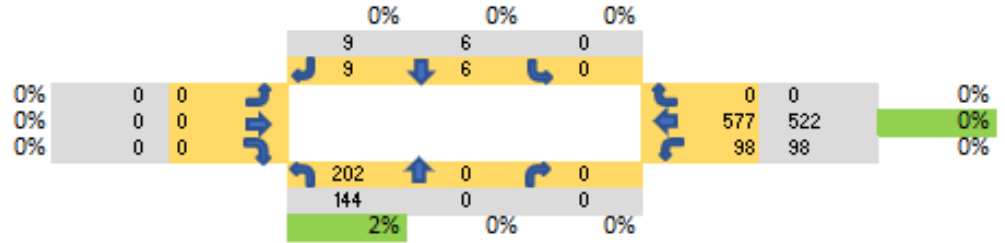
30 Walnut Street/5th Street



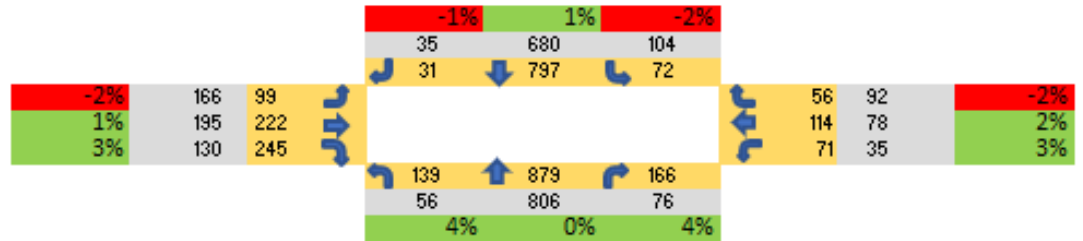
31 Walnut Street/Aberdeen St



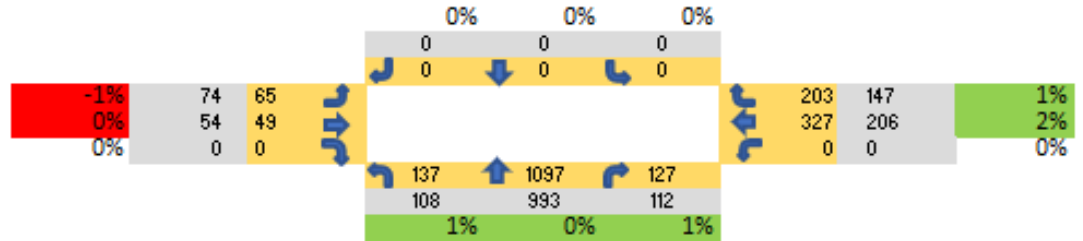
32 Walnut Street/4th Street



42 Market Street/Cameron Street

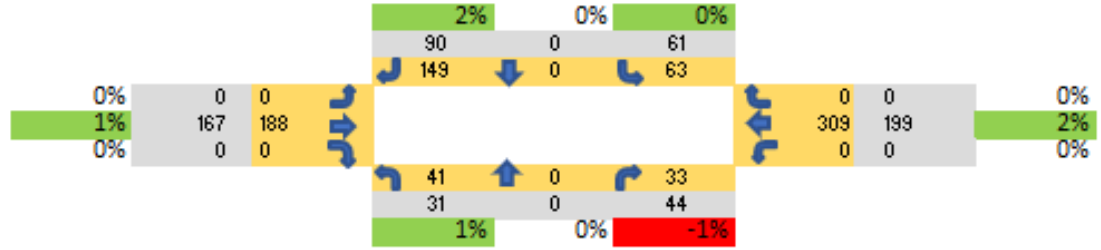


44 Chestnut Street/2nd Street

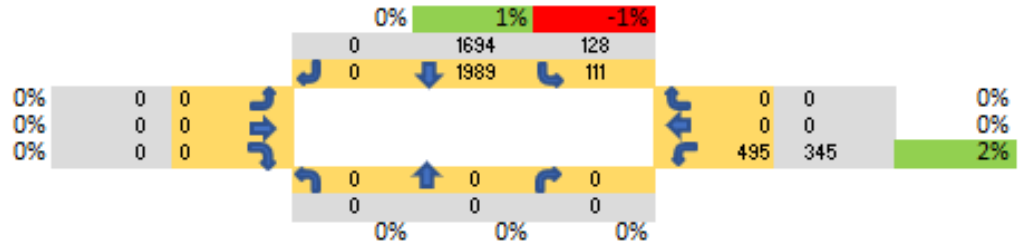


Future No Build Volumes PM

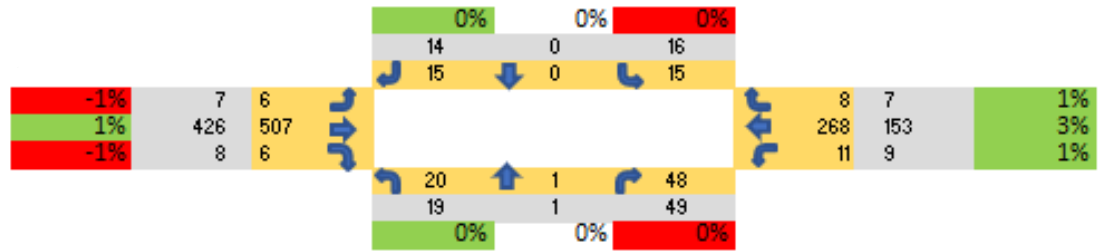
45 Chestnut Street/3rd Street



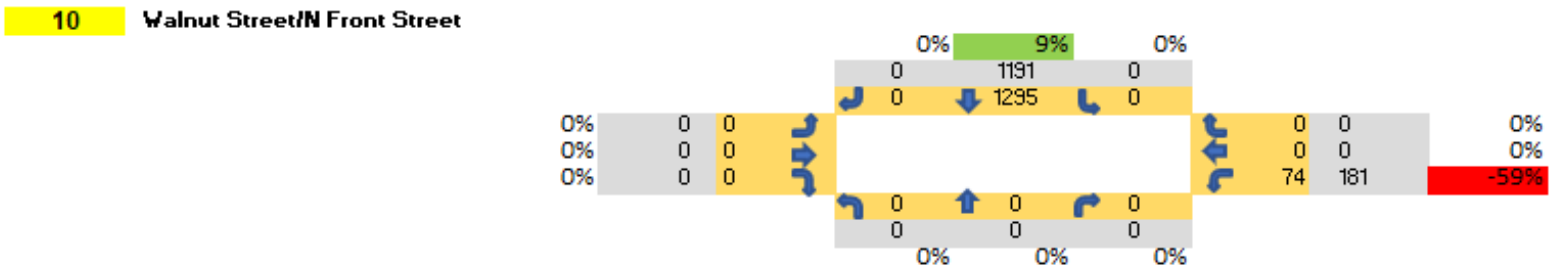
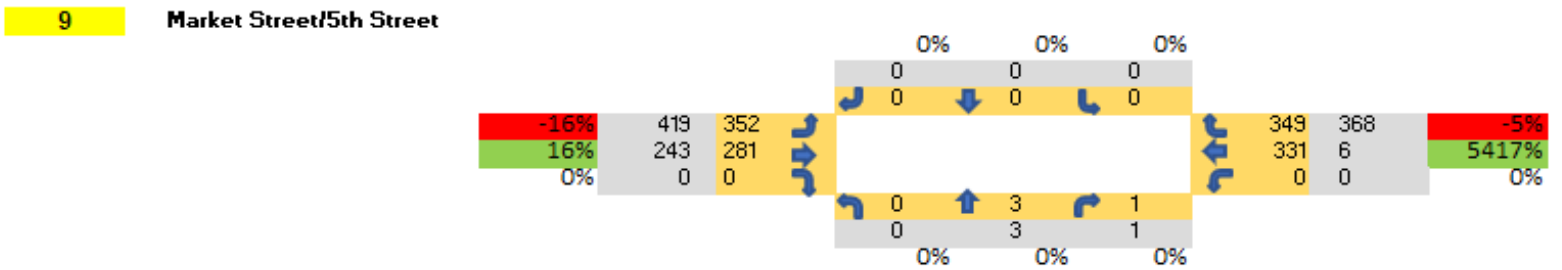
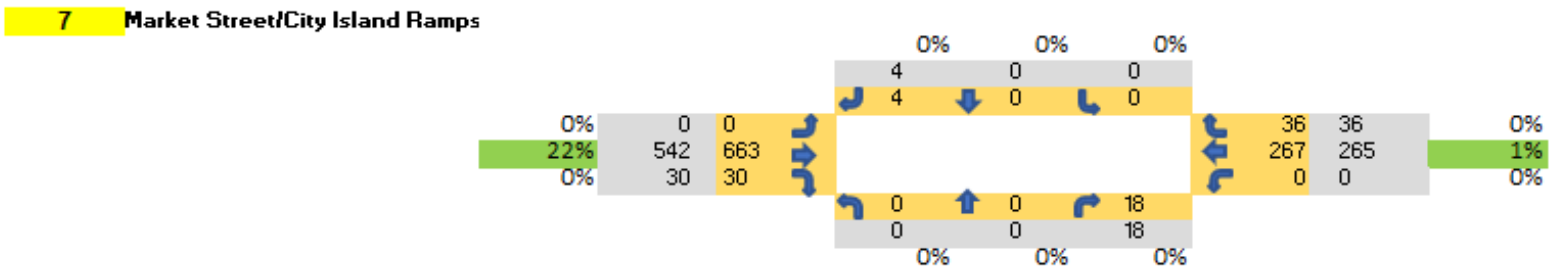
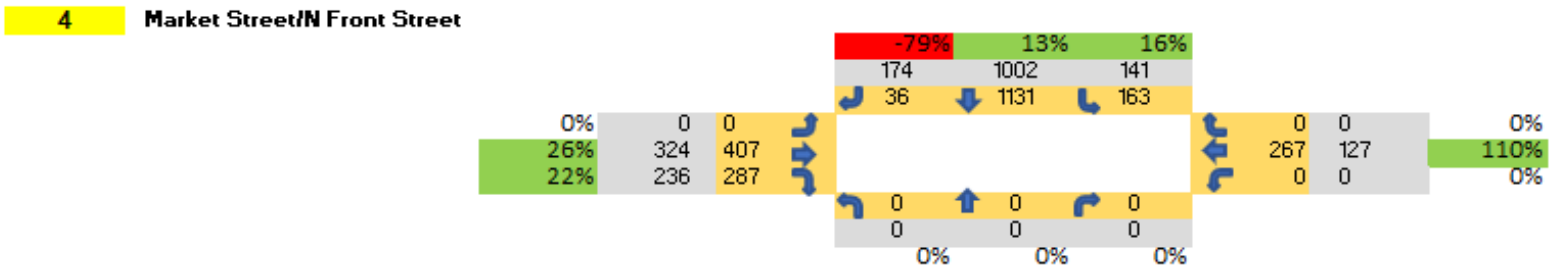
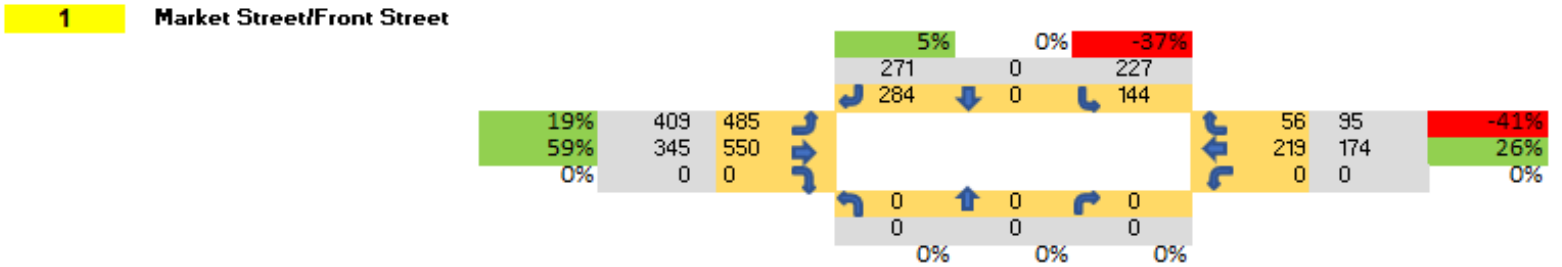
46 Chestnut Street/N Front Street



52 Market Street/10th Street

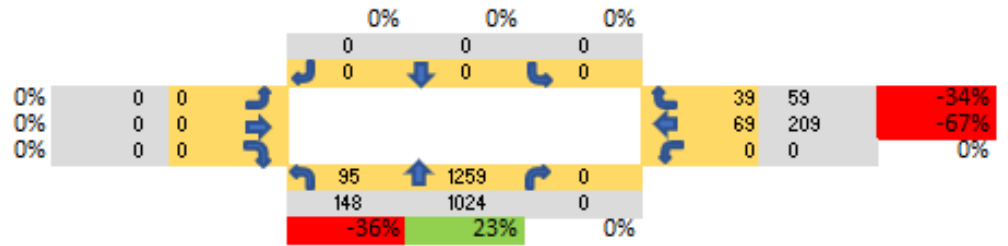


Legend	
	Future Volumes
	Existing Volumes

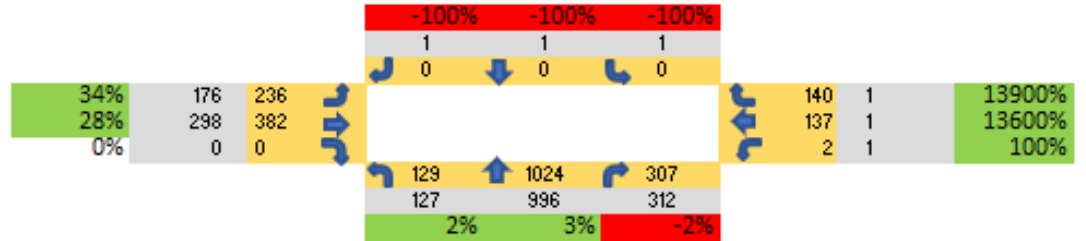


2045 Build Alternative 1 Volumes AM (2 EB 1 WB)

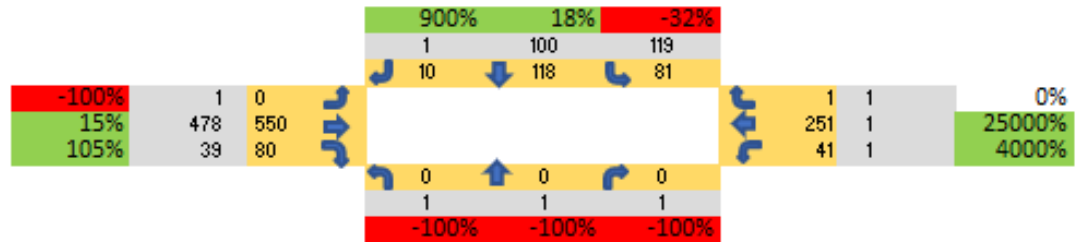
15 Walnut Street/2nd Street



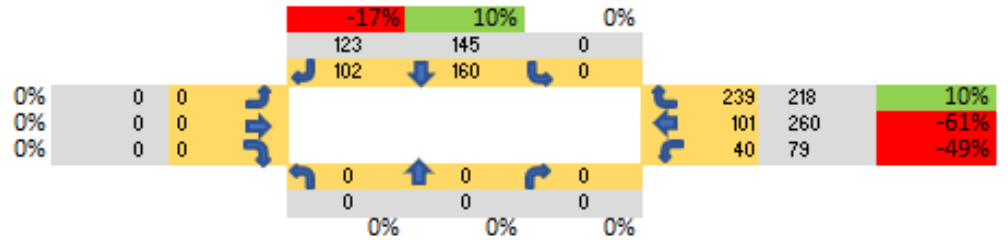
16 Market Street/2nd Street



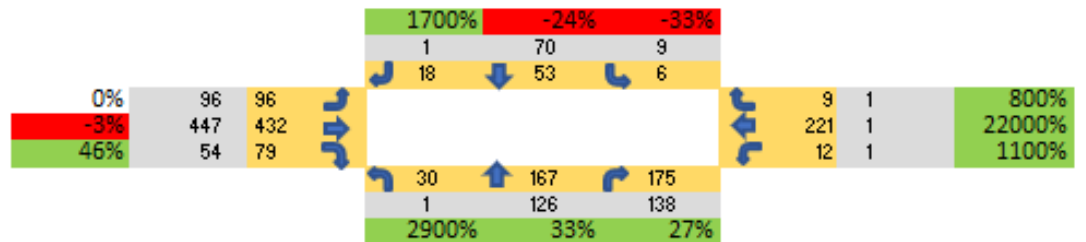
21 Market Street/3rd Street



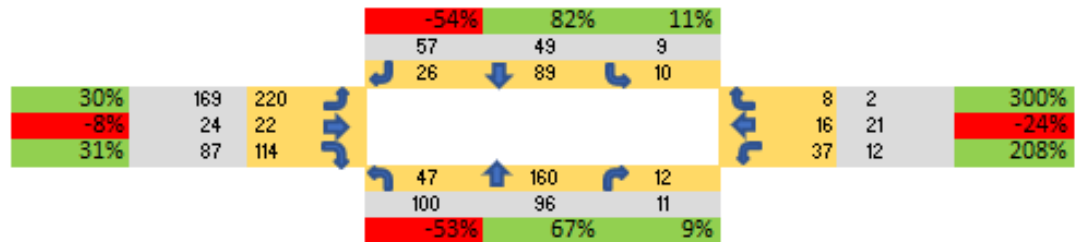
22 Walnut Street/3rd Street



26 Market Street/4th Street

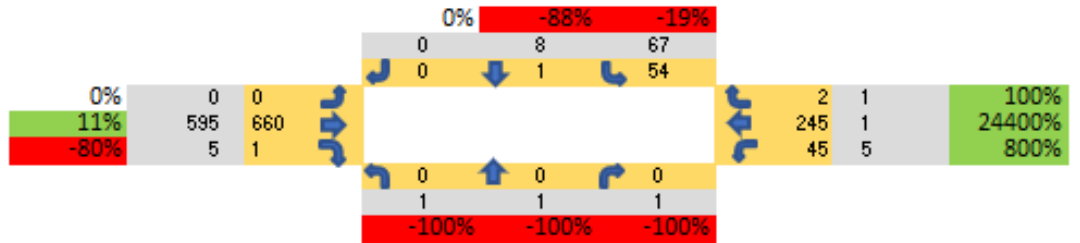


27 Chestnut Street/4th Street

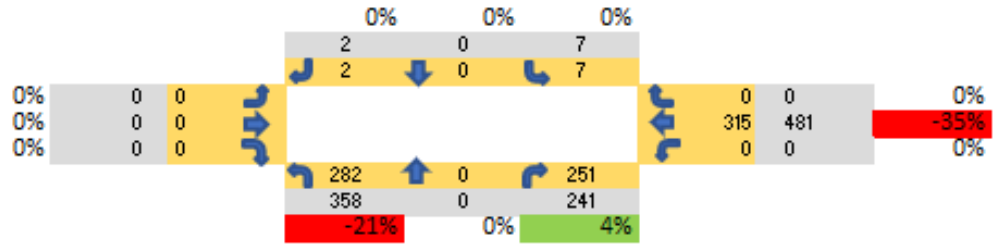


2045 Build Alternative 1 Volumes AM (2 EB 1 WB)

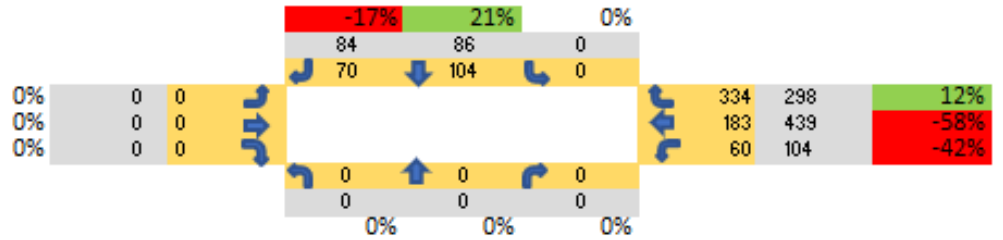
28 Market Street/Aberdeen St



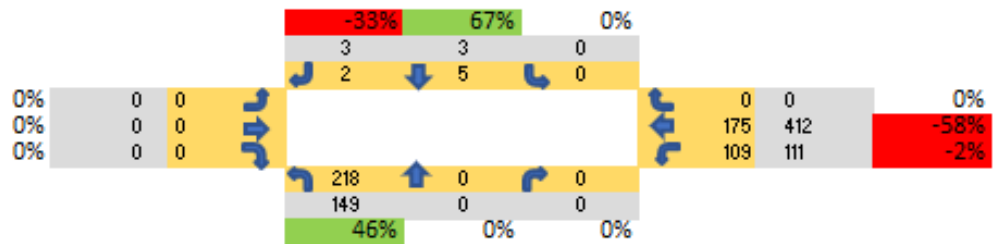
30 Walnut Street/5th Street



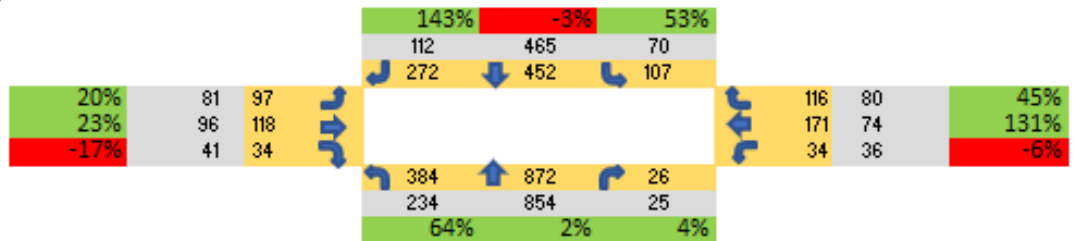
31 Walnut Street/Aberdeen St



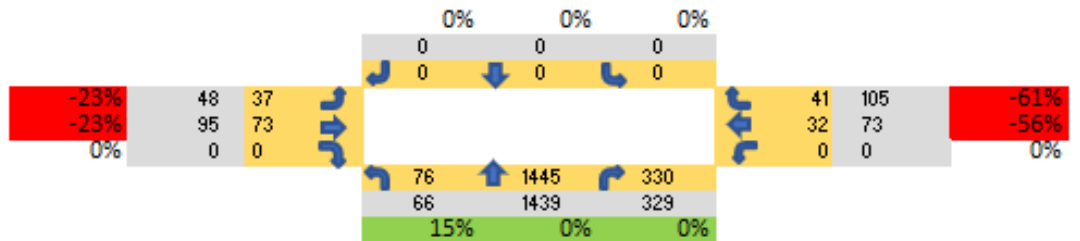
32 Walnut Street/4th Street



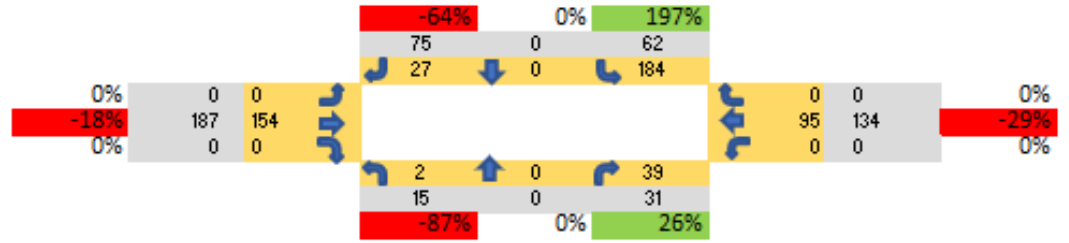
42 Market Street/Cameron Street



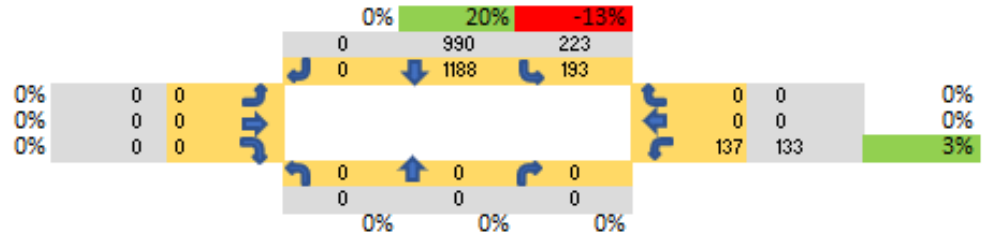
44 Chestnut Street/2nd Street



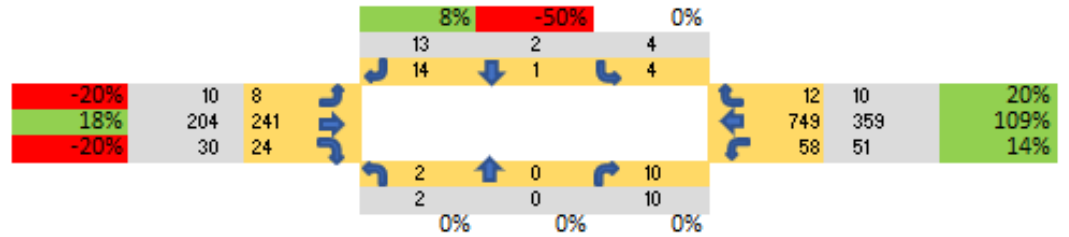
45 Chestnut Street/3rd Street



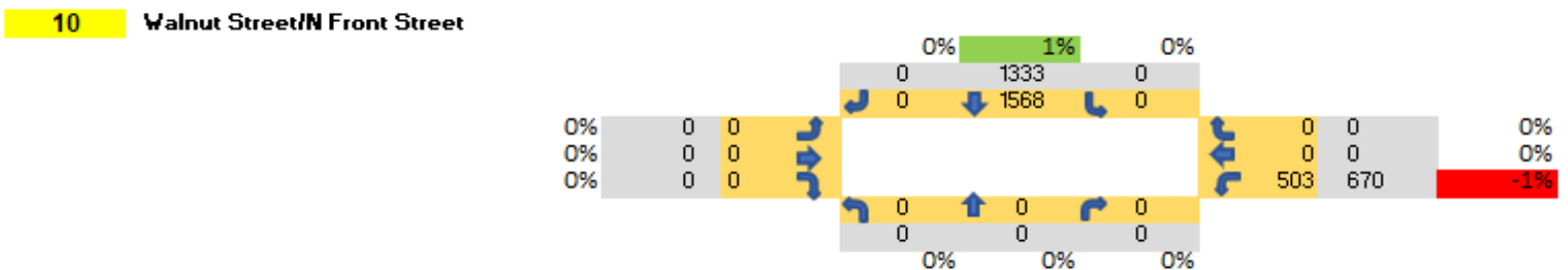
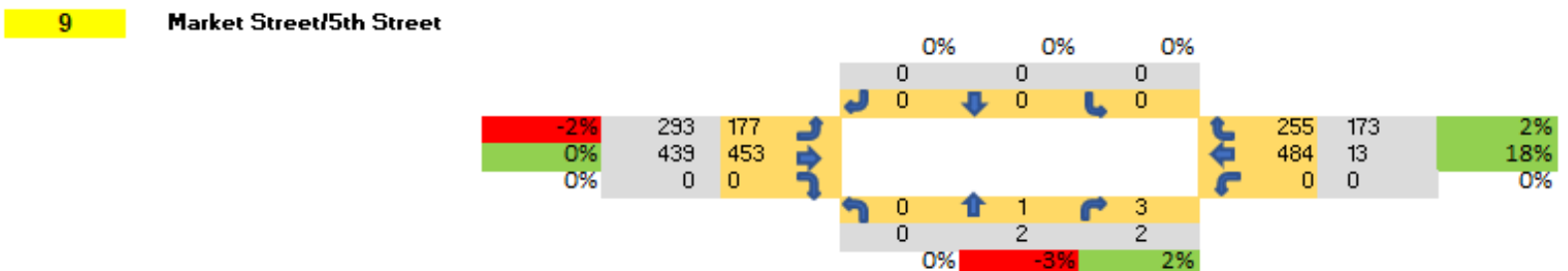
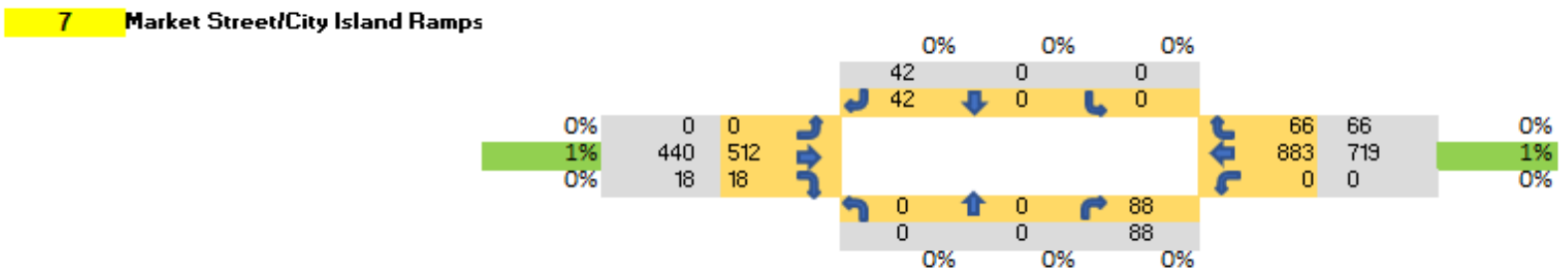
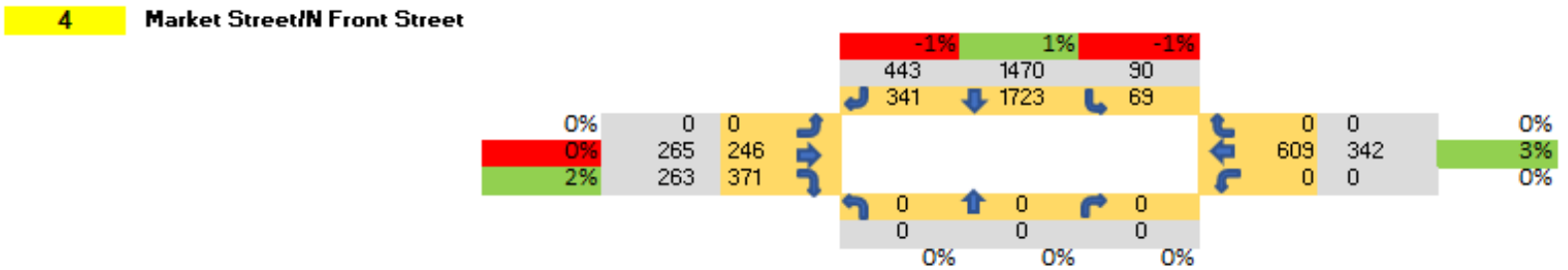
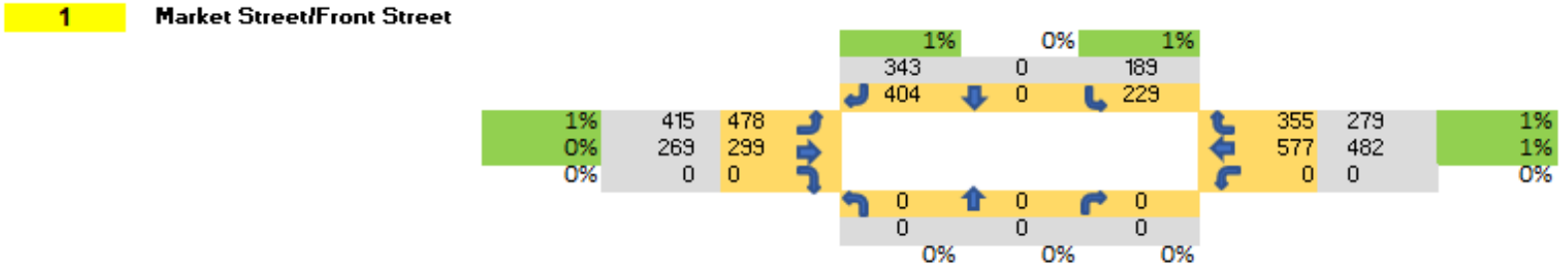
46 Chestnut Street/N Front Street



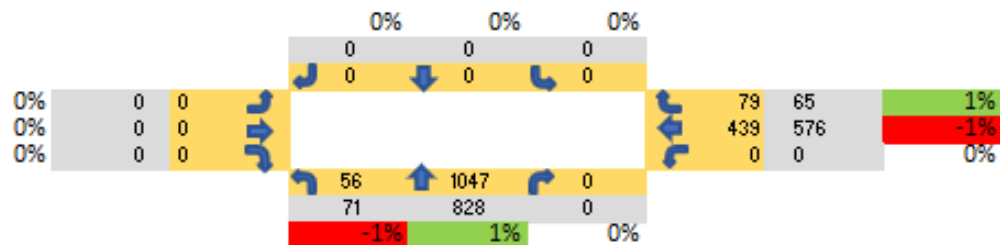
52 Market Street/10th Street



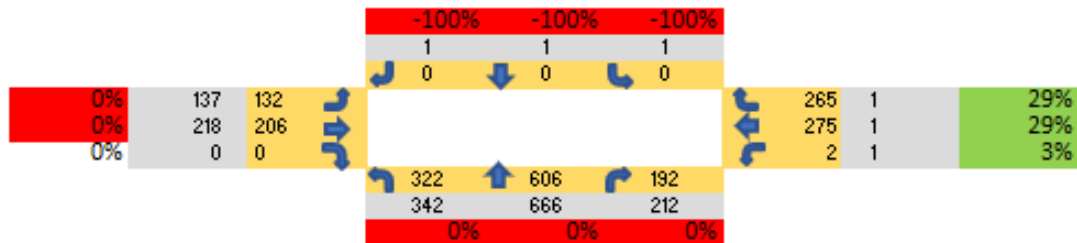
Legend	
	Future Volumes
	Existing Volumes



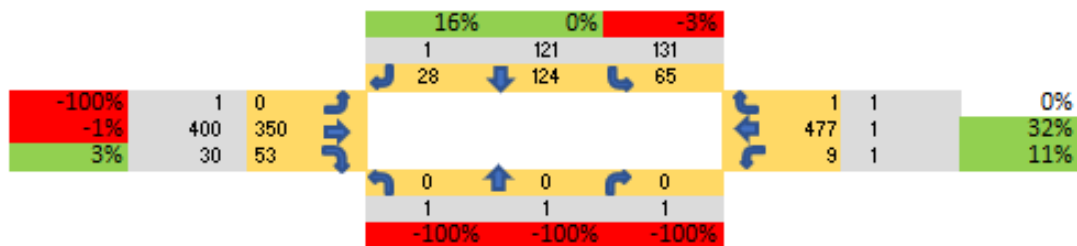
15 Walnut Street/2nd Street



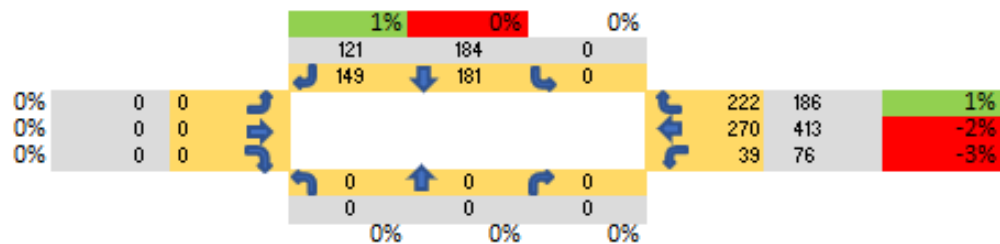
16 Market Street/2nd Street



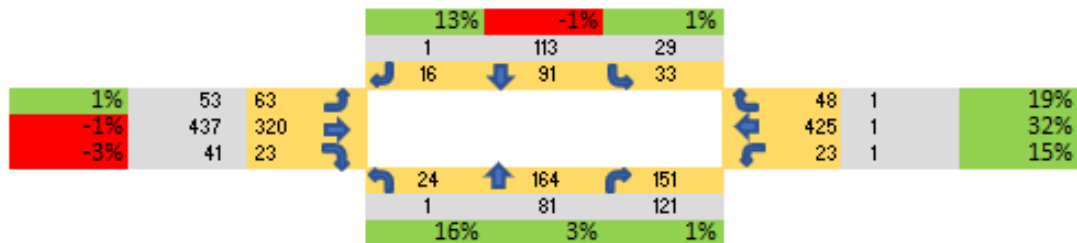
21 Market Street/3rd Street



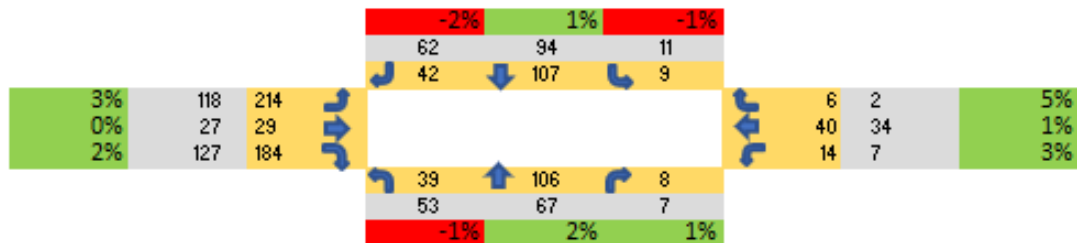
22 Walnut Street/3rd Street



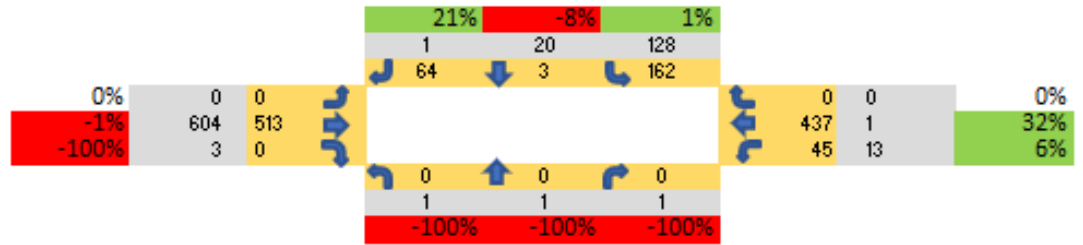
26 Market Street/4th Street



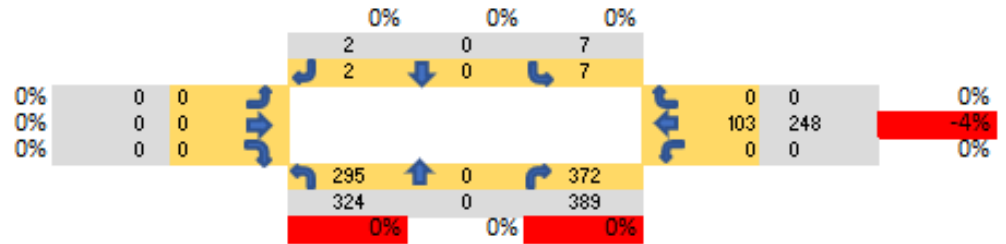
27 Chestnut Street/4th Street



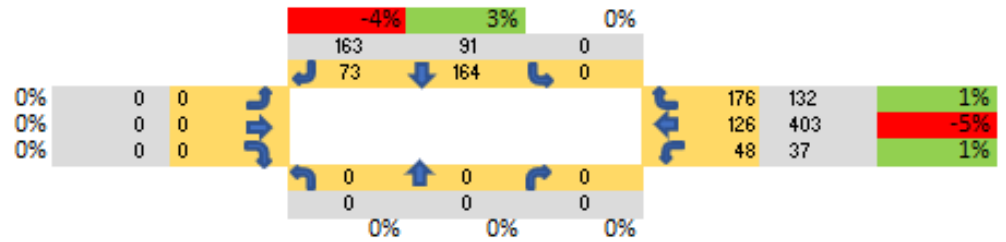
28 Market Street/Aberdeen St



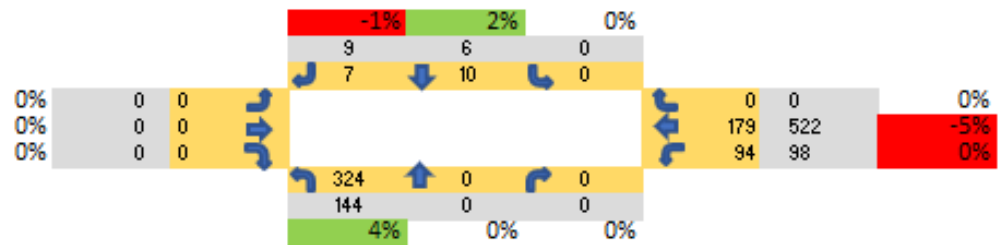
30 Walnut Street/5th Street



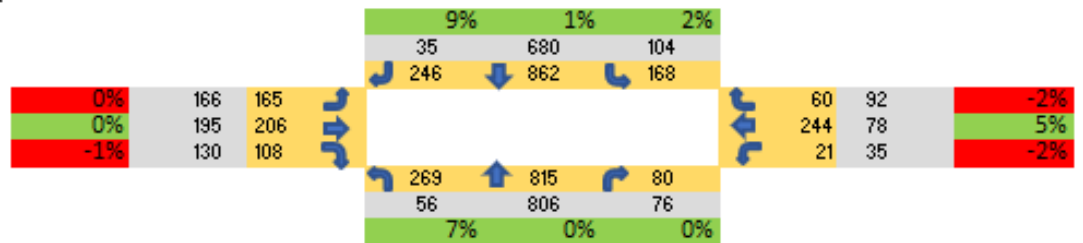
31 Walnut Street/Aberdeen St



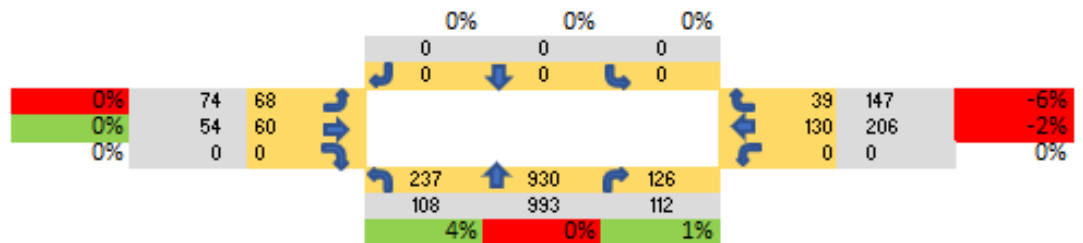
32 Walnut Street/4th Street



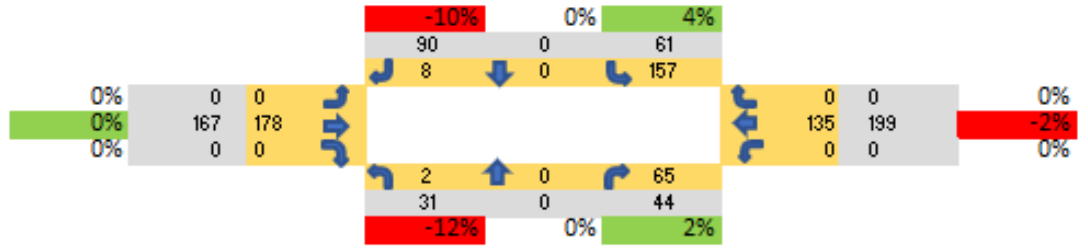
42 Market Street/Cameron Street



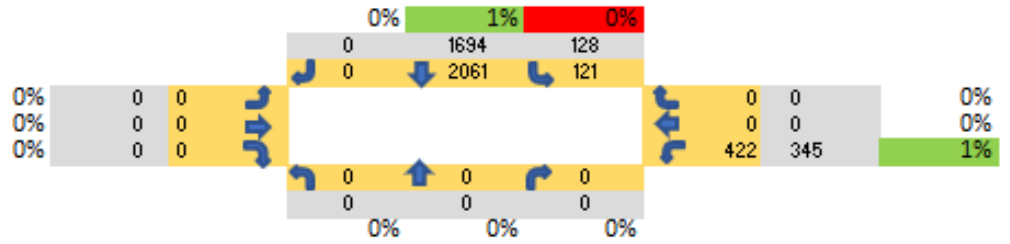
44 Chestnut Street/2nd Street



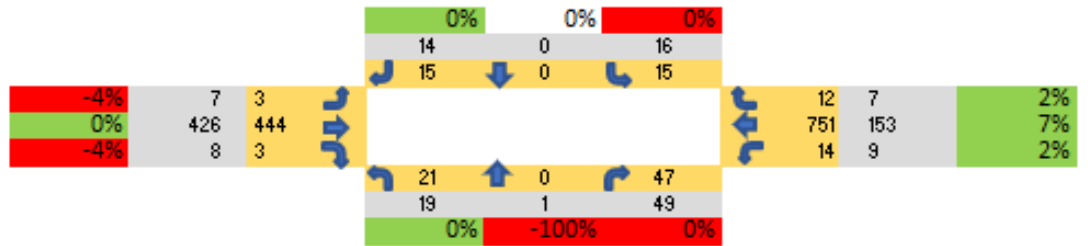
45 Chestnut Street/3rd Street



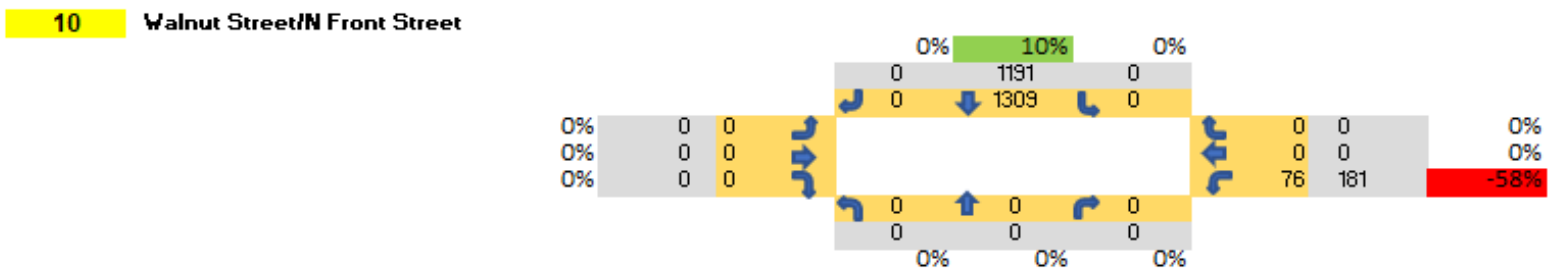
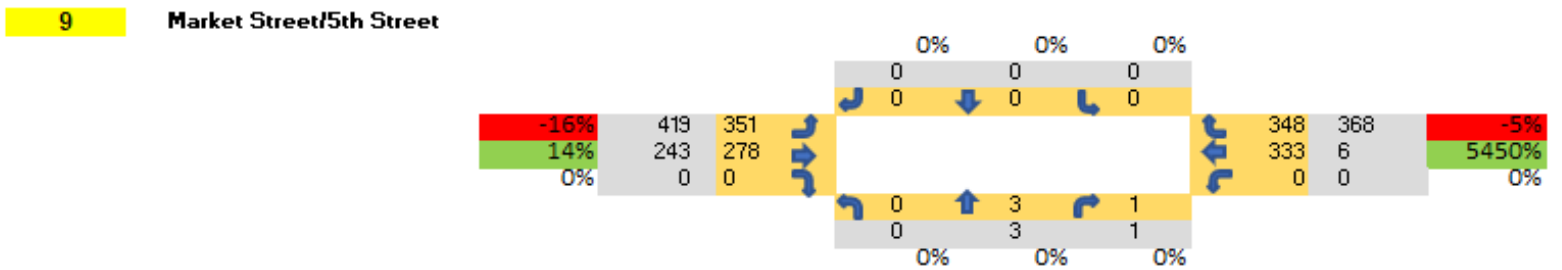
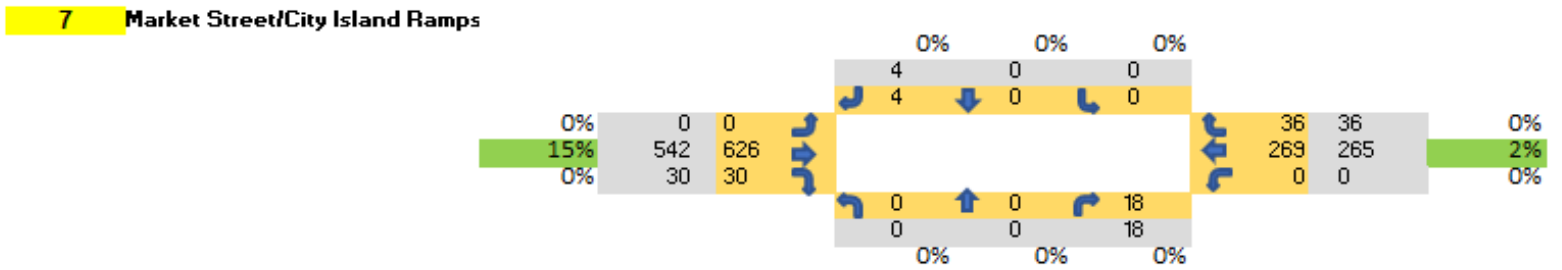
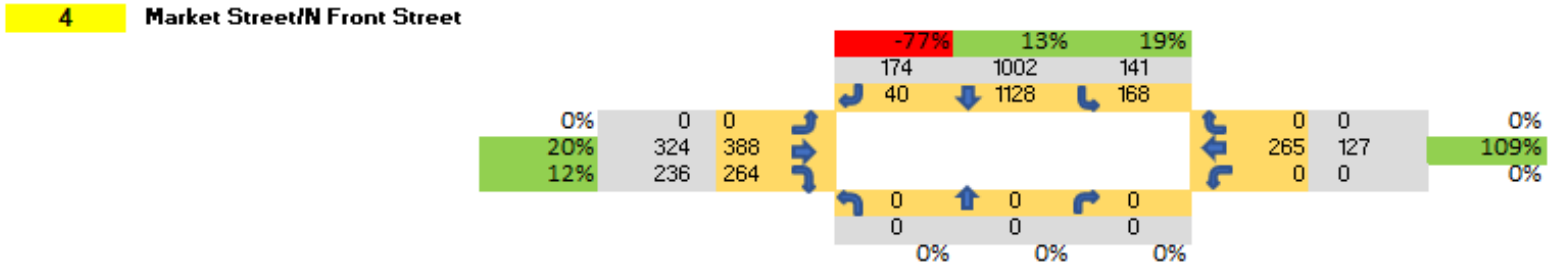
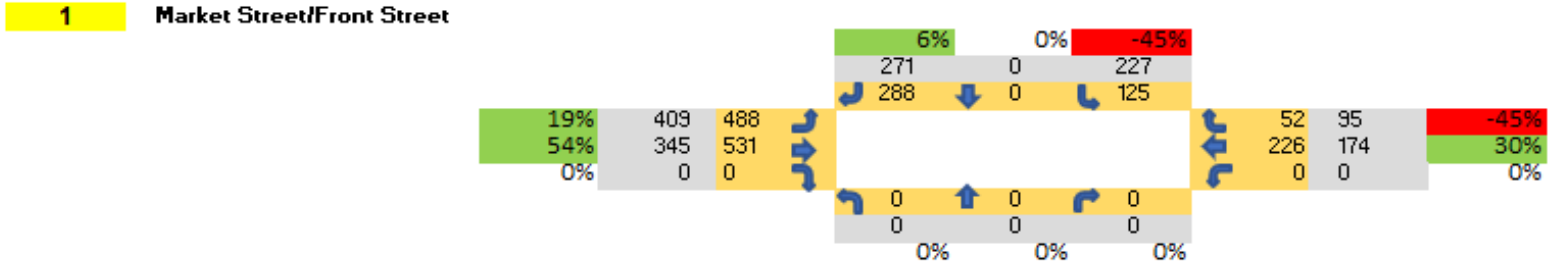
46 Chestnut Street/N Front Street



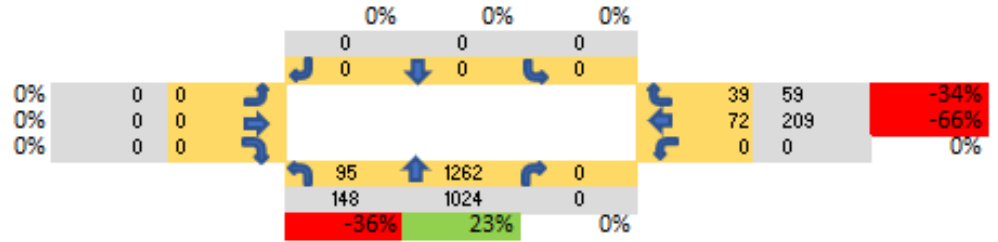
52 Market Street/10th Street



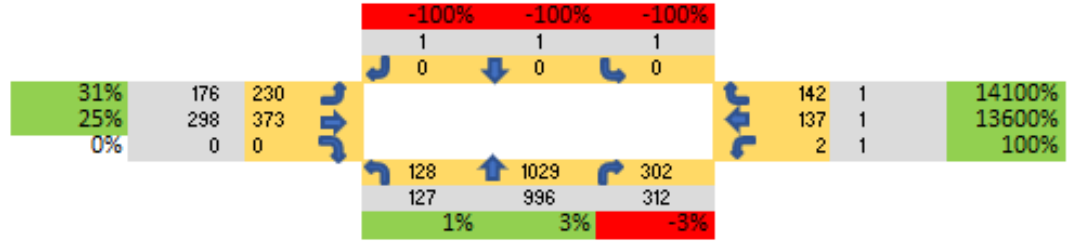
Legend	
	Future Volumes
	Existing Volumes



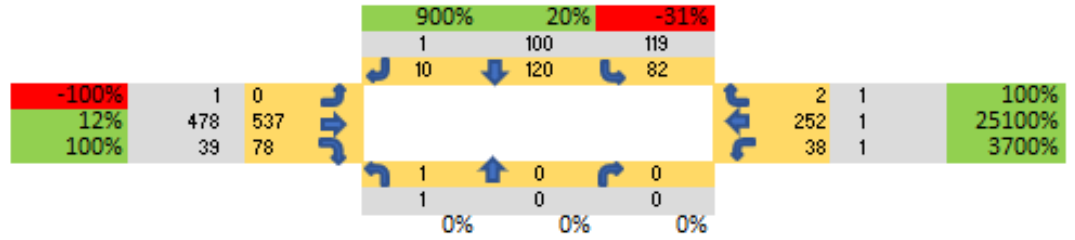
15 Walnut Street/2nd Street



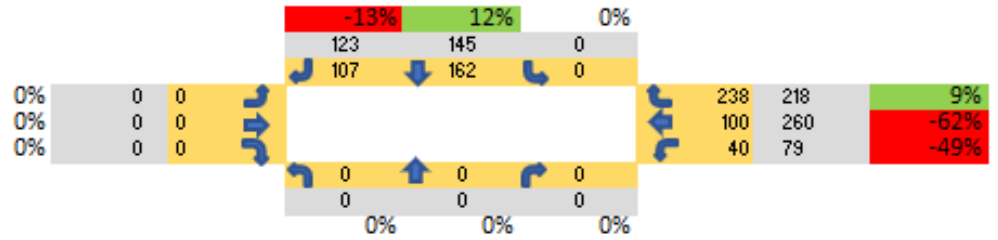
16 Market Street/2nd Street



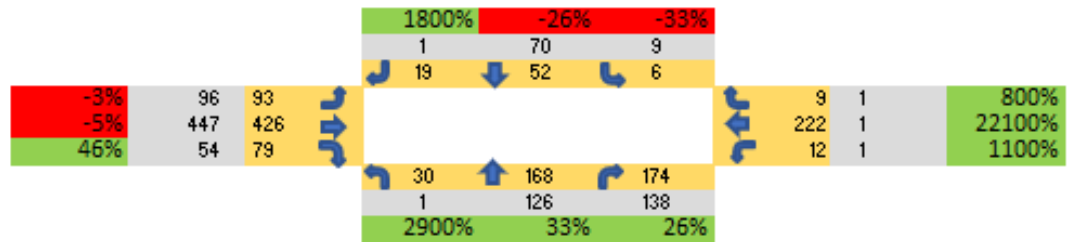
21 Market Street/3rd Street



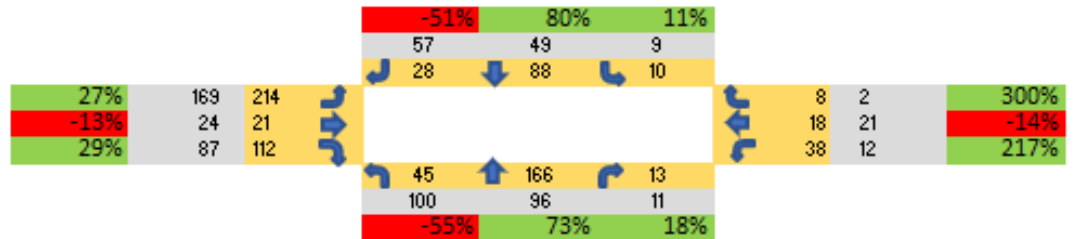
22 Walnut Street/3rd Street



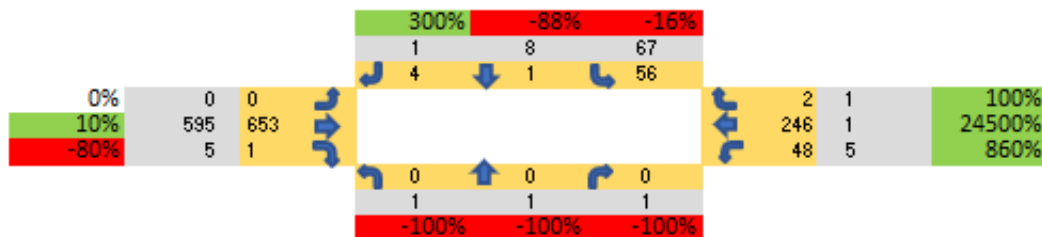
26 Market Street/4th Street



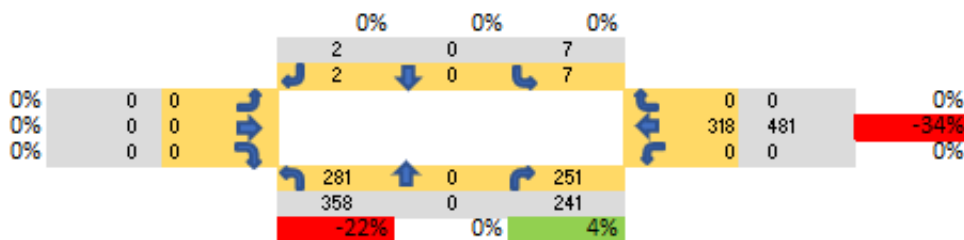
27 Chestnut Street/4th Street



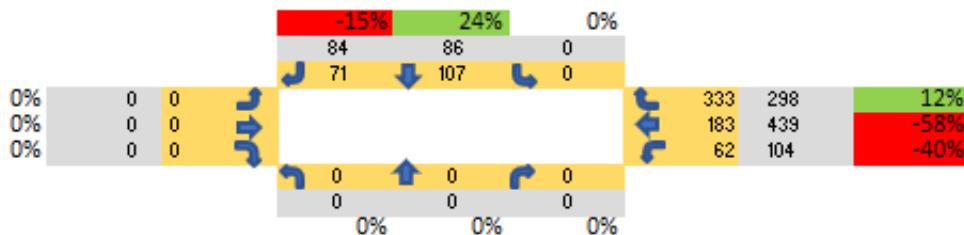
28 Market Street/Aberdeen St



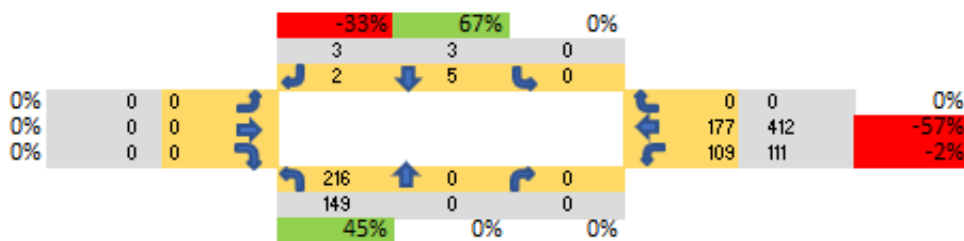
30 Walnut Street/5th Street



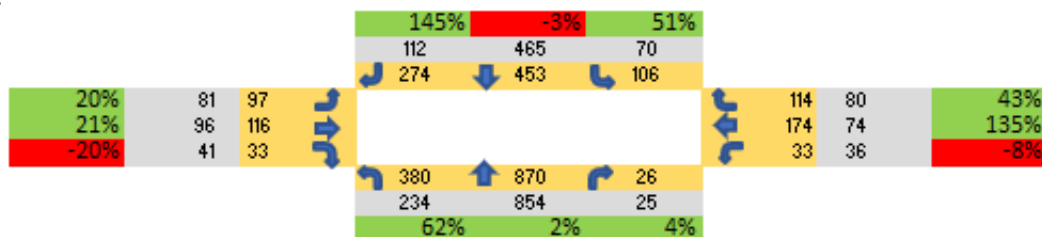
31 Walnut Street/Aberdeen St



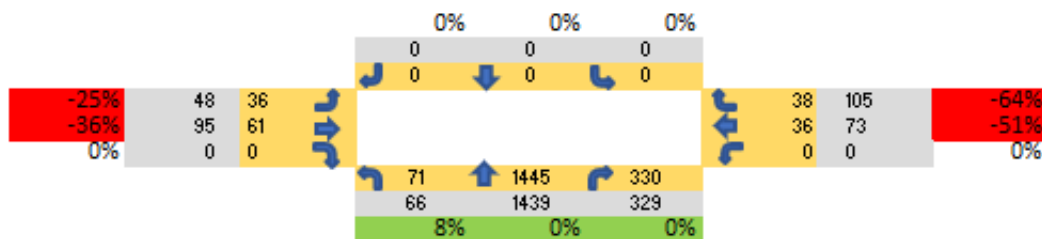
32 Walnut Street/4th Street



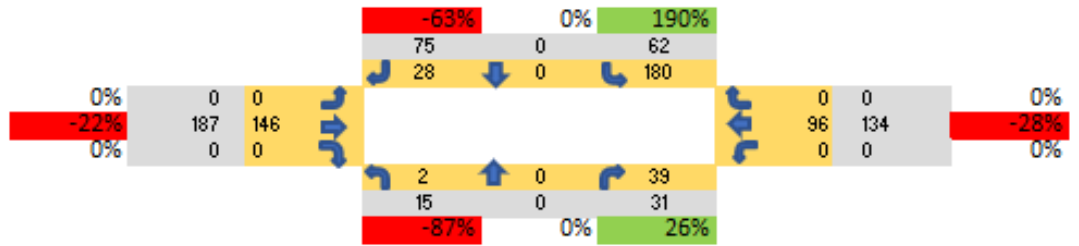
42 Market Street/Cameron Street



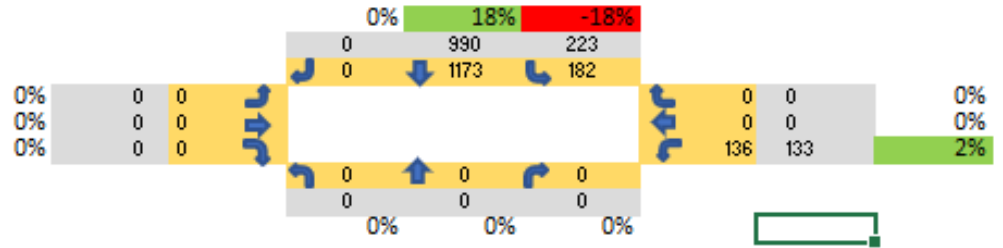
44 Chestnut Street/2nd Street



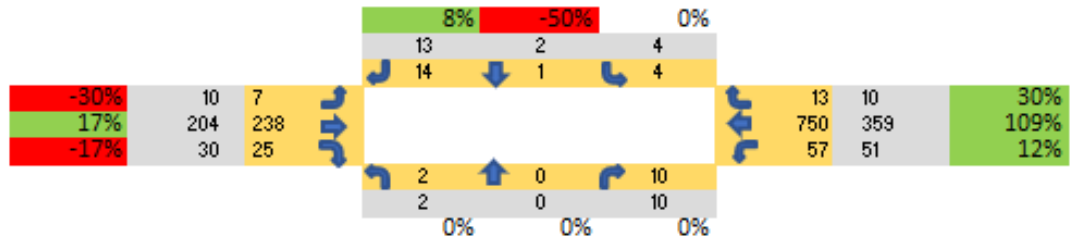
45 Chestnut Street/3rd Street



46 Chestnut Street/N Front Street

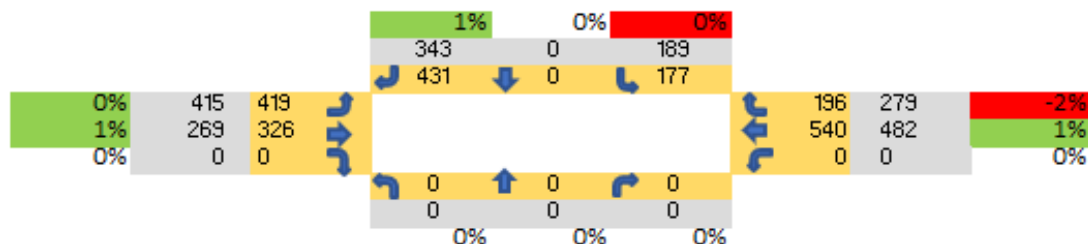


52 Market Street/10th Street

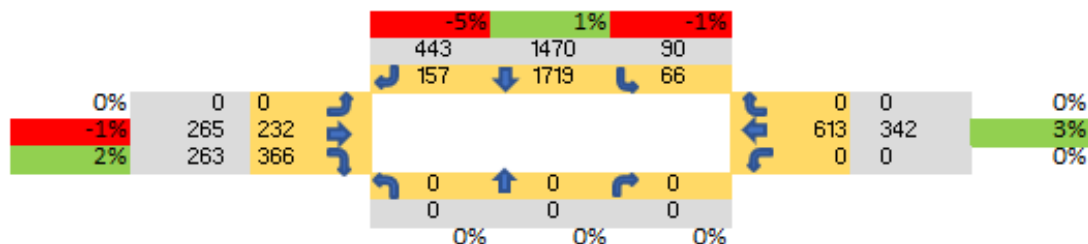


Legend	
	Future Volumes
	Existing Volumes

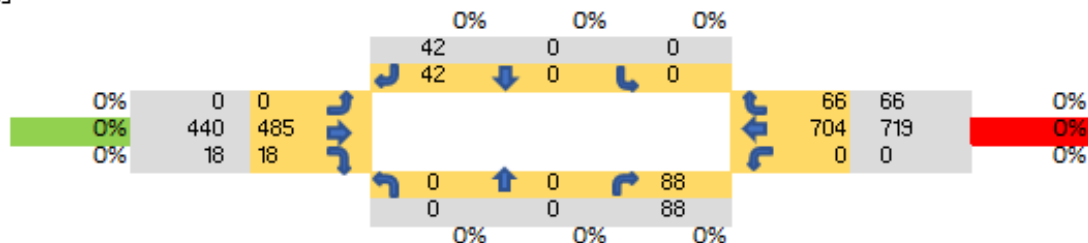
1 Market Street/Front Street



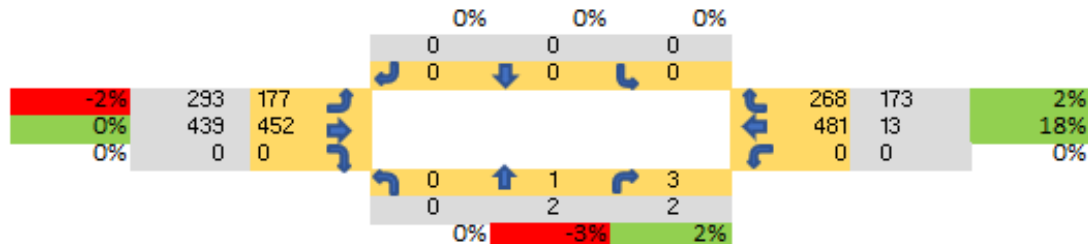
4 Market Street/N Front Street



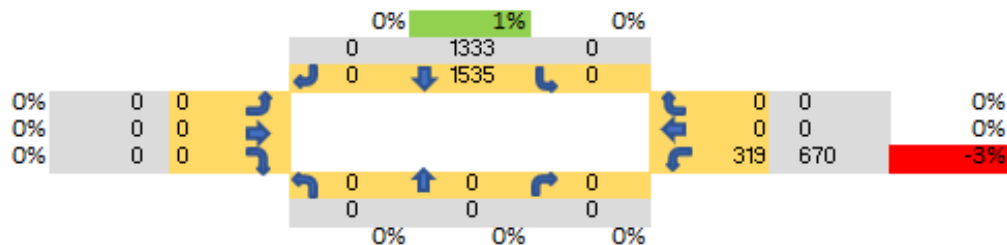
7 Market Street/City Island Ramps



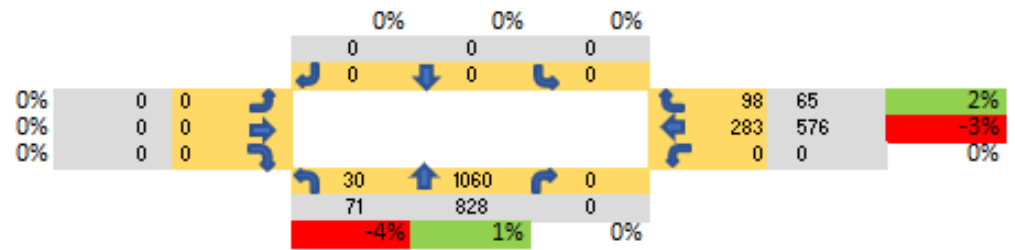
9 Market Street/5th Street



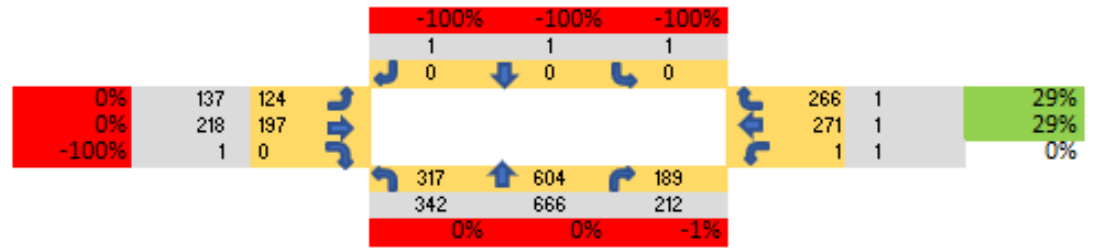
10 Walnut Street/N Front Street



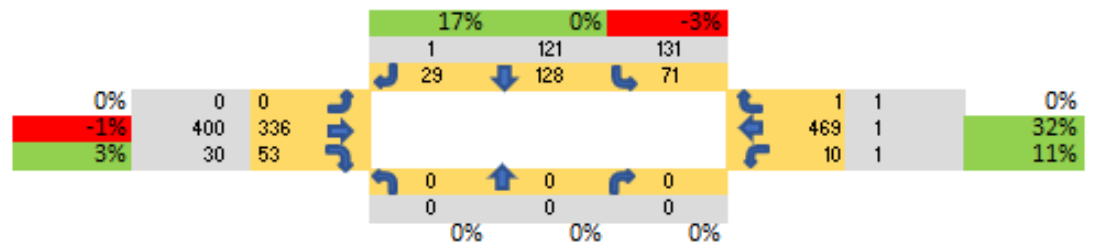
15 Walnut Street/2nd Street



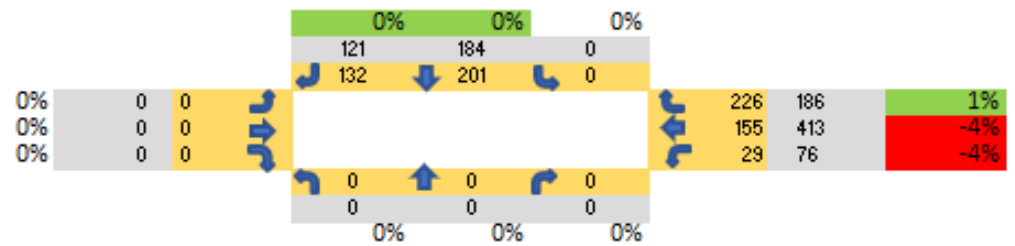
16 Market Street/2nd Street



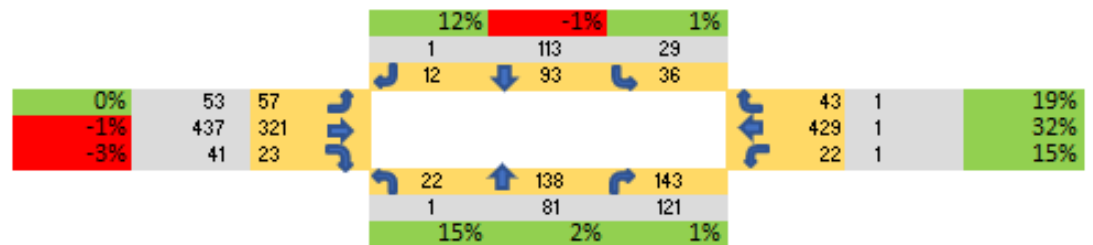
21 Market Street/3rd Street



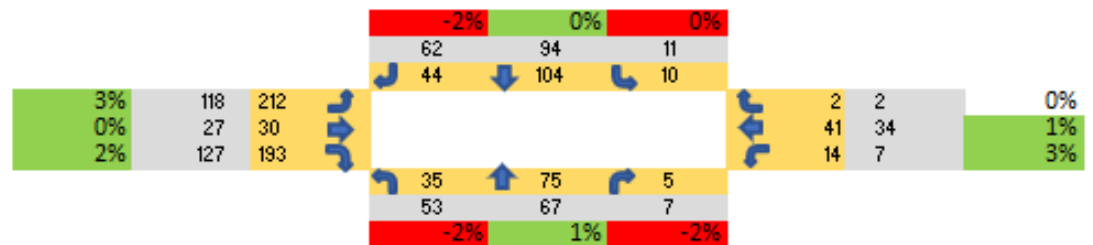
22 Walnut Street/3rd Street



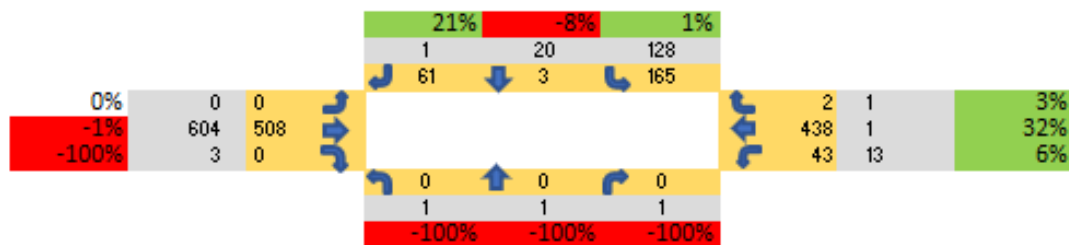
26 Market Street/4th Street



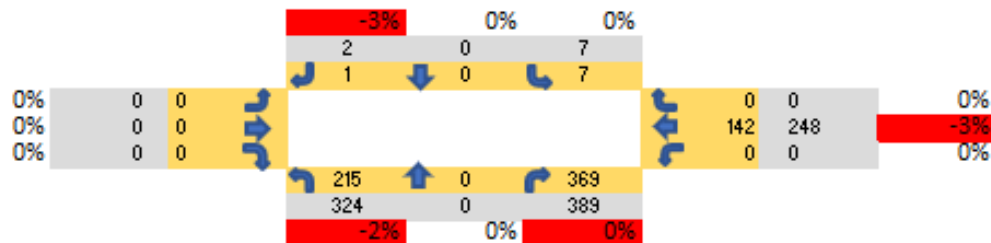
27 Chestnut Street/4th Street



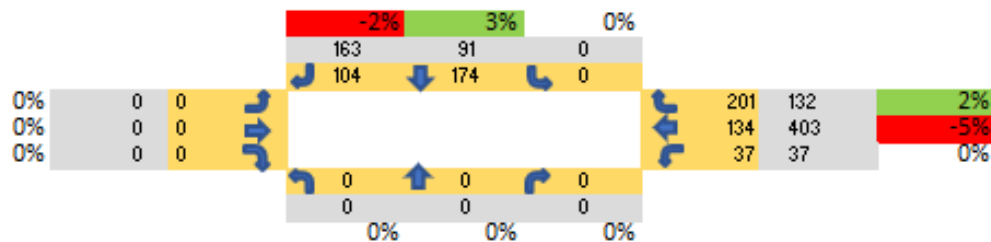
28 Market Street/Aberdeen St



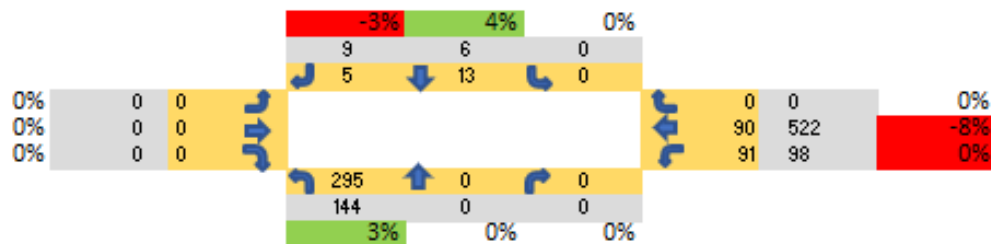
30 Walnut Street/5th Street



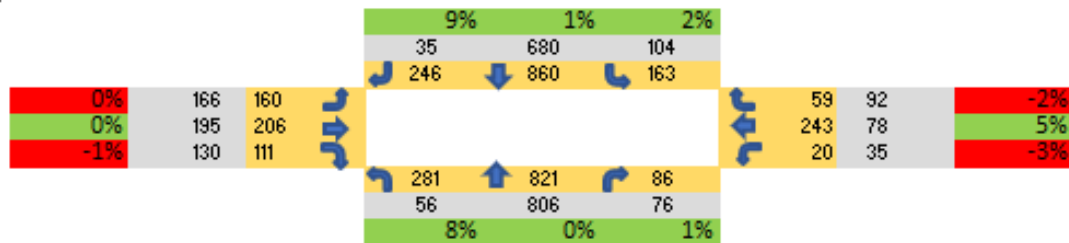
31 Walnut Street/Aberdeen St



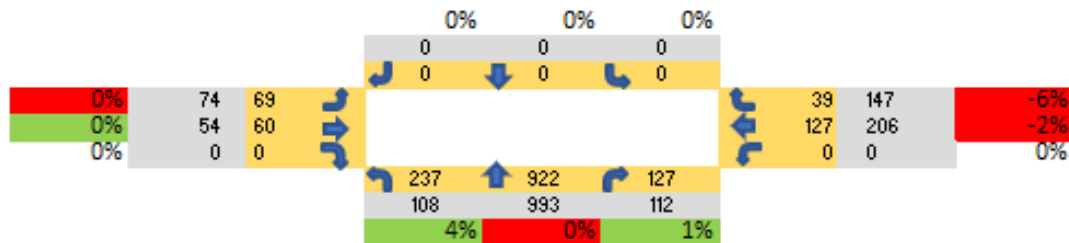
32 Walnut Street/4th Street



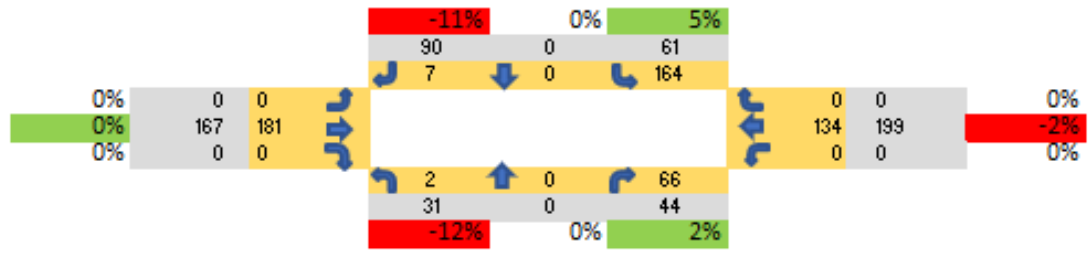
42 Market Street/Cameron Street



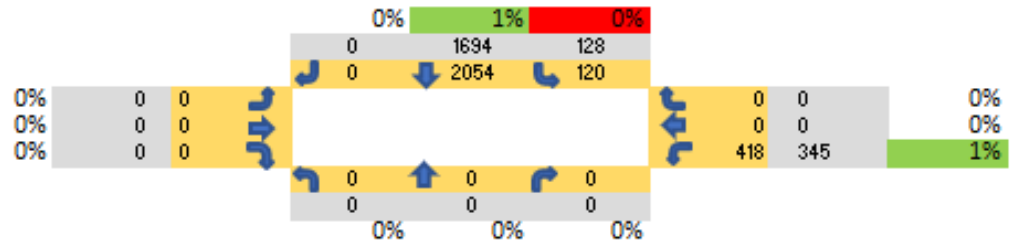
44 Chestnut Street/2nd Street



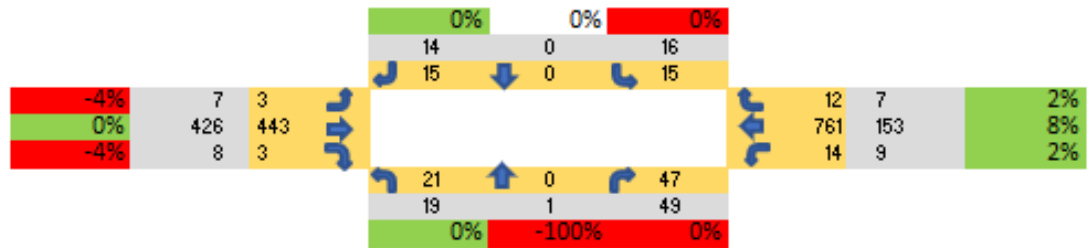
45 Chestnut Street/3rd Street



46 Chestnut Street/N Front Street



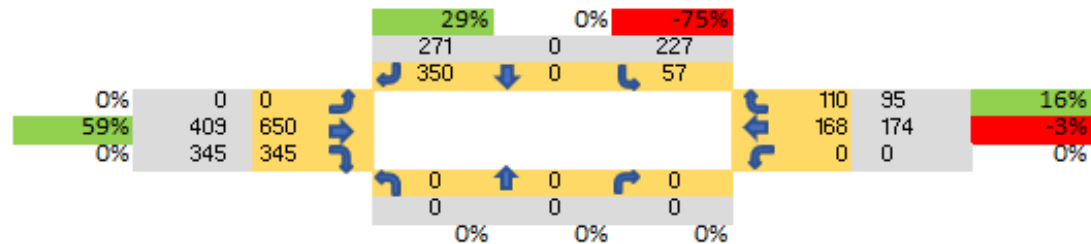
52 Market Street/10th Street



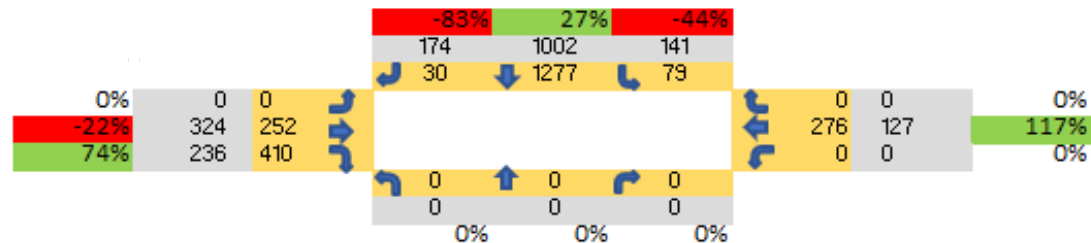
2045 Build Alternative 3 Volumes AM (one lane in ea. direction with Road Diet)

Legend	
	Future Volumes
	Existing Volumes

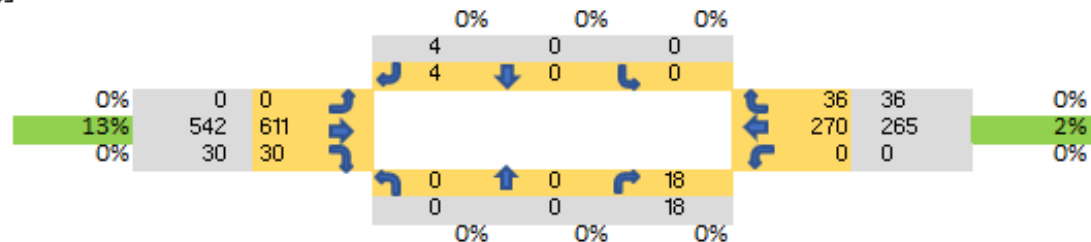
1 Market Street/Front Street



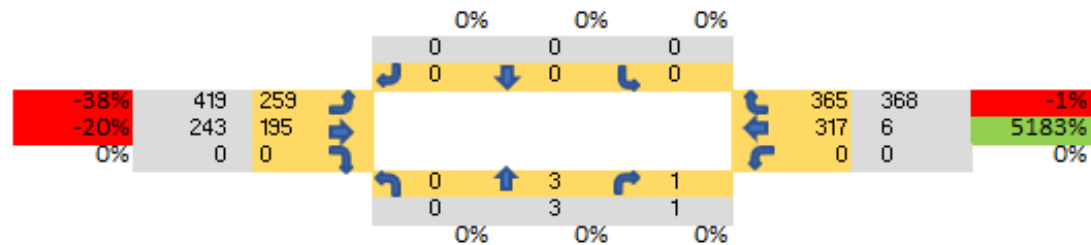
4 Market Street/N Front Street



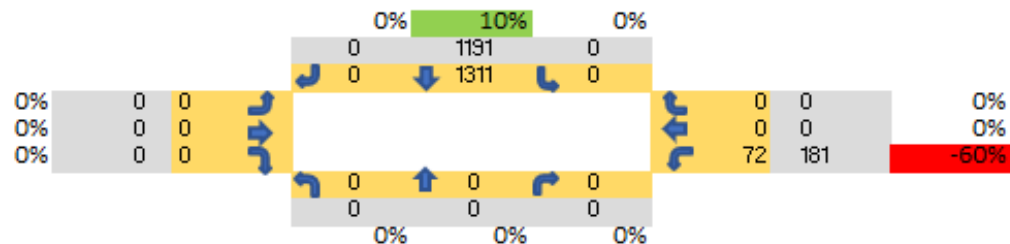
7 Market Street/City Island Ramps



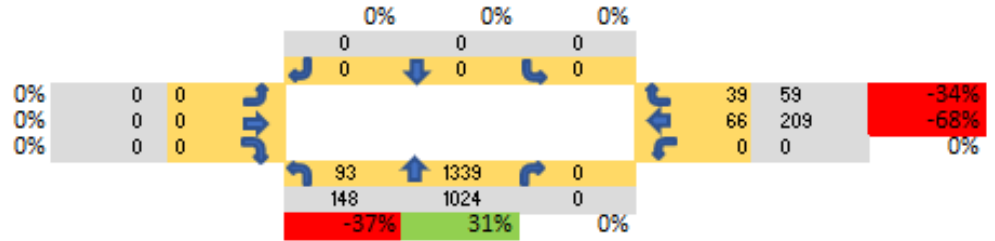
9 Market Street/5th Street



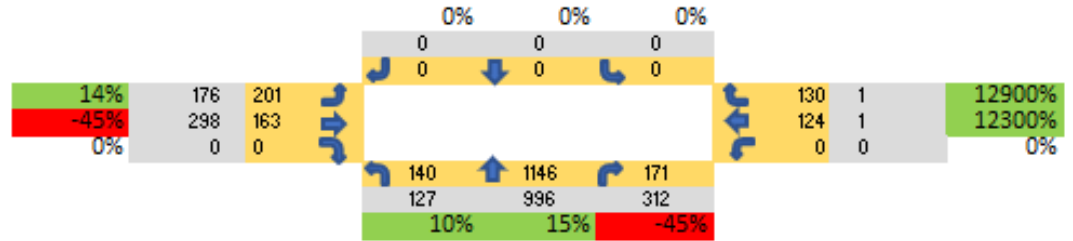
10 Walnut Street/N Front Street



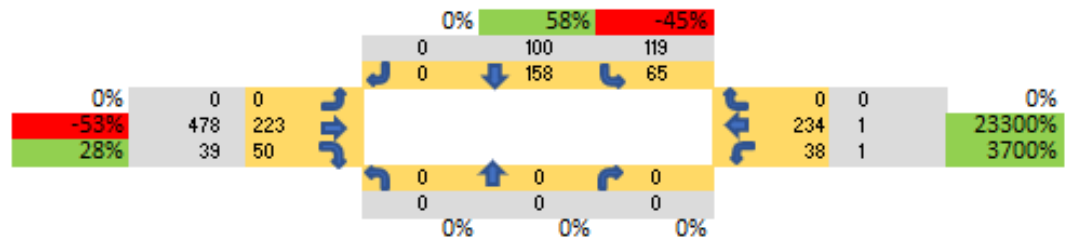
15 Walnut Street/2nd Street



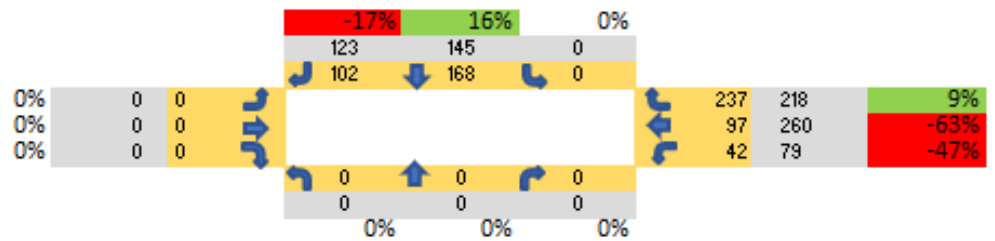
16 Market Street/2nd Street



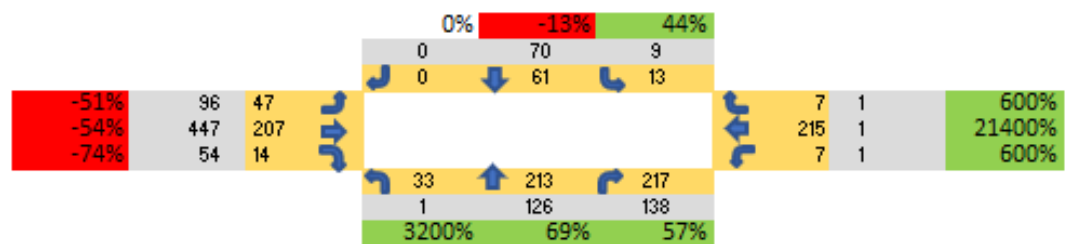
21 Market Street/3rd Street



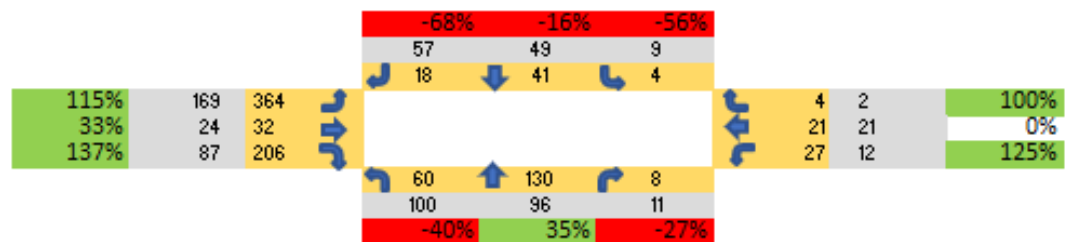
22 Walnut Street/3rd Street



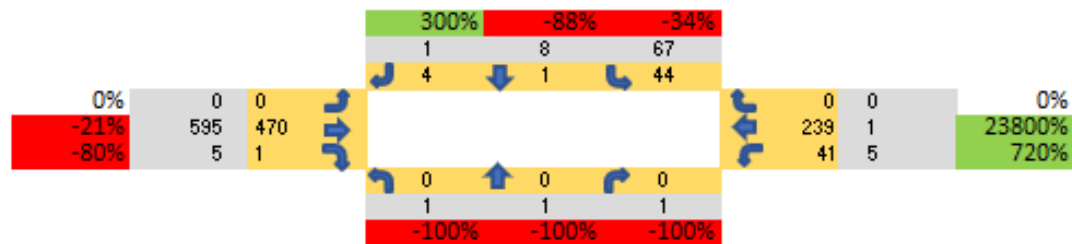
26 Market Street/4th Street



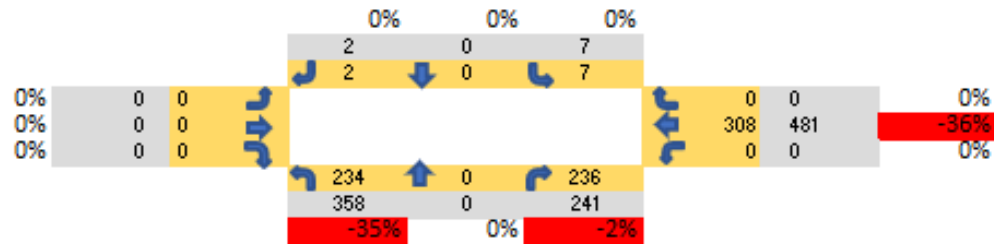
27 Chestnut Street/4th Street



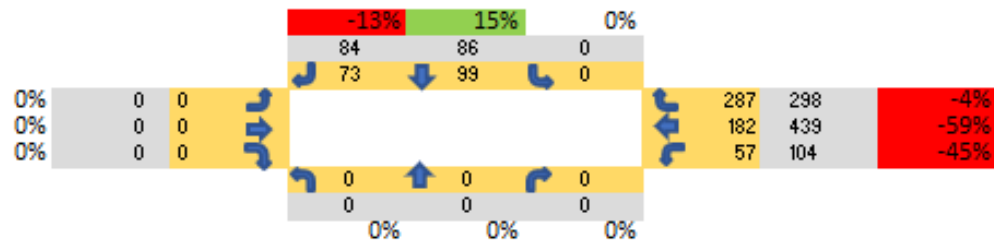
28 Market Street/Aberdeen St



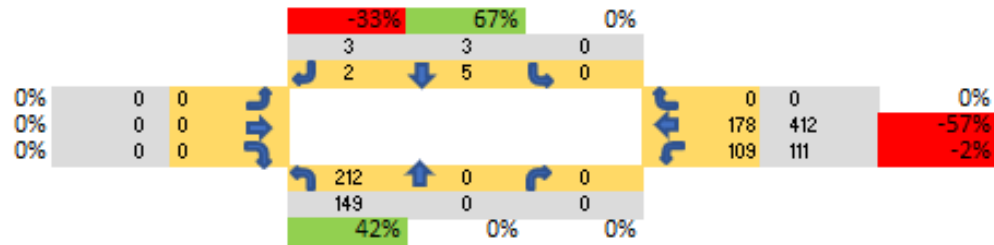
30 Walnut Street/5th Street



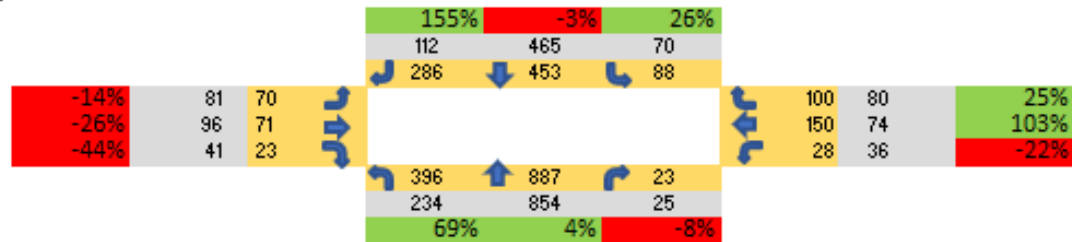
31 Walnut Street/Aberdeen St



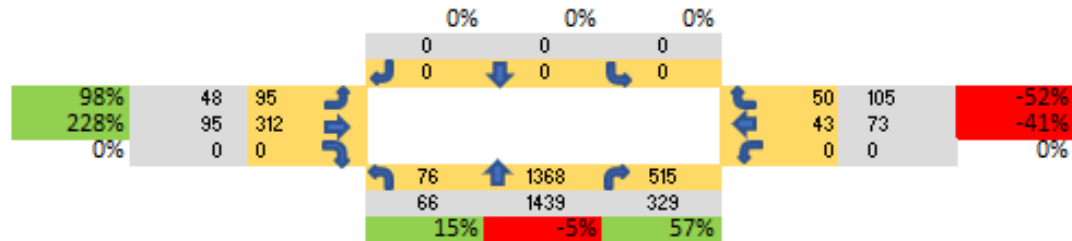
32 Walnut Street/4th Street



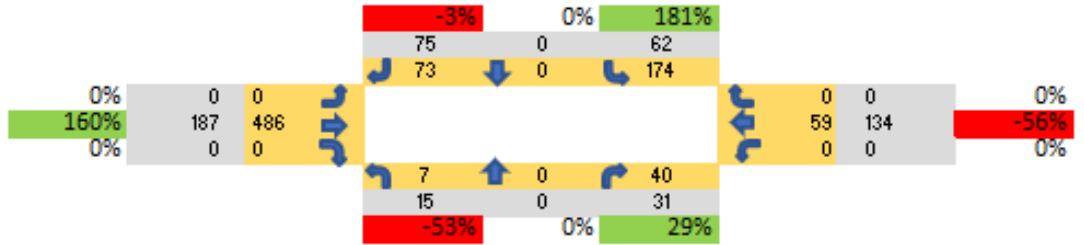
42 Market Street/Cameron Street



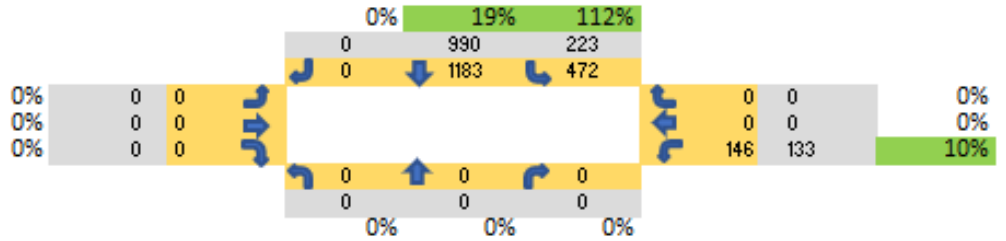
44 Chestnut Street/2nd Street



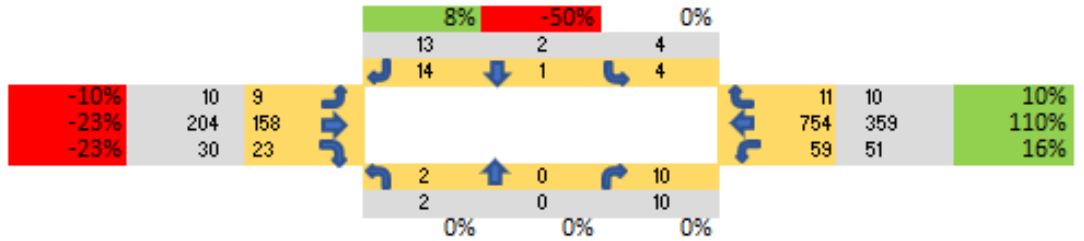
45 Chestnut Street/3rd Street



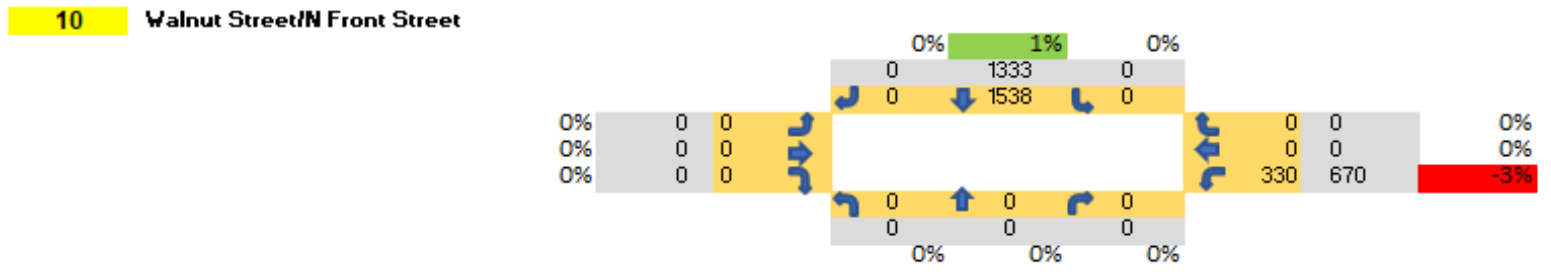
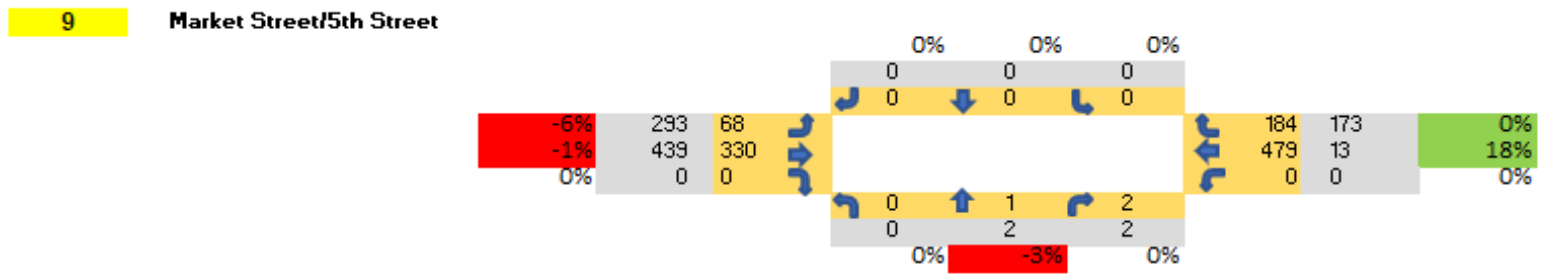
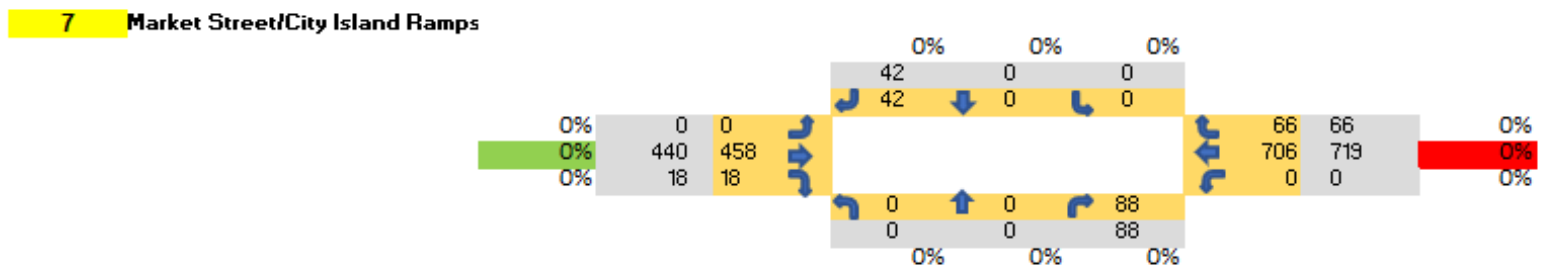
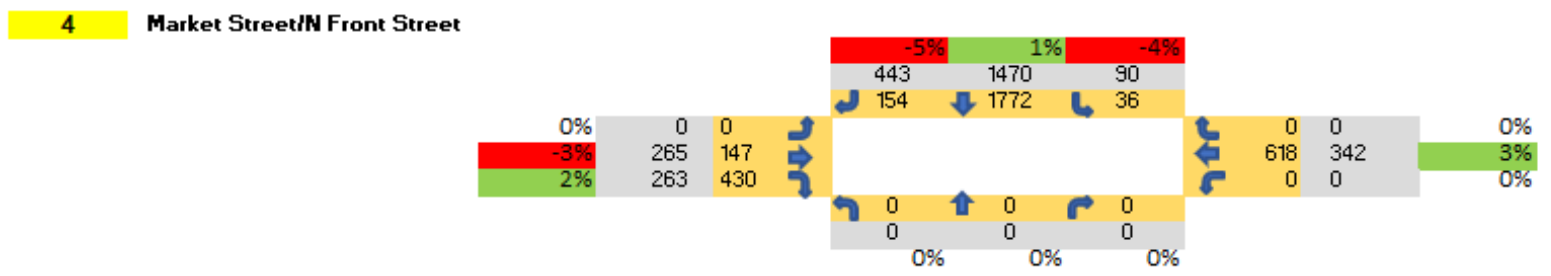
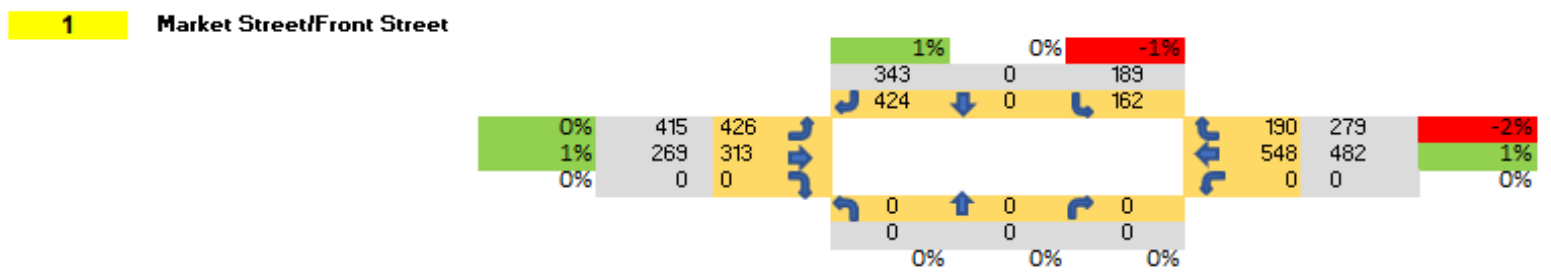
46 Chestnut Street/N Front Street



52 Market Street/10th Street

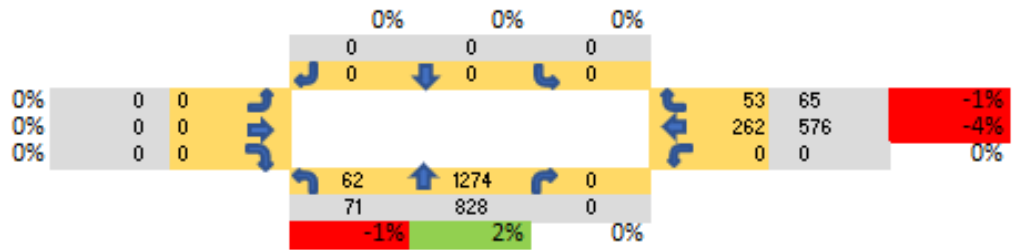


Legend	
	Future Volumes
	Existing Volumes

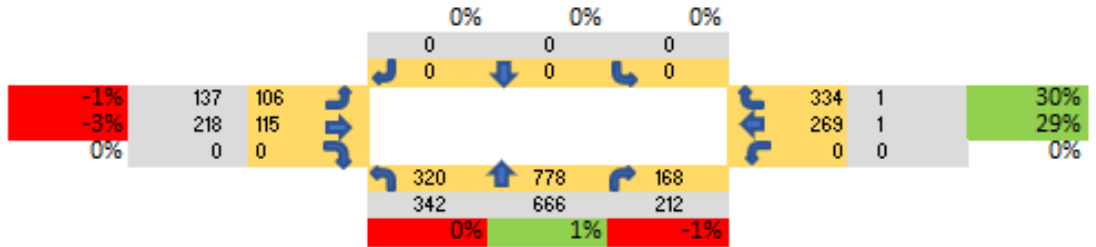


2045 Build Alternative 3 Volumes PM (one lane in ea. direction with Road Diet)

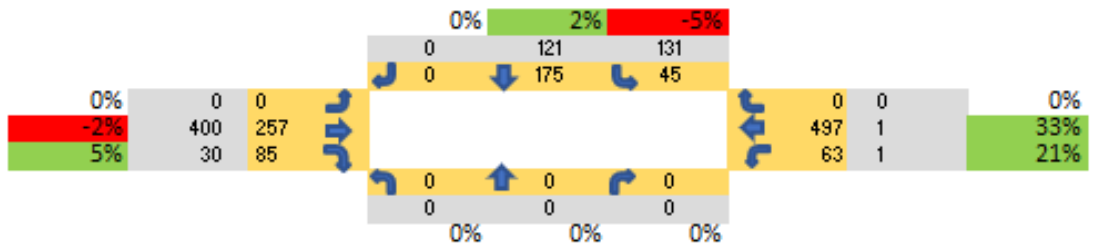
15 Walnut Street/2nd Street



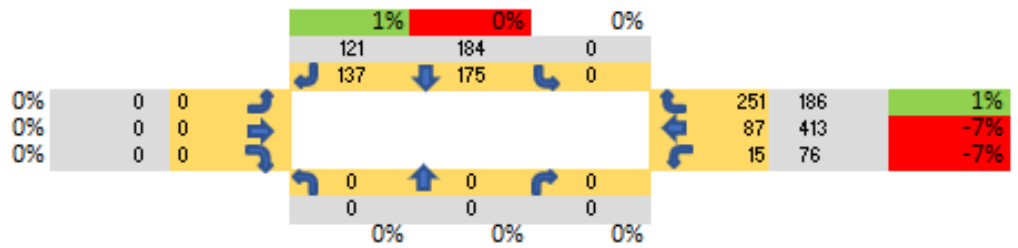
16 Market Street/2nd Street



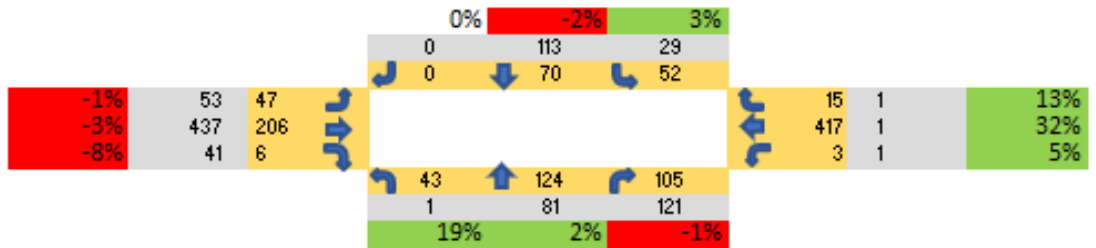
21 Market Street/3rd Street



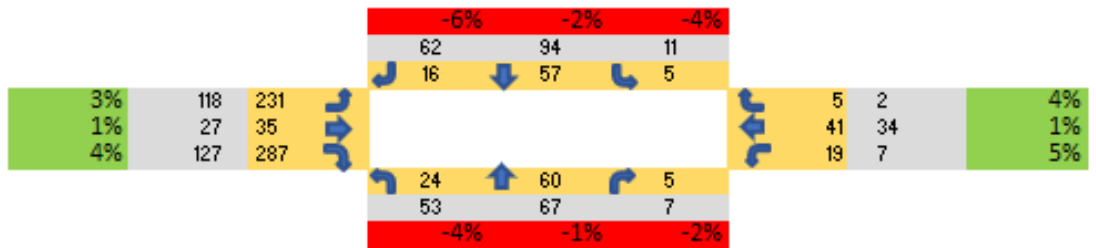
22 Walnut Street/3rd Street



26 Market Street/4th Street



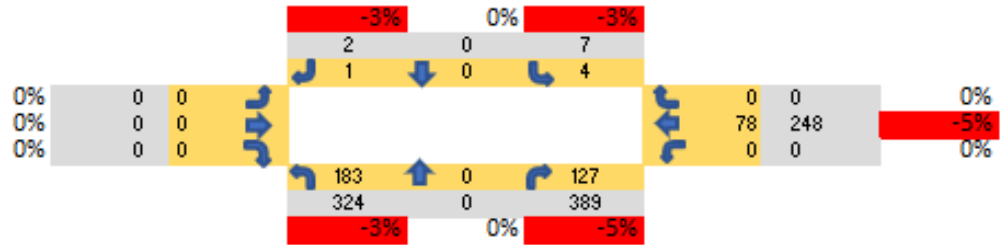
27 Chestnut Street/4th Street



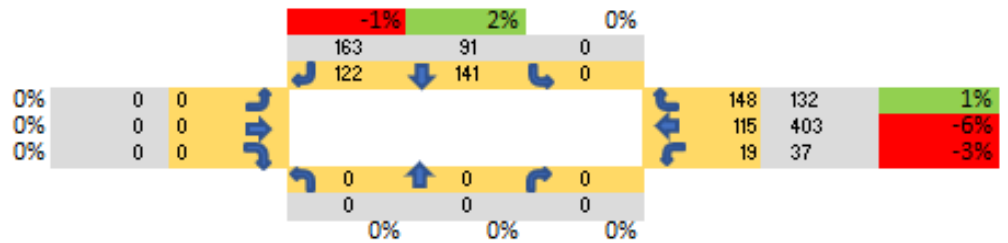
28 Market Street/Aberdeen St



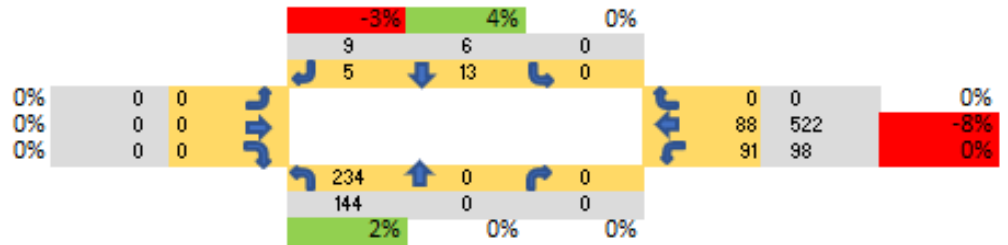
30 Walnut Street/5th Street



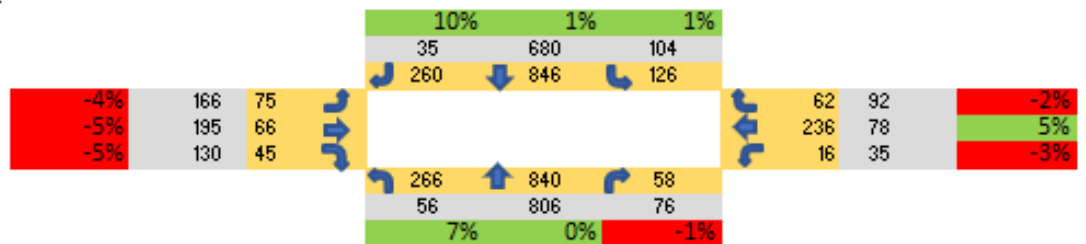
31 Walnut Street/Aberdeen St



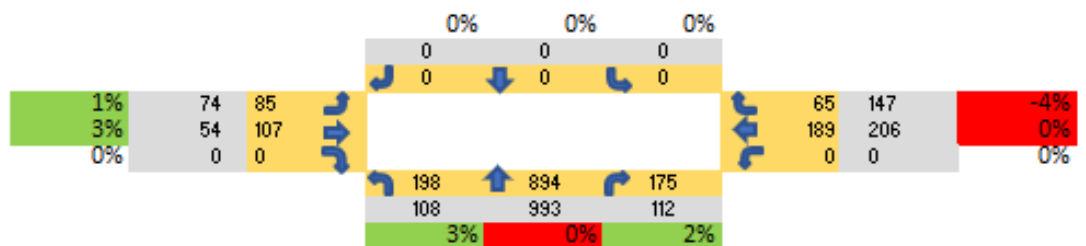
32 Walnut Street/4th Street



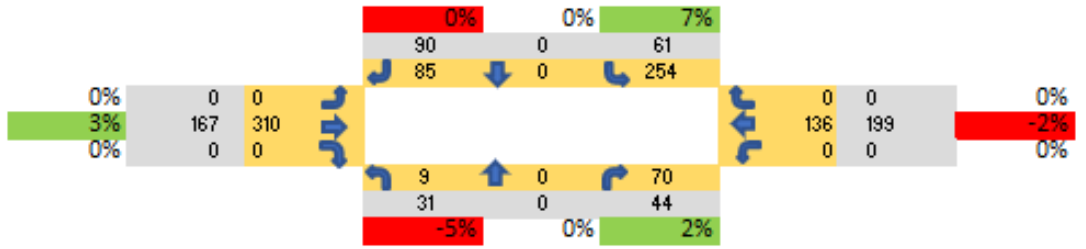
42 Market Street/Cameron Street



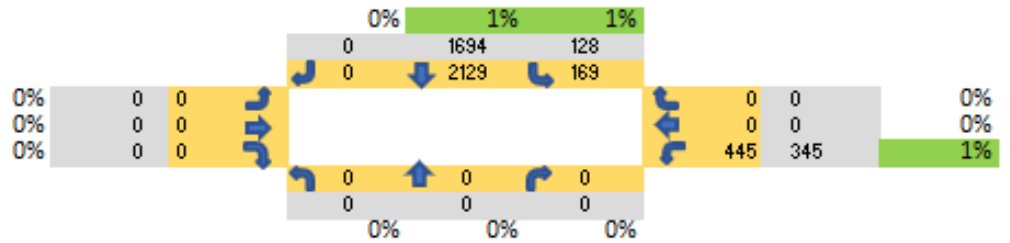
44 Chestnut Street/2nd Street



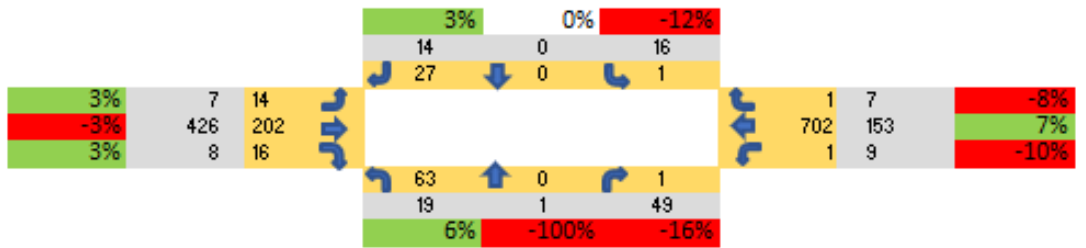
45 Chestnut Street/3rd Street



46 Chestnut Street/N Front Street



52 Market Street/10th Street



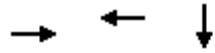


Appendix E
Capacity and Queue
Analysis Results- No-Build

Queues

4: N.Front St & Market St

06/29/2023















Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	762	123	1617
v/c Ratio	0.64	0.10	0.65
Control Delay	26.2	19.7	9.3
Queue Delay	0.0	0.0	0.0
Total Delay	26.2	19.7	9.3
Queue Length 50th (ft)	187	25	85
Queue Length 95th (ft)	251	44	99
Internal Link Dist (ft)	2011	397	440
Turn Bay Length (ft)			
Base Capacity (vph)	1197	1245	2503
Starvation Cap Reductn	0	0	19
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.64	0.10	0.65

Intersection Summary

HCM Signalized Intersection Capacity Analysis

4: N.Front St & Market St

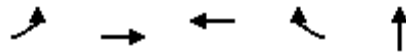
06/29/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑						↑↑↑	
Traffic Volume (vph)	0	404	282	0	111	0	0	0	0	168	1129	158
Future Volume (vph)	0	404	282	0	111	0	0	0	0	168	1129	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	12	10	12	12	12	12	13	12	13
Grade (%)		-1%			0%			0%				0%
Total Lost time (s)		5.8			5.8						6.0	
Lane Util. Factor		0.95			0.95						0.91	
Frt		0.94			1.00						0.98	
Flt Protected		1.00			1.00						0.99	
Satd. Flow (prot)		3115			3303						4974	
Flt Permitted		1.00			1.00						0.99	
Satd. Flow (perm)		3115			3303						4974	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	449	313	0	123	0	0	0	0	187	1254	176
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	739	0	0	123	0	0	0	0	0	1601	0
Turn Type		NA			NA					Perm	NA	
Protected Phases		2			2						1	
Permitted Phases										1		
Actuated Green, G (s)		36.2			36.2						48.0	
Effective Green, g (s)		36.2			36.2						48.0	
Actuated g/C Ratio		0.38			0.38						0.50	
Clearance Time (s)		5.8			5.8						6.0	
Lane Grp Cap (vph)		1174			1245						2487	
v/s Ratio Prot		0.24			0.04							
v/s Ratio Perm											0.32	
v/c Ratio		0.63			0.10						0.64	
Uniform Delay, d1		24.4			19.3						17.7	
Progression Factor		1.00			1.00						0.46	
Incremental Delay, d2		2.6			0.2						1.2	
Delay (s)		27.0			19.5						9.4	
Level of Service		C			B						A	
Approach Delay (s)		27.0			19.5			0.0			9.4	
Approach LOS		C			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			15.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			96.0			Sum of lost time (s)			11.8			
Intersection Capacity Utilization			68.2%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

9: Greyhound Driveway/5th St & Market St

06/29/2023



Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	484	305	241	243	4
v/c Ratio	0.64	0.14	0.63	0.63	0.04
Control Delay	17.0	3.6	14.3	13.2	44.2
Queue Delay	0.1	0.0	0.0	0.0	0.0
Total Delay	17.1	3.6	14.3	13.2	44.2
Queue Length 50th (ft)	118	17	4	0	2
Queue Length 95th (ft)	#421	40	80	74	13
Internal Link Dist (ft)		165	826		109
Turn Bay Length (ft)					
Base Capacity (vph)	759	2221	381	388	98
Starvation Cap Reductn	9	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	0.14	0.63	0.63	0.04




















Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

9: Greyhound Driveway/5th St & Market St

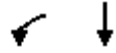
06/29/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 				
Traffic Volume (vph)	445	281	0	0	6	439	0	3	1	0	0	0
Future Volume (vph)	445	281	0	0	6	439	0	3	1	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	12	12	12	12	12	12	12	12	12
Grade (%)		-6%			6%			-10%				0%
Total Lost time (s)	7.0	7.0			7.0	7.0		7.5				
Lane Util. Factor	1.00	0.95			0.95	0.95		1.00				
Frt	1.00	1.00			0.85	0.85		0.97				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1823	3645			1467	1459		1890				
Flt Permitted	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (perm)	1823	3645			1467	1459		1890				
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)	484	305	0	0	7	477	0	3	1	0	0	0
RTOR Reduction (vph)	0	0	0	0	221	229	0	0	0	0	0	0
Lane Group Flow (vph)	484	305	0	0	20	14	0	4	0	0	0	0
Turn Type	Prot	NA			NA	Prot		NA				
Protected Phases	1	6			2	2	3	3				
Permitted Phases												
Actuated Green, G (s)	40.0	52.5			5.5	5.5		1.0				
Effective Green, g (s)	40.0	52.5			5.5	5.5		1.0				
Actuated g/C Ratio	0.42	0.55			0.06	0.06		0.01				
Clearance Time (s)	7.0	7.0			7.0	7.0		7.5				
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)	759	1993			84	83		19				
v/s Ratio Prot	c0.27	0.08			c0.01	0.01		c0.00				
v/s Ratio Perm												
v/c Ratio	0.64	0.15			0.24	0.17		0.21				
Uniform Delay, d1	22.2	10.8			43.3	43.1		47.1				
Progression Factor	0.50	0.40			1.00	1.00		1.00				
Incremental Delay, d2	3.8	0.2			6.7	4.3		5.5				
Delay (s)	14.9	4.5			50.0	47.4		52.6				
Level of Service	B	A			D	D		D				
Approach Delay (s)		10.8			48.7			52.6			0.0	
Approach LOS		B			D			D			A	
Intersection Summary												
HCM 2000 Control Delay			25.3				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			96.0				Sum of lost time (s)			23.5		
Intersection Capacity Utilization			64.9%				ICU Level of Service				C	
Analysis Period (min)			15									
c Critical Lane Group												

Queues

10: N.Front St & Walnut St

06/29/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	166	1555
v/c Ratio	0.18	0.51
Control Delay	4.2	11.9
Queue Delay	0.0	0.0
Total Delay	4.2	11.9
Queue Length 50th (ft)	11	185
Queue Length 95th (ft)	15	214
Internal Link Dist (ft)	439	727
Turn Bay Length (ft)		
Base Capacity (vph)	922	3055
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.18	0.51
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

10: N.Front St & Walnut St

06/29/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙↘					↑↑↑
Traffic Volume (vph)	146	0	0	0	0	1368
Future Volume (vph)	146	0	0	0	0	1368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12
Grade (%)	-1%		0%		-1%	
Total Lost time (s)	5.4				5.6	
Lane Util. Factor	0.97				0.91	
Frt	1.00				1.00	
Flt Protected	0.95				1.00	
Satd. Flow (prot)	3051				5111	
Flt Permitted	0.95				1.00	
Satd. Flow (perm)	3051				5111	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	166	0	0	0	0	1555
RTOR Reduction (vph)	45	0	0	0	0	0
Lane Group Flow (vph)	121	0	0	0	0	1555
Parking (#/hr)	1					
Turn Type	Prot				NA	
Protected Phases	3				2	
Permitted Phases						
Actuated Green, G (s)	27.6				57.4	
Effective Green, g (s)	27.6				57.4	
Actuated g/C Ratio	0.29				0.60	
Clearance Time (s)	5.4				5.6	
Lane Grp Cap (vph)	877				3055	
v/s Ratio Prot	c0.04				c0.30	
v/s Ratio Perm						
v/c Ratio	0.14				0.51	
Uniform Delay, d1	25.4				11.2	
Progression Factor	0.24				1.00	
Incremental Delay, d2	0.3				0.6	
Delay (s)	6.3				11.8	
Level of Service	A				B	
Approach Delay (s)	6.3		0.0			11.8
Approach LOS	A		A			B

Intersection Summary

HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues

15: 2nd St & Walnut St

06/29/2023



Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	198	72	1432
v/c Ratio	0.20	0.15	0.62
Control Delay	20.1	6.3	21.6
Queue Delay	0.0	0.0	0.0
Total Delay	20.1	6.3	21.6
Queue Length 50th (ft)	48	5	262
Queue Length 95th (ft)	77	29	319
Internal Link Dist (ft)	194		432
Turn Bay Length (ft)			
Base Capacity (vph)	968	484	2313
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.20	0.15	0.62
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

15: 2nd St & Walnut St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑↑↑				
Traffic Volume (vph)	0	0	0	0	182	66	133	1184	0	0	0	0
Future Volume (vph)	0	0	0	0	182	66	133	1184	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	11	11	10	12	12	12
Grade (%)		0%			-1%			1%			0%	
Total Lost time (s)					5.4	5.4		5.0				
Lane Util. Factor					0.95	1.00		0.91				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					3320	1485		4867				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					3320	1485		4867				
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	198	72	145	1287	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	51	0	33	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	198	21	0	1399	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					28.0	28.0		43.8				
Effective Green, g (s)					28.0	28.0		43.8				
Actuated g/C Ratio					0.29	0.29		0.46				
Clearance Time (s)					5.4	5.4		5.0				
Vehicle Extension (s)					3.0	3.0		3.0				
Lane Grp Cap (vph)					968	433		2220				
v/s Ratio Prot					c0.06							
v/s Ratio Perm						0.01		0.29				
v/c Ratio					0.20	0.05		0.63				
Uniform Delay, d1					25.6	24.4		19.9				
Progression Factor					0.76	0.87		1.00				
Incremental Delay, d2					0.5	0.2		1.4				
Delay (s)					19.9	21.4		21.3				
Level of Service					B	C		C				
Approach Delay (s)		0.0			20.3			21.3			0.0	
Approach LOS		A			C			C			A	

Intersection Summary

HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

16: 2nd St & Market St

06/29/2023



Lane Group	EBT	NBL	NBT
Lane Group Flow (vph)	626	119	1556
v/c Ratio	0.77	0.12	0.56
Control Delay	33.2	9.1	12.0
Queue Delay	0.0	0.0	0.1
Total Delay	33.2	9.1	12.1
Queue Length 50th (ft)	147	24	159
Queue Length 95th (ft)	205	57	243
Internal Link Dist (ft)	397		443
Turn Bay Length (ft)			
Base Capacity (vph)	1254	1011	2801
Starvation Cap Reductn	0	0	296
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.50	0.12	0.62
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

16: 2nd St & Market St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↑		↔	↔↔↔				
Traffic Volume (vph)	218	365	0	0	0	0	111	1104	343	0	0	0
Future Volume (vph)	218	365	0	0	0	0	111	1104	343	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			1%			0%	
Total Lost time (s)		6.0					6.0	6.0				
Lane Util. Factor		0.95					1.00	0.91				
Frt		1.00					1.00	0.96				
Flt Protected		0.98					0.95	1.00				
Satd. Flow (prot)		3474					1761	4880				
Flt Permitted		0.84					0.95	1.00				
Satd. Flow (perm)		2979					1761	4880				
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)	234	392	0	0	0	0	119	1187	369	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	626	0	0	0	0	119	1556	0	0	0	0
Turn Type	Perm	NA					Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		21.4					45.1	45.1				
Effective Green, g (s)		21.4					45.1	45.1				
Actuated g/C Ratio		0.27					0.57	0.57				
Clearance Time (s)		6.0					6.0	6.0				
Vehicle Extension (s)		3.0					3.0	3.0				
Lane Grp Cap (vph)		812					1011	2803				
v/s Ratio Prot								c0.32				
v/s Ratio Perm		c0.21					0.07					
v/c Ratio		0.77					0.12	0.56				
Uniform Delay, d1		26.3					7.6	10.4				
Progression Factor		1.00					1.00	1.00				
Incremental Delay, d2		4.6					0.2	0.8				
Delay (s)		30.9					7.9	11.2				
Level of Service		C					A	B				
Approach Delay (s)		30.9			0.0			11.0			0.0	
Approach LOS		C			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			16.4				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			78.5				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			55.4%				ICU Level of Service		B			
Analysis Period (min)			15									
c	Critical Lane Group											

Queues

21: 3rd St & Market St

06/29/2023



Lane Group	EBT	SBT
Lane Group Flow (vph)	713	260
v/c Ratio	0.34	0.31
Control Delay	18.8	12.5
Queue Delay	0.0	0.0
Total Delay	18.8	12.5
Queue Length 50th (ft)	103	63
Queue Length 95th (ft)	126	88
Internal Link Dist (ft)	324	433
Turn Bay Length (ft)		
Base Capacity (vph)	2101	829
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.34	0.31
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

21: 3rd St & Market St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑↑										↑	
Traffic Volume (vph)	0	570	43	0	0	0	0	0	0	126	97	0	
Future Volume (vph)	0	570	43	0	0	0	0	0	0	126	97	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	11	11	11	12	12	12	12	12	12	12	16	12	
Grade (%)		-1%			0%			0%				0%	
Total Lost time (s)		5.7										5.7	
Lane Util. Factor		0.91										1.00	
Frt		0.99										1.00	
Flt Protected		1.00										0.97	
Satd. Flow (prot)		4888										1837	
Flt Permitted		1.00										0.97	
Satd. Flow (perm)		4888										1837	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Adj. Flow (vph)	0	663	50	0	0	0	0	0	0	147	113	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	713	0	0	0	0	0	0	0	0	260	0	
Parking (#/hr)												1	
Turn Type		NA								Split		NA	
Protected Phases		2								4		4	
Permitted Phases													
Actuated Green, G (s)		41.3										43.3	
Effective Green, g (s)		41.3										43.3	
Actuated g/C Ratio		0.43										0.45	
Clearance Time (s)		5.7										5.7	
Vehicle Extension (s)		3.0										3.0	
Lane Grp Cap (vph)		2102										828	
v/s Ratio Prot		c0.15										c0.14	
v/s Ratio Perm													
v/c Ratio		0.34										0.31	
Uniform Delay, d1		18.2										16.9	
Progression Factor		1.00										0.67	
Incremental Delay, d2		0.4										1.0	
Delay (s)		18.7										12.3	
Level of Service		B										B	
Approach Delay (s)		18.7			0.0			0.0				12.3	
Approach LOS		B			A			A				B	
Intersection Summary													
HCM 2000 Control Delay			17.0									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.35										
Actuated Cycle Length (s)			96.0									Sum of lost time (s)	17.4
Intersection Capacity Utilization			33.5%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

22: 3rd St & Walnut St

06/29/2023



Lane Group	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	410	300	192	151
v/c Ratio	0.29	0.41	0.22	0.19
Control Delay	9.2	3.3	14.6	14.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.2	3.3	14.6	14.5
Queue Length 50th (ft)	36	4	64	50
Queue Length 95th (ft)	51	7	90	74
Internal Link Dist (ft)	408		564	
Turn Bay Length (ft)				
Base Capacity (vph)	1425	736	891	783
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.29	0.41	0.22	0.19
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

22: 3rd St & Walnut St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↕↕	↗					↕	↗	
Traffic Volume (vph)	0	0	0	78	242	234	0	0	0	0	150	118	
Future Volume (vph)	0	0	0	78	242	234	0	0	0	0	150	118	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12	
Grade (%)		0%			-1%			0%			-1%		
Total Lost time (s)					5.7	5.7					5.7	5.7	
Lane Util. Factor					0.95	1.00					1.00	1.00	
Frt					1.00	0.85					1.00	0.85	
Flt Protected					0.99	1.00					1.00	1.00	
Satd. Flow (prot)					3514	1424					1810	1591	
Flt Permitted					0.99	1.00					1.00	1.00	
Satd. Flow (perm)					3514	1424					1810	1591	
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	
Adj. Flow (vph)	0	0	0	100	310	300	0	0	0	0	192	151	
RTOR Reduction (vph)	0	0	0	0	61	183	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	349	117	0	0	0	0	192	151	
Parking (#/hr)				1		1							
Turn Type				Perm	NA	Perm					NA	Perm	
Protected Phases					4						2		
Permitted Phases				4		4						2	
Actuated Green, G (s)					37.3	37.3					47.3	47.3	
Effective Green, g (s)					37.3	37.3					47.3	47.3	
Actuated g/C Ratio					0.39	0.39					0.49	0.49	
Clearance Time (s)					5.7	5.7					5.7	5.7	
Vehicle Extension (s)					3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)					1365	553					891	783	
v/s Ratio Prot											c0.11		
v/s Ratio Perm					0.10	0.08						0.09	
v/c Ratio					0.26	0.21					0.22	0.19	
Uniform Delay, d1					19.9	19.5					13.8	13.6	
Progression Factor					0.57	0.64					1.00	1.00	
Incremental Delay, d2					0.4	0.8					0.6	0.5	
Delay (s)					11.8	13.3					14.4	14.2	
Level of Service					B	B					B	B	
Approach Delay (s)		0.0			12.5			0.0			14.3		
Approach LOS		A			B			A			B		
Intersection Summary													
HCM 2000 Control Delay			13.1		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.25										
Actuated Cycle Length (s)			96.0		Sum of lost time (s)					17.4			
Intersection Capacity Utilization			51.2%		ICU Level of Service					A			
Analysis Period (min)			15										
c Critical Lane Group													

Queues

26: 4th St & Market St

06/29/2023



Lane Group	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	804	339	5	86
v/c Ratio	0.44	0.57	0.02	0.16
Control Delay	8.9	18.5	14.8	16.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.0	18.5	14.8	16.3
Queue Length 50th (ft)	43	81	3	47
Queue Length 95th (ft)	53	122	m9	86
Internal Link Dist (ft)	407	432		435
Turn Bay Length (ft)				
Base Capacity (vph)	1845	594	208	549
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	29	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.57	0.02	0.16

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

26: 4th St & Market St

06/29/2023

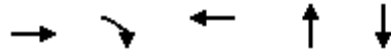


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔↑↔						↔		↔	↑	↔	
Traffic Volume (vph)	95	473	139	0	0	0	0	137	161	4	76	0	
Future Volume (vph)	95	473	139	0	0	0	0	137	161	4	76	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	11	11	11	12	12	12	12	12	12	10	10	12	
Grade (%)		0%			0%			-1%			1%		
Total Lost time (s)		5.5						5.5		5.5	5.5		
Lane Util. Factor		0.91						1.00		1.00	1.00		
Frt		0.97						0.93		1.00	1.00		
Flt Protected		0.99						1.00		0.95	1.00		
Satd. Flow (prot)		4739						1736		1643	1730		
Flt Permitted		0.99						1.00		0.38	1.00		
Satd. Flow (perm)		4739						1736		657	1730		
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)	108	538	158	0	0	0	0	156	183	5	86	0	
RTOR Reduction (vph)	0	43	0	0	0	0	0	44	0	0	0	0	
Lane Group Flow (vph)	0	761	0	0	0	0	0	295	0	5	86	0	
Parking (#/hr)	1												
Turn Type	Perm	NA						NA		Perm	NA		
Protected Phases		4						2			6		
Permitted Phases	4									6			
Actuated Green, G (s)		36.5						30.5		30.5	30.5		
Effective Green, g (s)		36.5						30.5		30.5	30.5		
Actuated g/C Ratio		0.38						0.32		0.32	0.32		
Clearance Time (s)		5.5						5.5		5.5	5.5		
Vehicle Extension (s)		3.0						3.0		3.0	3.0		
Lane Grp Cap (vph)		1801						551		208	549		
v/s Ratio Prot								c0.17			0.05		
v/s Ratio Perm		0.16								0.01			
v/c Ratio		0.42						0.54		0.02	0.16		
Uniform Delay, d1		22.0						26.9		22.5	23.5		
Progression Factor		0.41						0.66		0.63	0.66		
Incremental Delay, d2		0.7						3.5		0.2	0.6		
Delay (s)		9.7						21.3		14.5	16.1		
Level of Service		A						C		B	B		
Approach Delay (s)		9.7			0.0			21.3			16.0		
Approach LOS		A			A			C			B		
Intersection Summary													
HCM 2000 Control Delay			13.3									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.38										
Actuated Cycle Length (s)			96.0									Sum of lost time (s)	13.0
Intersection Capacity Utilization			99.0%									ICU Level of Service	F
Analysis Period (min)			15										
c Critical Lane Group													

Queues

27: 4th St & Chestnut St/Amtrak Driveway

06/29/2023



Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	204	118	78	320	242
v/c Ratio	0.70	0.24	0.22	0.31	0.25
Control Delay	37.6	5.5	26.2	9.5	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	5.5	26.2	9.5	3.2
Queue Length 50th (ft)	128	0	38	76	6
Queue Length 95th (ft)	175	23	m62	142	74
Internal Link Dist (ft)	412		305	245	432
Turn Bay Length (ft)					
Base Capacity (vph)	511	789	619	1030	964
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.40	0.15	0.13	0.31	0.25

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

27: 4th St & Chestnut St/Amtrak Driveway

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↕	↗		↕			↕			↕			
Traffic Volume (vph)	151	18	98	30	31	4	111	141	13	13	111	76		
Future Volume (vph)	151	18	98	30	31	4	111	141	13	13	111	76		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width	10	10	16	12	12	12	14	14	14	11	11	11		
Grade (%)		5%			-3%			-8%			4%			
Total Lost time (s)		5.5	5.5		5.5			5.5			5.5			
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00			
Frt		1.00	0.85		0.99			0.99			0.95			
Flt Protected		0.96	1.00		0.98			0.98			1.00			
Satd. Flow (prot)		1623	1750		1832			2010			1493			
Flt Permitted		0.73	1.00		0.80			0.77			0.97			
Satd. Flow (perm)		1245	1750		1501			1580			1457			
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83		
Adj. Flow (vph)	182	22	118	36	37	5	134	170	16	16	134	92		
RTOR Reduction (vph)	0	0	90	0	3	0	0	1	0	0	15	0		
Lane Group Flow (vph)	0	204	28	0	75	0	0	319	0	0	227	0		
Parking (#/hr)										1	1	1		
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA			
Protected Phases		4			8			2			6			
Permitted Phases	4		4	8			2			6				
Actuated Green, G (s)		22.5	22.5		22.5			62.5			62.5			
Effective Green, g (s)		22.5	22.5		22.5			62.5			62.5			
Actuated g/C Ratio		0.23	0.23		0.23			0.65			0.65			
Clearance Time (s)		5.5	5.5		5.5			5.5			5.5			
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0			
Lane Grp Cap (vph)		291	410		351			1028			948			
v/s Ratio Prot														
v/s Ratio Perm		c0.16	0.02		0.05			c0.20			0.16			
v/c Ratio		0.70	0.07		0.21			0.31			0.24			
Uniform Delay, d1		33.7	28.6		29.6			7.3			6.9			
Progression Factor		0.76	0.92		0.97			1.00			0.37			
Incremental Delay, d2		7.3	0.1		0.3			0.8			0.6			
Delay (s)		32.9	26.4		28.9			8.1			3.1			
Level of Service		C	C		C			A			A			
Approach Delay (s)		30.5			28.9			8.1			3.1			
Approach LOS		C			C			A			A			
Intersection Summary														
HCM 2000 Control Delay			16.0									HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio			0.41											
Actuated Cycle Length (s)			96.0								11.0			
Intersection Capacity Utilization			55.3%										ICU Level of Service	B
Analysis Period (min)			15											
c Critical Lane Group														

Queues

30: 5th St/Forum Driveway & Walnut St

06/29/2023



Lane Group	WBT	NBL	NBR	SBL	SBR
Lane Group Flow (vph)	537	455	268	7	2
v/c Ratio	0.41	0.32	0.41	0.08	0.01
Control Delay	16.3	1.3	4.7	33.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.3	1.3	4.7	33.6	0.0
Queue Length 50th (ft)	84	0	0	3	0
Queue Length 95th (ft)	123	12	47	15	0
Internal Link Dist (ft)	349				
Turn Bay Length (ft)	150				
Base Capacity (vph)	1303	1407	658	91	190
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.41	0.32	0.41	0.08	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis

30: 5th St/Forum Driveway & Walnut St

06/29/2023

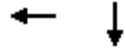


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑		↑↑		↑	↑		↑	
Traffic Volume (vph)	0	0	0	0	505	0	428	0	252	7	0	2	
Future Volume (vph)	0	0	0	0	505	0	428	0	252	7	0	2	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	11	16	11	12	11	12	12	12	
Grade (%)		0%			-1%			7%				0%	
Total Lost time (s)					5.0		5.4		5.4	5.4		5.4	
Lane Util. Factor					0.95		0.97		1.00	1.00		1.00	
Frt					1.00		1.00		0.85	1.00		0.85	
Flt Protected					1.00		0.95		1.00	0.95		1.00	
Satd. Flow (prot)					3258		3202		1477	1770		1583	
Flt Permitted					1.00		0.95		1.00	0.95		1.00	
Satd. Flow (perm)					3258		3202		1477	1770		1583	
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	0	537	0	455	0	268	7	0	2	
RTOR Reduction (vph)	0	0	0	0	0	0	308	0	181	0	0	2	
Lane Group Flow (vph)	0	0	0	0	537	0	147	0	87	7	0	0	
Parking (#/hr)					1								
Turn Type					NA		Prot		Perm	Prot		Perm	
Protected Phases					2		3			4			
Permitted Phases									3			4	
Actuated Green, G (s)					28.0		22.6		22.6	3.6		3.6	
Effective Green, g (s)					28.0		22.6		22.6	3.6		3.6	
Actuated g/C Ratio					0.40		0.32		0.32	0.05		0.05	
Clearance Time (s)					5.0		5.4		5.4	5.4		5.4	
Vehicle Extension (s)					3.0		3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)					1303		1033		476	91		81	
v/s Ratio Prot					c0.16		0.05			c0.00			
v/s Ratio Perm									c0.06			0.00	
v/c Ratio					0.41		0.14		0.18	0.08		0.00	
Uniform Delay, d1					15.1		16.8		17.0	31.6		31.5	
Progression Factor					1.00		1.00		1.00	1.00		1.00	
Incremental Delay, d2					1.0		0.3		0.8	0.4		0.0	
Delay (s)					16.1		17.1		17.9	32.0		31.5	
Level of Service					B		B		B	C		C	
Approach Delay (s)		0.0			16.1			17.4			31.9		
Approach LOS		A			B			B			C		
Intersection Summary													
HCM 2000 Control Delay			16.9		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.29										
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				15.8				
Intersection Capacity Utilization			48.4%		ICU Level of Service				A				
Analysis Period (min)			15										
c Critical Lane Group													

Queues

31: Aberdeen St & Walnut St

06/29/2023



Lane Group	WBT	SBT
Lane Group Flow (vph)	1029	229
v/c Ratio	0.41	0.31
Control Delay	2.6	17.0
Queue Delay	0.4	0.0
Total Delay	3.0	17.0
Queue Length 50th (ft)	1	73
Queue Length 95th (ft)	16	130
Internal Link Dist (ft)	172	900
Turn Bay Length (ft)		
Base Capacity (vph)	2483	739
Starvation Cap Reductn	848	0
Spillback Cap Reductn	11	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.63	0.31
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

31: Aberdeen St & Walnut St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑↑						↑	
Traffic Volume (vph)	0	0	0	126	421	379	0	0	0	0	116	90
Future Volume (vph)	0	0	0	126	421	379	0	0	0	0	116	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	16	12
Grade (%)		0%			-1%			0%				-3%
Total Lost time (s)					5.6							5.2
Lane Util. Factor					0.91							1.00
Frt					0.94							0.94
Flt Protected					0.99							1.00
Satd. Flow (prot)					4765							1805
Flt Permitted					0.99							1.00
Satd. Flow (perm)					4765							1805
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	140	468	421	0	0	0	0	129	100
RTOR Reduction (vph)	0	0	0	0	131	0	0	0	0	0	29	0
Lane Group Flow (vph)	0	0	0	0	898	0	0	0	0	0	200	0
Parking (#/hr)				1		1					1	
Turn Type				Split	NA							NA
Protected Phases				2	2							4
Permitted Phases												
Actuated Green, G (s)					47.4							37.8
Effective Green, g (s)					47.4							37.8
Actuated g/C Ratio					0.49							0.39
Clearance Time (s)					5.6							5.2
Vehicle Extension (s)					3.0							3.0
Lane Grp Cap (vph)					2352							710
v/s Ratio Prot					c0.19							c0.11
v/s Ratio Perm												
v/c Ratio					0.38							0.28
Uniform Delay, d1					15.2							19.8
Progression Factor					0.18							1.00
Incremental Delay, d2					0.5							1.0
Delay (s)					3.2							20.8
Level of Service					A							C
Approach Delay (s)		0.0			3.2			0.0				20.8
Approach LOS		A			A			A				C
Intersection Summary												
HCM 2000 Control Delay			6.4		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			96.0		Sum of lost time (s)			10.8				
Intersection Capacity Utilization			62.3%		ICU Level of Service				B			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

32: 4th St/Captial Parking Driveway & Walnut St

06/29/2023



Lane Group	WBT	NBL	SBT
Lane Group Flow (vph)	598	185	6
v/c Ratio	0.28	0.34	0.01
Control Delay	15.2	17.0	11.4
Queue Delay	0.6	0.0	0.0
Total Delay	15.8	17.0	11.4
Queue Length 50th (ft)	92	45	1
Queue Length 95th (ft)	116	64	8
Internal Link Dist (ft)	145		257
Turn Bay Length (ft)			
Base Capacity (vph)	2103	543	793
Starvation Cap Reductn	1051	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.57	0.34	0.01
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 32: 4th St/Captial Parking Driveway & Walnut St

06/29/2023



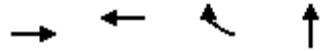
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑↑		↑				↑		
Traffic Volume (vph)	0	0	0	111	403	0	159	0	0	0	3	3	
Future Volume (vph)	0	0	0	111	403	0	159	0	0	0	3	3	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	10	10	10	12	12	12	
Grade (%)		0%			-1%			-3%			0%		
Total Lost time (s)					5.6		5.2				5.2		
Lane Util. Factor					0.91		1.00				1.00		
Frt					1.00		1.00				0.93		
Flt Protected					0.99		0.95				1.00		
Satd. Flow (prot)					4879		1500				1737		
Flt Permitted					0.99		0.75				1.00		
Satd. Flow (perm)					4879		1191				1737		
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Adj. Flow (vph)	0	0	0	129	469	0	185	0	0	0	3	3	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	2	0	
Lane Group Flow (vph)	0	0	0	0	598	0	185	0	0	0	4	0	
Parking (#/hr)				1	1		1						
Turn Type				Perm	NA		D.Pm				NA		
Protected Phases					2						3		
Permitted Phases				2			3						
Actuated Green, G (s)					41.4		43.8				43.8		
Effective Green, g (s)					41.4		43.8				43.8		
Actuated g/C Ratio					0.43		0.46				0.46		
Clearance Time (s)					5.6		5.2				5.2		
Lane Grp Cap (vph)					2104		543				792		
v/s Ratio Prot											0.00		
v/s Ratio Perm					0.12		c0.16						
v/c Ratio					0.28		0.34				0.01		
Uniform Delay, d1					17.7		16.8				14.2		
Progression Factor					0.84		0.89				1.00		
Incremental Delay, d2					0.3		1.5				0.0		
Delay (s)					15.1		16.5				14.2		
Level of Service					B		B				B		
Approach Delay (s)		0.0			15.1			16.5			14.2		
Approach LOS		A			B			B			B		
Intersection Summary													
HCM 2000 Control Delay			15.4		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.31										
Actuated Cycle Length (s)			96.0		Sum of lost time (s)						10.8		
Intersection Capacity Utilization			99.0%		ICU Level of Service						F		
Analysis Period (min)			15										

c Critical Lane Group

Queues

44: 2nd St & Chestnut St

06/29/2023



Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	116	82	139	2028
v/c Ratio	0.23	0.25	0.46	0.82
Control Delay	8.4	30.0	35.0	22.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.4	30.0	35.0	22.4
Queue Length 50th (ft)	33	46	82	357
Queue Length 95th (ft)	61	95	147	426
Internal Link Dist (ft)	425	433		446
Turn Bay Length (ft)				
Base Capacity (vph)	511	326	301	2486
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.23	0.25	0.46	0.82
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

44: 2nd St & Chestnut St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↑	↗		↖↗↘				
Traffic Volume (vph)	38	73	0	0	79	133	61	1544	342	0	0	0
Future Volume (vph)	38	73	0	0	79	133	61	1544	342	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	16	12	12	12	12	12	12
Grade (%)		0%			0%			1%			0%	
Total Lost time (s)		6.1			6.1	6.1		5.5				
Lane Util. Factor		1.00			1.00	1.00		0.91				
Frt		1.00			1.00	0.85		0.97				
Flt Protected		0.98			1.00	1.00		1.00				
Satd. Flow (prot)		1530			1739	1606		4747				
Flt Permitted		0.90			1.00	1.00		1.00				
Satd. Flow (perm)		1401			1739	1606		4747				
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)	40	76	0	0	82	139	64	1608	356	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	116	0	0	82	139	0	2028	0	0	0	0
Parking (#/hr)		1				1	1	1	1			
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)		34.1			18.0	18.0		50.3				
Effective Green, g (s)		34.1			18.0	18.0		50.3				
Actuated g/C Ratio		0.36			0.19	0.19		0.52				
Clearance Time (s)		6.1			6.1	6.1		5.5				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		511			326	301		2487				
v/s Ratio Prot		c0.02			0.05							
v/s Ratio Perm		0.06				c0.09		0.43				
v/c Ratio		0.23			0.25	0.46		0.82				
Uniform Delay, d1		21.7			33.3	34.7		19.0				
Progression Factor		0.34			0.83	0.85		1.00				
Incremental Delay, d2		0.9			1.8	5.0		3.1				
Delay (s)		8.3			29.5	34.3		22.1				
Level of Service		A			C	C		C				
Approach Delay (s)		8.3			32.5			22.1			0.0	
Approach LOS		A			C			C			A	

Intersection Summary

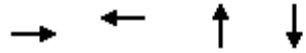
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	21.7
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

45: 3rd St & Chestnut St

06/29/2023



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	207	201	53	161
v/c Ratio	0.29	0.14	0.08	0.26
Control Delay	13.9	14.3	17.2	12.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.9	14.3	17.2	12.1
Queue Length 50th (ft)	94	37	19	51
Queue Length 95th (ft)	m106	52	40	80
Internal Link Dist (ft)	433	412	443	437
Turn Bay Length (ft)				
Base Capacity (vph)	715	1433	645	629
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.29	0.14	0.08	0.26













Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

45: 3rd St & Chestnut St

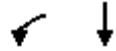
06/29/2023

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑			↑↑			↕			↕		
Traffic Volume (vph)	0	178	0	0	173	0	15	0	31	61	0	77	
Future Volume (vph)	0	178	0	0	173	0	15	0	31	61	0	77	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	10	10	10	10	10	10	16	16	16	16	16	16	
Grade (%)		1%			2%			3%			0%		
Total Lost time (s)		5.6			5.6			5.6			5.6		
Lane Util. Factor		1.00			0.95			1.00			1.00		
Frt		1.00			1.00			0.91			0.92		
Flt Protected		1.00			1.00			0.98			0.98		
Satd. Flow (prot)		1548			3099			1664			1709		
Flt Permitted		1.00			1.00			0.91			0.86		
Satd. Flow (perm)		1548			3099			1535			1495		
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Adj. Flow (vph)	0	207	0	0	201	0	17	0	36	71	0	90	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	207	0	0	201	0	0	53	0	0	161	0	
Parking (#/hr)		1			1		1	1	1	1	1	1	
Turn Type		NA			NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases							2			6			
Actuated Green, G (s)		44.4			44.4			40.4			40.4		
Effective Green, g (s)		44.4			44.4			40.4			40.4		
Actuated g/C Ratio		0.46			0.46			0.42			0.42		
Clearance Time (s)		5.6			5.6			5.6			5.6		
Vehicle Extension (s)		3.0			3.0			3.0			3.0		
Lane Grp Cap (vph)		715			1433			645			629		
v/s Ratio Prot		c0.13			0.06								
v/s Ratio Perm								0.03			c0.11		
v/c Ratio		0.29			0.14			0.08			0.26		
Uniform Delay, d1		16.0			14.8			16.7			18.0		
Progression Factor		0.80			0.94			1.00			0.61		
Incremental Delay, d2		0.7			0.2			0.2			0.9		
Delay (s)		13.6			14.2			16.9			11.9		
Level of Service		B			B			B			B		
Approach Delay (s)		13.6			14.2			16.9			11.9		
Approach LOS		B			B			B			B		
Intersection Summary													
HCM 2000 Control Delay			13.6									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.29										
Actuated Cycle Length (s)			96.0									Sum of lost time (s)	17.2
Intersection Capacity Utilization			30.8%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

Queues

46: N.Front St & Chestnut St

06/29/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	140	1511
v/c Ratio	0.30	0.52
Control Delay	23.3	5.2
Queue Delay	0.0	0.0
Total Delay	23.3	5.2
Queue Length 50th (ft)	39	73
Queue Length 95th (ft)	m58	83
Internal Link Dist (ft)	425	455
Turn Bay Length (ft)		
Base Capacity (vph)	463	2933
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.30	0.52

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

46: N.Front St & Chestnut St

06/29/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰					↰↰↰
Traffic Volume (vph)	127	0	0	0	196	1179
Future Volume (vph)	127	0	0	0	196	1179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11
Grade (%)	-1%		0%			-1%
Total Lost time (s)	5.2					5.6
Lane Util. Factor	1.00					0.91
Frt	1.00					1.00
Flt Protected	0.95					0.99
Satd. Flow (prot)	1601					4905
Flt Permitted	0.95					0.99
Satd. Flow (perm)	1601					4905
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	140	0	0	0	215	1296
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	140	0	0	0	0	1511
Parking (#/hr)	0					
Turn Type	Prot				Perm	NA
Protected Phases	8					6
Permitted Phases					6	
Actuated Green, G (s)	27.8					57.4
Effective Green, g (s)	27.8					57.4
Actuated g/C Ratio	0.29					0.60
Clearance Time (s)	5.2					5.6
Lane Grp Cap (vph)	463					2932
v/s Ratio Prot	c0.09					
v/s Ratio Perm						0.31
v/c Ratio	0.30					0.52
Uniform Delay, d1	26.6					11.2
Progression Factor	0.81					0.41
Incremental Delay, d2	1.5					0.5
Delay (s)	22.9					5.2
Level of Service	C					A
Approach Delay (s)	22.9		0.0			5.2
Approach LOS	C		A			A

Intersection Summary

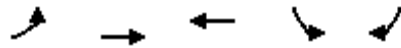
HCM 2000 Control Delay	6.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues

1: Market St & S. Front St

06/29/2023



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	548	619	272	212	266
v/c Ratio	0.72	0.28	0.58	0.60	0.22
Control Delay	23.9	7.1	28.8	30.8	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	7.1	28.8	30.8	2.7
Queue Length 50th (ft)	175	54	46	77	19
Queue Length 95th (ft)	304	93	86	136	37
Internal Link Dist (ft)		522	1732	480	
Turn Bay Length (ft)	400			340	
Base Capacity (vph)	842	2122	470	497	1250
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	0.29	0.58	0.43	0.21

Intersection Summary

HCM Signalized Intersection Capacity Analysis

1: Market St & S. Front St

06/29/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑↑	↑↑		↙	↙
Traffic Volume (vph)	488	551	189	53	189	237
Future Volume (vph)	488	551	189	53	189	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	16	13	11	12	11	14
Grade (%)		-2%	-4%		-1%	
Total Lost time (s)	5.5	6.4	6.4		6.2	5.5
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	2026	3694	3374		1719	1697
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	2026	3694	3374		1719	1697
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	548	619	212	60	212	266
RTOR Reduction (vph)	0	0	37	0	0	39
Lane Group Flow (vph)	548	619	235	0	212	227
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	2	1 2	1		4	2
Permitted Phases						4
Actuated Green, G (s)	23.7	37.3	8.1		13.0	36.7
Effective Green, g (s)	23.7	31.8	8.1		13.0	36.7
Actuated g/C Ratio	0.38	0.51	0.13		0.21	0.58
Clearance Time (s)	5.5		6.4		6.2	5.5
Vehicle Extension (s)	4.0		4.0		3.0	4.0
Lane Grp Cap (vph)	763	1867	434		355	990
v/s Ratio Prot	c0.27	0.17	c0.07		c0.12	0.09
v/s Ratio Perm						0.05
v/c Ratio	0.72	0.33	0.54		0.60	0.23
Uniform Delay, d1	16.7	9.2	25.7		22.6	6.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.5	0.1	1.7		2.7	0.2
Delay (s)	20.2	9.4	27.4		25.3	6.5
Level of Service	C	A	C		C	A
Approach Delay (s)		14.5	27.4		14.8	
Approach LOS		B	C		B	

Intersection Summary

HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	62.9	Sum of lost time (s)	18.1
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

42: Cameron St & Market St

06/29/2023



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	278	164	88	355	1077	78	566
v/c Ratio	0.41	0.55	0.17	0.80	0.73	0.34	0.48
Control Delay	19.1	29.7	0.8	28.0	20.0	11.9	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.1	29.7	0.8	28.0	20.0	11.9	16.8
Queue Length 50th (ft)	41	59	0	61	172	11	76
Queue Length 95th (ft)	71	110	0	#242	#352	38	150
Internal Link Dist (ft)	305	673			343		286
Turn Bay Length (ft)				250		220	
Base Capacity (vph)	1612	548	762	442	1601	230	1433
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.30	0.12	0.80	0.67	0.34	0.39





















Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

42: Cameron St & Market St

06/29/2023

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	67	134	52	57	92	80	323	932	48	71	437	78	
Future Volume (vph)	67	134	52	57	92	80	323	932	48	71	437	78	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	11	11	12	10	11	12	10	11	12	
Grade (%)		3%			-2%			2%				4%	
Total Lost time (s)		6.0			6.7	6.7	5.7	6.8		5.7	6.9		
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95		
Frt		0.97			1.00	0.85	1.00	0.99		1.00	0.98		
Flt Protected		0.99			0.98	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)		3335			1784	1599	1635	3362		1619	3276		
Flt Permitted		0.82			0.75	1.00	0.37	1.00		0.20	1.00		
Satd. Flow (perm)		2784			1364	1599	631	3362		337	3276		
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)	74	147	57	63	101	88	355	1024	53	78	480	86	
RTOR Reduction (vph)	0	35	0	0	0	69	0	4	0	0	16	0	
Lane Group Flow (vph)	0	243	0	0	164	19	355	1073	0	78	550	0	
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA		
Protected Phases	3	8			4		1	6		5	2		
Permitted Phases	8			4		4	6			2			
Actuated Green, G (s)		14.3			13.6	13.6	33.7	27.2		26.4	23.5		
Effective Green, g (s)		14.3			13.6	13.6	33.7	27.2		26.4	23.5		
Actuated g/C Ratio		0.23			0.22	0.22	0.54	0.43		0.42	0.37		
Clearance Time (s)		6.0			6.7	6.7	5.7	6.8		5.7	6.9		
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)		632			294	345	441	1453		200	1223		
v/s Ratio Prot							c0.08	c0.32		0.02	0.17		
v/s Ratio Perm		0.09			c0.12	0.01	c0.35			0.15			
v/c Ratio		0.38			0.56	0.06	0.80	0.74		0.39	0.45		
Uniform Delay, d1		20.6			22.0	19.6	9.9	14.9		11.5	14.8		
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2		0.4			2.3	0.1	10.3	2.0		1.3	0.3		
Delay (s)		21.0			24.3	19.6	20.2	16.9		12.7	15.1		
Level of Service		C			C	B	C	B		B	B		
Approach Delay (s)		21.0			22.6			17.7			14.8		
Approach LOS		C			C			B			B		
Intersection Summary													
HCM 2000 Control Delay			17.8									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.91										
Actuated Cycle Length (s)			62.9									Sum of lost time (s)	25.3
Intersection Capacity Utilization			68.9%									ICU Level of Service	C
Analysis Period (min)			15										

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

5: Market St & City Island Ramp

06/29/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↗
Traffic Volume (veh/h)	0	692	234	36	0	4
Future Volume (Veh/h)	0	692	234	36	0	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	769	260	40	0	4
Pedestrians		6				
Lane Width (ft)		12.0				
Walking Speed (ft/s)		3.5				
Percent Blockage		1				
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	300				664	156
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	300				664	156
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1258				393	857
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	384	384	173	127	4	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	40	4	
cSH	1700	1700	1700	1700	857	
Volume to Capacity	0.23	0.23	0.10	0.07	0.00	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	0.0	0.0	0.0	0.0	9.2	
Lane LOS					A	
Approach Delay (s)	0.0		0.0		9.2	
Approach LOS					A	
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			30.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

7: City Island Ramp & Market St

06/29/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	662	30	0	270	0	18
Future Volume (Veh/h)	662	30	0	270	0	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	736	33	0	300	0	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			769	902	384	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			769	902	384	
tC, single (s)			4.1	6.8	6.9	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			100	100	97	
cM capacity (veh/h)			841	277	614	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	491	278	150	150	20	
Volume Left	0	0	0	0	0	
Volume Right	0	33	0	0	20	
cSH	1700	1700	1700	1700	614	
Volume to Capacity	0.29	0.16	0.09	0.09	0.03	
Queue Length 95th (ft)	0	0	0	0	3	
Control Delay (s)	0.0	0.0	0.0	0.0	11.1	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		11.1	
Approach LOS					B	
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			29.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 28: Aberdeen St & Market St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖					↗		↖	
Traffic Volume (veh/h)	0	632	12	5	0	0	0	0	0	92	30	0
Future Volume (Veh/h)	0	632	12	5	0	0	0	0	0	92	30	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	695	13	5	0	0	0	0	0	101	33	0
Pedestrians					89			37				
Lane Width (ft)					12.0			12.0				
Walking Speed (ft/s)					3.5			3.5				
Percent Blockage					8			4				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		244			245							
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	0			745			765	748	364	331	755	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			560			581	563	160	125	570	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	86	92	100
cM capacity (veh/h)	1622			926			331	397	721	707	393	1084
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	NB 1	SB 1						
Volume Total	278	278	152	5	0	134						
Volume Left	0	0	0	5	0	101						
Volume Right	0	0	13	0	0	0						
cSH	1700	1700	1700	926	1700	591						
Volume to Capacity	0.16	0.16	0.09	0.01	0.00	0.23						
Queue Length 95th (ft)	0	0	0	0	0	22						
Control Delay (s)	0.0	0.0	0.0	8.9	0.0	12.9						
Lane LOS				A	A	B						
Approach Delay (s)	0.0			8.9	0.0	12.9						
Approach LOS					A	B						
Intersection Summary												
Average Delay			2.1									
Intersection Capacity Utilization			39.8%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

52: 10th St & Market St

06/29/2023

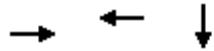


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	10	241	30	51	429	10	2	0	10	4	2	13
Future Volume (Veh/h)	10	241	30	51	429	10	2	0	10	4	2	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	11	277	34	59	493	11	2	0	11	5	2	15
Pedestrians					14						3	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						0	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		906			385							
pX, platoon unblocked												
vC, conflicting volume	507			311			696	941	170	805	952	255
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	507			311			696	941	170	805	952	255
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			99	100	99	98	99	98
cM capacity (veh/h)	1051			1246			305	246	834	254	242	742
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	150	172	306	258	13	22						
Volume Left	11	0	59	0	2	5						
Volume Right	0	34	0	11	11	15						
cSH	1051	1700	1246	1700	658	457						
Volume to Capacity	0.01	0.10	0.05	0.15	0.02	0.05						
Queue Length 95th (ft)	1	0	4	0	2	4						
Control Delay (s)	0.7	0.0	1.9	0.0	10.6	13.3						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.3		1.0		10.6	13.3						
Approach LOS					B	B						
Intersection Summary												
Average Delay			1.2									
Intersection Capacity Utilization			38.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues

4: N.Front St & Market St

06/29/2023



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	719	407	2464
v/c Ratio	0.67	0.35	0.93
Control Delay	30.9	25.0	19.0
Queue Delay	0.0	0.0	2.4
Total Delay	30.9	25.0	21.4
Queue Length 50th (ft)	199	100	279
Queue Length 95th (ft)	265	140	#362
Internal Link Dist (ft)	2011	397	440
Turn Bay Length (ft)			
Base Capacity (vph)	1068	1162	2652
Starvation Cap Reductn	0	0	1
Spillback Cap Reductn	0	0	109
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.67	0.35	0.97













Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: N.Front St & Market St

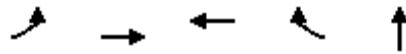
06/29/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑						↑↑↑	
Traffic Volume (vph)	0	250	397	0	366	0	0	0	0	62	1603	553
Future Volume (vph)	0	250	397	0	366	0	0	0	0	62	1603	553
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	12	10	12	12	12	12	13	12	13
Grade (%)		-1%			0%			0%			0%	
Total Lost time (s)		5.8			5.8						6.0	
Lane Util. Factor		0.95			0.95						0.91	
Frt		0.91			1.00						0.96	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		3014			3303						4888	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		3014			3303						4888	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	278	441	0	407	0	0	0	0	69	1781	614
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	60	0
Lane Group Flow (vph)	0	712	0	0	407	0	0	0	0	0	2404	0
Turn Type		NA			NA					Perm	NA	
Protected Phases		2			2						1	
Permitted Phases										1		
Actuated Green, G (s)		35.2			35.2						53.0	
Effective Green, g (s)		35.2			35.2						53.0	
Actuated g/C Ratio		0.35			0.35						0.53	
Clearance Time (s)		5.8			5.8						6.0	
Lane Grp Cap (vph)		1060			1162						2590	
v/s Ratio Prot		c0.24			0.12							
v/s Ratio Perm											0.49	
v/c Ratio		0.67			0.35						0.93	
Uniform Delay, d1		27.5			23.9						21.7	
Progression Factor		1.00			1.00						0.60	
Incremental Delay, d2		3.4			0.8						6.0	
Delay (s)		30.9			24.8						19.1	
Level of Service		C			C						B	
Approach Delay (s)		30.9			24.8			0.0			19.1	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			22.1			HCM 2000 Level of Service					C	
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			11.8			
Intersection Capacity Utilization			83.6%			ICU Level of Service					E	
Analysis Period (min)			15									
c Critical Lane Group												

Queues

9: Greyhound Driveway/5th St & Market St

06/29/2023



Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	341	574	170	168	4
v/c Ratio	0.51	0.25	0.42	0.41	0.04
Control Delay	17.0	8.6	10.9	9.0	46.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	8.6	10.9	9.0	46.5
Queue Length 50th (ft)	86	57	7	0	2
Queue Length 95th (ft)	308	161	68	57	14
Internal Link Dist (ft)		165	826		109
Turn Bay Length (ft)					
Base Capacity (vph)	674	2278	400	406	91
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.25	0.42	0.41	0.04

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: Greyhound Driveway/5th St & Market St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑			↗	↗		↕				
Traffic Volume (vph)	307	517	0	0	13	292	0	2	2	0	0	0
Future Volume (vph)	307	517	0	0	13	292	0	2	2	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	12	12	12	12	12	12	12	12	12
Grade (%)		-6%			6%			-10%			0%	
Total Lost time (s)	7.0	7.0			7.0	7.0		7.5				
Lane Util. Factor	1.00	0.95			0.95	0.95		1.00				
Frt	1.00	1.00			0.86	0.85		0.93				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1823	3645			1480	1459		1824				
Flt Permitted	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (perm)	1823	3645			1480	1459		1824				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	341	574	0	0	14	324	0	2	2	0	0	0
RTOR Reduction (vph)	0	0	0	0	137	147	0	0	0	0	0	0
Lane Group Flow (vph)	341	574	0	0	34	21	0	4	0	0	0	0
Turn Type	Prot	NA			NA	Prot		NA				
Protected Phases	1	6			2	2	3	3				
Permitted Phases							3					
Actuated Green, G (s)	37.0	56.5			12.5	12.5		1.0				
Effective Green, g (s)	37.0	56.5			12.5	12.5		1.0				
Actuated g/C Ratio	0.37	0.56			0.12	0.12		0.01				
Clearance Time (s)	7.0	7.0			7.0	7.0		7.5				
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)	674	2059			185	182		18				
v/s Ratio Prot	c0.19	c0.16			0.02	0.01		c0.00				
v/s Ratio Perm												
v/c Ratio	0.51	0.28			0.18	0.12		0.22				
Uniform Delay, d1	24.4	11.2			39.2	38.8		49.1				
Progression Factor	0.55	0.92			1.00	1.00		1.00				
Incremental Delay, d2	2.6	0.3			2.1	1.3		6.2				
Delay (s)	16.0	10.7			41.3	40.1		55.3				
Level of Service	B	B			D	D		E				
Approach Delay (s)		12.7			40.7			55.3			0.0	
Approach LOS		B			D			E			A	

Intersection Summary

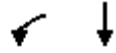
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues

10: N.Front St & Walnut St

06/29/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	780	1615
v/c Ratio	0.64	0.64
Control Delay	5.3	20.2
Queue Delay	0.0	0.0
Total Delay	5.3	20.2
Queue Length 50th (ft)	23	268
Queue Length 95th (ft)	33	318
Internal Link Dist (ft)	439	727
Turn Bay Length (ft)		
Base Capacity (vph)	1222	2524
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	56
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.64	0.65
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

10: N.Front St & Walnut St

06/29/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶↷					↶↷↶
Traffic Volume (vph)	718	0	0	0	0	1486
Future Volume (vph)	718	0	0	0	0	1486
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12
Grade (%)	-1%		0%			-1%
Total Lost time (s)	5.4					5.6
Lane Util. Factor	0.97					0.91
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	3051					5111
Flt Permitted	0.95					1.00
Satd. Flow (perm)	3051					5111
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	780	0	0	0	0	1615
RTOR Reduction (vph)	14	0	0	0	0	0
Lane Group Flow (vph)	766	0	0	0	0	1615
Parking (#/hr)	1					
Turn Type	Prot					NA
Protected Phases	3					2
Permitted Phases						
Actuated Green, G (s)	39.6					49.4
Effective Green, g (s)	39.6					49.4
Actuated g/C Ratio	0.40					0.49
Clearance Time (s)	5.4					5.6
Lane Grp Cap (vph)	1208					2524
v/s Ratio Prot	c0.25					c0.32
v/s Ratio Perm						
v/c Ratio	0.63					0.64
Uniform Delay, d1	24.4					18.7
Progression Factor	0.13					1.00
Incremental Delay, d2	2.0					1.3
Delay (s)	5.3					20.0
Level of Service	A					B
Approach Delay (s)	5.3		0.0			20.0
Approach LOS	A		A			B

Intersection Summary

HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues

15: 2nd St & Walnut St

06/29/2023



Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	684	107	1056
v/c Ratio	0.63	0.19	0.59
Control Delay	19.3	1.7	26.0
Queue Delay	0.0	0.0	0.0
Total Delay	19.3	1.7	26.0
Queue Length 50th (ft)	205	0	186
Queue Length 95th (ft)	272	m9	232
Internal Link Dist (ft)	194		432
Turn Bay Length (ft)			
Base Capacity (vph)	1082	556	1793
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.63	0.19	0.59

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

15: 2nd St & Walnut St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑	↑		↑↑↑					
Traffic Volume (vph)	0	0	0	0	643	101	56	936	0	0	0	0	
Future Volume (vph)	0	0	0	0	643	101	56	936	0	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	10	10	10	11	11	10	12	12	12	
Grade (%)		0%			-1%			1%			0%		
Total Lost time (s)					5.4	5.4		5.0					
Lane Util. Factor					0.95	1.00		0.91					
Frt					1.00	0.85		1.00					
Flt Protected					1.00	1.00		1.00					
Satd. Flow (prot)					3320	1485		4877					
Flt Permitted					1.00	1.00		1.00					
Satd. Flow (perm)					3320	1485		4877					
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	0	684	107	60	996	0	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	72	0	38	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	684	35	0	1018	0	0	0	0	
Turn Type					NA	Perm	Perm	NA					
Protected Phases					4			2					
Permitted Phases						4	2						
Actuated Green, G (s)					32.6	32.6		36.0					
Effective Green, g (s)					32.6	32.6		36.0					
Actuated g/C Ratio					0.33	0.33		0.36					
Clearance Time (s)					5.4	5.4		5.0					
Vehicle Extension (s)					3.0	3.0		3.0					
Lane Grp Cap (vph)					1082	484		1755					
v/s Ratio Prot					c0.21								
v/s Ratio Perm						0.02		0.21					
v/c Ratio					0.63	0.07		0.58					
Uniform Delay, d1					28.6	23.3		25.9					
Progression Factor					0.58	0.20		1.00					
Incremental Delay, d2					2.5	0.3		1.4					
Delay (s)					19.1	5.0		27.3					
Level of Service					B	A		C					
Approach Delay (s)		0.0			17.2			27.3			0.0		
Approach LOS		A			B			C			A		
Intersection Summary													
HCM 2000 Control Delay			23.0		HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.48										
Actuated Cycle Length (s)			100.0		Sum of lost time (s)				13.4				
Intersection Capacity Utilization			69.7%		ICU Level of Service				C				
Analysis Period (min)			15										

c Critical Lane Group

Queues

16: 2nd St & Market St

06/29/2023



Lane Group	EBT	NBL	NBT
Lane Group Flow (vph)	316	368	1025
v/c Ratio	0.52	0.37	0.37
Control Delay	35.9	12.5	11.4
Queue Delay	0.0	0.0	0.0
Total Delay	35.9	12.5	11.4
Queue Length 50th (ft)	85	99	100
Queue Length 95th (ft)	125	188	156
Internal Link Dist (ft)	397		443
Turn Bay Length (ft)			
Base Capacity (vph)	1170	1008	2792
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.27	0.37	0.37
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

16: 2nd St & Market St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↑		↗	↑↑↑				
Traffic Volume (vph)	120	190	0	0	0	0	361	762	242	0	0	0
Future Volume (vph)	120	190	0	0	0	0	361	762	242	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			1%			0%	
Total Lost time (s)		6.0					6.0	6.0				
Lane Util. Factor		0.95					1.00	0.91				
Frt		1.00					1.00	0.96				
Flt Protected		0.98					0.95	1.00				
Satd. Flow (prot)		3472					1761	4877				
Flt Permitted		0.95					0.95	1.00				
Satd. Flow (perm)		3362					1761	4877				
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)	122	194	0	0	0	0	368	778	247	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	316	0	0	0	0	368	1025	0	0	0	0
Turn Type	Perm	NA					Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		51.1					51.1	51.1				
Effective Green, g (s)		51.1					51.1	51.1				
Actuated g/C Ratio		0.41					0.41	0.41				
Clearance Time (s)		6.0					6.0	6.0				
Vehicle Extension (s)		3.0					3.0	3.0				
Lane Grp Cap (vph)		1383					724	2006				
v/s Ratio Prot								c0.21				
v/s Ratio Perm		c0.09					0.21					
v/c Ratio		0.23					0.51	0.51				
Uniform Delay, d1		23.7					27.2	27.2				
Progression Factor		1.00					1.00	1.00				
Incremental Delay, d2		0.1					2.5	0.9				
Delay (s)		23.8					29.7	28.2				
Level of Service		C					C	C				
Approach Delay (s)		23.8			0.0		28.6				0.0	
Approach LOS		C			A		C				A	
Intersection Summary												
HCM 2000 Control Delay			27.7				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			124.2				Sum of lost time (s)		17.0			
Intersection Capacity Utilization			38.9%				ICU Level of Service			A		
Analysis Period (min)			15									
c	Critical Lane Group											

Queues

21: 3rd St & Market St

06/29/2023



Lane Group	EBT	SBT
Lane Group Flow (vph)	473	356
v/c Ratio	0.28	0.45
Control Delay	12.4	9.9
Queue Delay	0.0	0.0
Total Delay	12.4	9.9
Queue Length 50th (ft)	35	64
Queue Length 95th (ft)	55	91
Internal Link Dist (ft)	324	433
Turn Bay Length (ft)		
Base Capacity (vph)	1687	786
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.28	0.45
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

21: 3rd St & Market St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑↑										↖	
Traffic Volume (vph)	0	402	38	0	0	0	0	0	0	153	178	0	
Future Volume (vph)	0	402	38	0	0	0	0	0	0	153	178	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	11	11	11	12	12	12	12	12	12	12	16	12	
Grade (%)		-1%			0%			0%				0%	
Total Lost time (s)		5.7										5.7	
Lane Util. Factor		0.91										1.00	
Frt		0.99										1.00	
Flt Protected		1.00										0.98	
Satd. Flow (prot)		4876										1847	
Flt Permitted		1.00										0.98	
Satd. Flow (perm)		4876										1847	
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	432	41	0	0	0	0	0	0	165	191	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	473	0	0	0	0	0	0	0	0	356	0	
Parking (#/hr)												1	
Turn Type		NA								Split		NA	
Protected Phases		2								4		4	
Permitted Phases													
Actuated Green, G (s)		17.3										21.3	
Effective Green, g (s)		17.3										21.3	
Actuated g/C Ratio		0.35										0.43	
Clearance Time (s)		5.7										5.7	
Vehicle Extension (s)		3.0										3.0	
Lane Grp Cap (vph)		1687										786	
v/s Ratio Prot		c0.10										c0.19	
v/s Ratio Perm													
v/c Ratio		0.28										0.45	
Uniform Delay, d1		11.8										10.2	
Progression Factor		1.00										0.78	
Incremental Delay, d2		0.4										1.8	
Delay (s)		12.3										9.7	
Level of Service		B										A	
Approach Delay (s)		12.3			0.0			0.0				9.7	
Approach LOS		B			A			A				A	
Intersection Summary													
HCM 2000 Control Delay			11.2									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.44										
Actuated Cycle Length (s)			50.0									Sum of lost time (s)	17.4
Intersection Capacity Utilization			35.9%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

22: 3rd St & Walnut St

06/29/2023



Lane Group	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	619	224	251	151
v/c Ratio	0.69	0.44	0.25	0.17
Control Delay	19.2	3.3	12.5	11.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	19.2	3.3	12.5	11.8
Queue Length 50th (ft)	68	4	79	45
Queue Length 95th (ft)	97	8	124	78
Internal Link Dist (ft)	408		564	
Turn Bay Length (ft)				
Base Capacity (vph)	901	506	997	876
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.69	0.44	0.25	0.17

Intersection Summary

HCM Signalized Intersection Capacity Analysis

22: 3rd St & Walnut St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕	↗					↕	↗
Traffic Volume (vph)	0	0	0	98	484	211	0	0	0	0	236	142
Future Volume (vph)	0	0	0	98	484	211	0	0	0	0	236	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12
Grade (%)		0%			-1%			0%			-1%	
Total Lost time (s)					5.7	5.7					5.7	5.7
Lane Util. Factor					0.95	1.00					1.00	1.00
Frt					1.00	0.85					1.00	0.85
Flt Protected					0.99	1.00					1.00	1.00
Satd. Flow (prot)					3527	1424					1810	1591
Flt Permitted					0.99	1.00					1.00	1.00
Satd. Flow (perm)					3527	1424					1810	1591
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	104	515	224	0	0	0	0	251	151
RTOR Reduction (vph)	0	0	0	0	73	171	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	546	53	0	0	0	0	251	151
Parking (#/hr)				1		1						
Turn Type				Perm	NA	Perm					NA	Perm
Protected Phases					4						2	
Permitted Phases				4		4						2
Actuated Green, G (s)					23.5	23.5					55.1	55.1
Effective Green, g (s)					23.5	23.5					55.1	55.1
Actuated g/C Ratio					0.24	0.24					0.55	0.55
Clearance Time (s)					5.7	5.7					5.7	5.7
Lane Grp Cap (vph)					828	334					997	876
v/s Ratio Prot											c0.14	
v/s Ratio Perm					0.15	0.04						0.09
v/c Ratio					0.66	0.16					0.25	0.17
Uniform Delay, d1					34.6	30.4					11.7	11.1
Progression Factor					0.51	0.15					1.00	1.00
Incremental Delay, d2					3.9	0.9					0.6	0.4
Delay (s)					21.6	5.6					12.3	11.6
Level of Service					C	A					B	B
Approach Delay (s)		0.0			17.3			0.0			12.0	
Approach LOS		A			B			A			B	

Intersection Summary

HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.4
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

26: 4th St & Market St

06/29/2023



Lane Group	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	666	335	34	139
v/c Ratio	0.40	0.50	0.13	0.22
Control Delay	20.7	17.4	11.2	11.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	20.7	17.4	11.2	11.3
Queue Length 50th (ft)	99	133	6	33
Queue Length 95th (ft)	113	155	19	58
Internal Link Dist (ft)	407	432		435
Turn Bay Length (ft)				
Base Capacity (vph)	1676	676	265	631
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.40	0.50	0.13	0.22

Intersection Summary

HCM Signalized Intersection Capacity Analysis

26: 4th St & Market St

06/29/2023

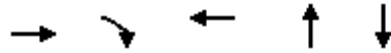


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑↑						↑		↑	↑			
Traffic Volume (vph)	65	443	45	0	0	0	0	126	152	28	115	0		
Future Volume (vph)	65	443	45	0	0	0	0	126	152	28	115	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width	11	11	11	12	12	12	12	12	12	10	10	12		
Grade (%)		0%			0%			-1%			1%			
Total Lost time (s)		5.5						5.5		5.5	5.5			
Lane Util. Factor		0.91						1.00		1.00	1.00			
Frt		0.99						0.93		1.00	1.00			
Flt Protected		0.99						1.00		0.95	1.00			
Satd. Flow (prot)		4828						1734		1643	1730			
Flt Permitted		0.99						1.00		0.42	1.00			
Satd. Flow (perm)		4828						1734		728	1730			
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83		
Adj. Flow (vph)	78	534	54	0	0	0	0	152	183	34	139	0		
RTOR Reduction (vph)	0	10	0	0	0	0	0	43	0	0	0	0		
Lane Group Flow (vph)	0	656	0	0	0	0	0	292	0	34	139	0		
Parking (#/hr)	1													
Turn Type	Perm	NA						NA		Perm	NA			
Protected Phases		4						2			6			
Permitted Phases	4									6				
Actuated Green, G (s)		34.5						36.5		36.5	36.5			
Effective Green, g (s)		34.5						36.5		36.5	36.5			
Actuated g/C Ratio		0.34						0.36		0.36	0.36			
Clearance Time (s)		5.5						5.5		5.5	5.5			
Vehicle Extension (s)		3.0						3.0		3.0	3.0			
Lane Grp Cap (vph)		1665						632		265	631			
v/s Ratio Prot								c0.17			0.08			
v/s Ratio Perm		0.14								0.05				
v/c Ratio		0.39						0.46		0.13	0.22			
Uniform Delay, d1		24.8						24.2		21.2	21.9			
Progression Factor		0.82						0.75		0.47	0.47			
Incremental Delay, d2		0.7						2.3		1.0	0.8			
Delay (s)		21.1						20.6		10.8	11.1			
Level of Service		C						C		B	B			
Approach Delay (s)		21.1			0.0			20.6			11.1			
Approach LOS		C			A			C			B			
Intersection Summary														
HCM 2000 Control Delay			19.5									HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio			0.35											
Actuated Cycle Length (s)			100.0							13.0			Sum of lost time (s)	
Intersection Capacity Utilization			99.0%										ICU Level of Service	F
Analysis Period (min)			15											
c	Critical Lane Group													

Queues

27: 4th St & Chestnut St/Amtrak Driveway

06/29/2023



Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	192	157	180	258	215
v/c Ratio	0.85	0.29	0.43	0.24	0.22
Control Delay	56.1	3.9	32.9	9.2	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	56.1	3.9	32.9	9.2	5.9
Queue Length 50th (ft)	70	1	92	60	30
Queue Length 95th (ft)	171	10	125	116	17
Internal Link Dist (ft)	412		305	245	432
Turn Bay Length (ft)					
Base Capacity (vph)	455	913	826	1085	973
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.42	0.17	0.22	0.24	0.22

Intersection Summary

HCM Signalized Intersection Capacity Analysis

27: 4th St & Chestnut St/Amtrak Driveway

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕			↕	
Traffic Volume (vph)	133	25	129	24	116	8	80	121	10	10	103	63
Future Volume (vph)	133	25	129	24	116	8	80	121	10	10	103	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	16	12	12	12	14	14	14	11	11	11
Grade (%)		5%			-3%			-8%			4%	
Total Lost time (s)		5.5	5.5		5.5			5.5			5.5	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.99			0.99			0.95	
Flt Protected		0.96	1.00		0.99			0.98			1.00	
Satd. Flow (prot)		1626	1750		1862			2015			1499	
Flt Permitted		0.56	1.00		0.92			0.81			0.98	
Satd. Flow (perm)		957	1750		1735			1661			1475	
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	162	30	157	29	141	10	98	148	12	12	126	77
RTOR Reduction (vph)	0	0	120	0	3	0	0	1	0	0	12	0
Lane Group Flow (vph)	0	192	37	0	177	0	0	257	0	0	203	0
Parking (#/hr)										1	1	1
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		23.8	23.8		23.8			65.2			65.2	
Effective Green, g (s)		23.8	23.8		23.8			65.2			65.2	
Actuated g/C Ratio		0.24	0.24		0.24			0.65			0.65	
Clearance Time (s)		5.5	5.5		5.5			5.5			5.5	
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)		227	416		412			1082			961	
v/s Ratio Prot												
v/s Ratio Perm		c0.20	0.02		0.10			c0.15			0.14	
v/c Ratio		0.85	0.09		0.43			0.24			0.21	
Uniform Delay, d1		36.3	29.7		32.3			7.2			7.0	
Progression Factor		0.75	0.61		0.99			1.00			0.72	
Incremental Delay, d2		23.6	0.1		0.7			0.5			0.5	
Delay (s)		51.0	18.2		32.8			7.7			5.6	
Level of Service		D	B		C			A			A	
Approach Delay (s)		36.3			32.8			7.7			5.6	
Approach LOS		D			C			A			A	

Intersection Summary

HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues

30: 5th St/Forum Driveway & Walnut St

06/29/2023



Lane Group	WBT	NBL	NBR	SBL	SBR
Lane Group Flow (vph)	484	513	441	8	2
v/c Ratio	0.38	0.35	0.56	0.11	0.01
Control Delay	16.2	1.7	5.1	35.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	1.7	5.1	35.4	0.0
Queue Length 50th (ft)	75	0	0	3	0
Queue Length 95th (ft)	112	18	57	16	0
Internal Link Dist (ft)	349				
Turn Bay Length (ft)	150				
Base Capacity (vph)	1284	1463	790	75	177
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.38	0.35	0.56	0.11	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis

30: 5th St/Forum Driveway & Walnut St

06/29/2023

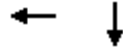


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑		↑↑		↑	↑		↑	
Traffic Volume (vph)	0	0	0	0	436	0	462	0	397	7	0	2	
Future Volume (vph)	0	0	0	0	436	0	462	0	397	7	0	2	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	11	16	11	12	11	12	12	12	
Grade (%)		0%			-1%			7%				0%	
Total Lost time (s)					5.0		5.4		5.4	5.4		5.4	
Lane Util. Factor					0.95		0.97		1.00	1.00		1.00	
Frt					1.00		1.00		0.85	1.00		0.85	
Flt Protected					1.00		0.95		1.00	0.95		1.00	
Satd. Flow (prot)					3258		3202		1477	1770		1583	
Flt Permitted					1.00		0.95		1.00	0.95		1.00	
Satd. Flow (perm)					3258		3202		1477	1770		1583	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	0	0	0	0	484	0	513	0	441	8	0	2	
RTOR Reduction (vph)	0	0	0	0	0	0	340	0	292	0	0	2	
Lane Group Flow (vph)	0	0	0	0	484	0	173	0	149	8	0	0	
Parking (#/hr)					1								
Turn Type					NA		Prot		Perm	Prot		Perm	
Protected Phases					2		3			4			
Permitted Phases									3			4	
Actuated Green, G (s)					27.6		23.6		23.6	3.0		3.0	
Effective Green, g (s)					27.6		23.6		23.6	3.0		3.0	
Actuated g/C Ratio					0.39		0.34		0.34	0.04		0.04	
Clearance Time (s)					5.0		5.4		5.4	5.4		5.4	
Vehicle Extension (s)					3.0		3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)					1284		1079		497	75		67	
v/s Ratio Prot					c0.15		0.05			c0.00			
v/s Ratio Perm									c0.10			0.00	
v/c Ratio					0.38		0.16		0.30	0.11		0.00	
Uniform Delay, d1					15.1		16.3		17.1	32.2		32.1	
Progression Factor					1.00		1.00		1.00	1.00		1.00	
Incremental Delay, d2					0.8		0.3		1.5	0.6		0.0	
Delay (s)					15.9		16.6		18.6	32.8		32.1	
Level of Service					B		B		B	C		C	
Approach Delay (s)		0.0			15.9			17.5			32.7		
Approach LOS		A			B			B			C		
Intersection Summary													
HCM 2000 Control Delay			17.1		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.33										
Actuated Cycle Length (s)			70.0		Sum of lost time (s)					15.8			
Intersection Capacity Utilization			49.3%		ICU Level of Service					A			
Analysis Period (min)			15										
c Critical Lane Group													

Queues

31: Aberdeen St & Walnut St

06/29/2023



Lane Group	WBT	SBT
Lane Group Flow (vph)	964	296
v/c Ratio	0.41	0.38
Control Delay	5.0	18.7
Queue Delay	0.5	0.0
Total Delay	5.5	18.7
Queue Length 50th (ft)	24	108
Queue Length 95th (ft)	44	175
Internal Link Dist (ft)	172	900
Turn Bay Length (ft)		
Base Capacity (vph)	2374	782
Starvation Cap Reductn	884	0
Spillback Cap Reductn	294	2
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.65	0.38
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

31: Aberdeen St & Walnut St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑						↑	
Traffic Volume (vph)	0	0	0	119	508	250	0	0	0	0	159	110
Future Volume (vph)	0	0	0	119	508	250	0	0	0	0	159	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	16	12
Grade (%)		0%			-1%			0%				-3%
Total Lost time (s)					5.6							5.2
Lane Util. Factor					0.91							1.00
Frt					0.96							0.94
Flt Protected					0.99							1.00
Satd. Flow (prot)					4859							1812
Flt Permitted					0.99							1.00
Satd. Flow (perm)					4859							1812
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	131	558	275	0	0	0	0	175	121
RTOR Reduction (vph)	0	0	0	0	72	0	0	0	0	0	25	0
Lane Group Flow (vph)	0	0	0	0	892	0	0	0	0	0	271	0
Parking (#/hr)				1		1					1	
Turn Type				Split	NA							NA
Protected Phases				2	2							4
Permitted Phases												
Actuated Green, G (s)					47.4							41.8
Effective Green, g (s)					47.4							41.8
Actuated g/C Ratio					0.47							0.42
Clearance Time (s)					5.6							5.2
Lane Grp Cap (vph)					2303							757
v/s Ratio Prot					c0.18							c0.15
v/s Ratio Perm												
v/c Ratio					0.39							0.36
Uniform Delay, d1					16.9							19.9
Progression Factor					0.31							1.00
Incremental Delay, d2					0.5							1.3
Delay (s)					5.7							21.2
Level of Service					A							C
Approach Delay (s)		0.0			5.7			0.0				21.2
Approach LOS		A			A			A				C

Intersection Summary

HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

32: 4th St/Captial Parking Driveway & Walnut St

06/29/2023



Lane Group	WBT	NBL	SBT
Lane Group Flow (vph)	785	235	17
v/c Ratio	0.36	0.45	0.02
Control Delay	15.2	14.6	10.3
Queue Delay	1.3	0.0	0.0
Total Delay	16.4	14.6	10.3
Queue Length 50th (ft)	126	102	2
Queue Length 95th (ft)	158	135	14
Internal Link Dist (ft)	145		257
Turn Bay Length (ft)			
Base Capacity (vph)	2174	527	774
Starvation Cap Reductn	1108	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.74	0.45	0.02
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 32: 4th St/Captial Parking Driveway & Walnut St

06/29/2023



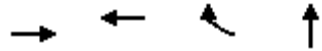
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑		↑				↑	
Traffic Volume (vph)	0	0	0	98	577	0	202	0	0	0	6	9
Future Volume (vph)	0	0	0	98	577	0	202	0	0	0	6	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	12	12	12
Grade (%)		0%			-1%			-3%			0%	
Total Lost time (s)					5.6		5.2				5.2	
Lane Util. Factor					0.91		1.00				1.00	
Frt					1.00		1.00				0.92	
Flt Protected					0.99		0.95				1.00	
Satd. Flow (prot)					4896		1500				1715	
Flt Permitted					0.99		0.75				1.00	
Satd. Flow (perm)					4896		1179				1715	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	114	671	0	235	0	0	0	7	10
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	0	785	0	235	0	0	0	11	0
Parking (#/hr)				1	1		1					
Turn Type				Perm	NA		D.Pm				NA	
Protected Phases					2						3	
Permitted Phases				2			3					
Actuated Green, G (s)					44.4		44.8				44.8	
Effective Green, g (s)					44.4		44.8				44.8	
Actuated g/C Ratio					0.44		0.45				0.45	
Clearance Time (s)					5.6		5.2				5.2	
Lane Grp Cap (vph)					2173		528				768	
v/s Ratio Prot											0.01	
v/s Ratio Perm					0.16		c0.20					
v/c Ratio					0.36		0.45				0.01	
Uniform Delay, d1					18.4		19.0				15.3	
Progression Factor					0.79		0.61				1.00	
Incremental Delay, d2					0.4		2.5				0.0	
Delay (s)					15.1		14.1				15.4	
Level of Service					B		B				B	
Approach Delay (s)		0.0			15.1			14.1			15.4	
Approach LOS		A			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			14.8		HCM 2000 Level of Service						B	
HCM 2000 Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)						10.8	
Intersection Capacity Utilization			99.0%		ICU Level of Service						F	
Analysis Period (min)			15									

c Critical Lane Group

Queues

44: 2nd St & Chestnut St

06/29/2023



Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	118	337	209	1403
v/c Ratio	0.27	0.67	0.45	0.68
Control Delay	4.9	34.7	28.8	24.7
Queue Delay	0.0	0.9	0.0	0.0
Total Delay	4.9	35.5	28.8	24.7
Queue Length 50th (ft)	26	192	116	255
Queue Length 95th (ft)	m26	282	184	308
Internal Link Dist (ft)	425	433		446
Turn Bay Length (ft)				
Base Capacity (vph)	441	502	464	2078
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	39	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.27	0.73	0.45	0.68

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

44: 2nd St & Chestnut St

06/29/2023



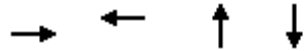
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↑	↗		↕↕↕				
Traffic Volume (vph)	65	49	0	0	327	203	137	1097	127	0	0	0
Future Volume (vph)	65	49	0	0	327	203	137	1097	127	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	16	12	12	12	12	12	12
Grade (%)		0%			0%			1%			0%	
Total Lost time (s)		6.1			6.1	6.1		5.5				
Lane Util. Factor		1.00			1.00	1.00		0.91				
Frt		1.00			1.00	0.85		0.99				
Flt Protected		0.97			1.00	1.00		1.00				
Satd. Flow (prot)		1513			1739	1606		4790				
Flt Permitted		0.53			1.00	1.00		1.00				
Satd. Flow (perm)		827			1739	1606		4790				
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)	67	51	0	0	337	209	141	1131	131	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	118	0	0	337	209	0	1403	0	0	0	0
Parking (#/hr)		1				1	1	1	1			
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)		45.0			28.9	28.9		43.4				
Effective Green, g (s)		45.0			28.9	28.9		43.4				
Actuated g/C Ratio		0.45			0.29	0.29		0.43				
Clearance Time (s)		6.1			6.1	6.1		5.5				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		440			502	464		2078				
v/s Ratio Prot		c0.03			c0.19							
v/s Ratio Perm		0.09				0.13		0.29				
v/c Ratio		0.27			0.67	0.45		0.68				
Uniform Delay, d1		17.2			31.4	29.1		22.7				
Progression Factor		0.26			0.87	0.87		1.00				
Incremental Delay, d2		0.6			6.8	3.1		1.8				
Delay (s)		5.1			34.0	28.2		24.4				
Level of Service		A			C	C		C				
Approach Delay (s)		5.1			31.8			24.4			0.0	
Approach LOS		A			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.7
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c	Critical Lane Group		

Queues

45: 3rd St & Chestnut St

06/29/2023



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	194	319	76	219
v/c Ratio	0.33	0.27	0.14	0.36
Control Delay	19.3	18.6	19.7	14.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	19.3	18.6	19.7	14.9
Queue Length 50th (ft)	76	58	30	65
Queue Length 95th (ft)	m123	90	61	104
Internal Link Dist (ft)	433	412	443	437
Turn Bay Length (ft)				
Base Capacity (vph)	594	1190	554	616
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.33	0.27	0.14	0.36

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

45: 3rd St & Chestnut St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑↑			↕			↕	
Traffic Volume (vph)	0	188	0	0	309	0	41	0	33	63	0	149
Future Volume (vph)	0	188	0	0	309	0	41	0	33	63	0	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	16	16	16	16	16	16
Grade (%)		1%			2%			3%			0%	
Total Lost time (s)		5.6			5.6			5.6			5.6	
Lane Util. Factor		1.00			0.95			1.00			1.00	
Frt		1.00			1.00			0.94			0.91	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		1548			3099			1702			1685	
Flt Permitted		1.00			1.00			0.78			0.89	
Satd. Flow (perm)		1548			3099			1371			1525	
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	194	0	0	319	0	42	0	34	65	0	154
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	194	0	0	319	0	0	76	0	0	219	0
Parking (#/hr)		1			1		1	1	1	1	1	1
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)		38.4			38.4			40.4			40.4	
Effective Green, g (s)		38.4			38.4			40.4			40.4	
Actuated g/C Ratio		0.38			0.38			0.40			0.40	
Clearance Time (s)		5.6			5.6			5.6			5.6	
Lane Grp Cap (vph)		594			1190			553			616	
v/s Ratio Prot		c0.13			0.10							
v/s Ratio Perm								0.06			c0.14	
v/c Ratio		0.33			0.27			0.14			0.36	
Uniform Delay, d1		21.7			21.1			18.8			20.7	
Progression Factor		0.81			0.85			1.00			0.63	
Incremental Delay, d2		1.3			0.5			0.5			1.5	
Delay (s)		18.9			18.4			19.3			14.6	
Level of Service		B			B			B			B	
Approach Delay (s)		18.9			18.4			19.3			14.6	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues

46: N.Front St & Chestnut St

06/29/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	532	2258
v/c Ratio	0.86	0.91
Control Delay	31.7	16.0
Queue Delay	0.5	2.9
Total Delay	32.2	18.9
Queue Length 50th (ft)	324	354
Queue Length 95th (ft)	#515	m388
Internal Link Dist (ft)	425	455
Turn Bay Length (ft)		
Base Capacity (vph)	621	2482
Starvation Cap Reductn	9	145
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.87	0.97

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

46: N.Front St & Chestnut St

06/29/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰					↰↰↰
Traffic Volume (vph)	495	0	0	0	111	1989
Future Volume (vph)	495	0	0	0	111	1989
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11
Grade (%)	-1%		0%			-1%
Total Lost time (s)	5.2					5.6
Lane Util. Factor	1.00					0.91
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1601					4927
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1601					4927
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	532	0	0	0	119	2139
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	532	0	0	0	0	2258
Parking (#/hr)	0					
Turn Type	Prot				Perm	NA
Protected Phases	8					6
Permitted Phases					6	
Actuated Green, G (s)	38.8					50.4
Effective Green, g (s)	38.8					50.4
Actuated g/C Ratio	0.39					0.50
Clearance Time (s)	5.2					5.6
Lane Grp Cap (vph)	621					2483
v/s Ratio Prot	c0.33					
v/s Ratio Perm						0.46
v/c Ratio	0.86					0.91
Uniform Delay, d1	28.1					22.7
Progression Factor	0.66					0.53
Incremental Delay, d2	11.7					3.2
Delay (s)	30.2					15.3
Level of Service	C					B
Approach Delay (s)	30.2		0.0			15.3
Approach LOS	C		A			B

Intersection Summary

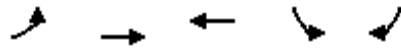
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues

1: Market St & S. Front St

06/29/2023



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	527	340	987	282	451
v/c Ratio	0.83	0.14	0.94	0.84	0.45
Control Delay	40.5	5.9	43.1	57.3	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	5.9	43.1	57.3	10.3
Queue Length 50th (ft)	272	34	246	154	110
Queue Length 95th (ft)	#432	50	#381	#284	176
Internal Link Dist (ft)		522	1732	480	
Turn Bay Length (ft)	400			340	
Base Capacity (vph)	676	2438	1052	358	1043
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.78	0.14	0.94	0.79	0.43

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

1: Market St & S. Front St

06/29/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	480	309	538	360	257	410
Future Volume (vph)	480	309	538	360	257	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	16	13	11	12	11	14
Grade (%)		-2%	-4%		-1%	
Total Lost time (s)	5.5	6.4	6.4		6.2	5.5
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.94		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	2026	3694	3280		1719	1697
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	2026	3694	3280		1719	1697
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	527	340	591	396	282	451
RTOR Reduction (vph)	0	0	127	0	0	29
Lane Group Flow (vph)	527	340	860	0	282	422
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	2	1 2	1		4	2
Permitted Phases						4
Actuated Green, G (s)	27.5	57.7	24.7		17.1	44.6
Effective Green, g (s)	27.5	52.2	24.7		17.1	44.6
Actuated g/C Ratio	0.31	0.60	0.28		0.20	0.51
Clearance Time (s)	5.5		6.4		6.2	5.5
Vehicle Extension (s)	4.0		4.0		3.0	4.0
Lane Grp Cap (vph)	637	2206	926		336	865
v/s Ratio Prot	c0.26	0.09	c0.26		c0.16	0.15
v/s Ratio Perm						0.10
v/c Ratio	0.83	0.15	0.93		0.84	0.49
Uniform Delay, d1	27.8	7.8	30.5		33.8	13.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	9.1	0.0	15.2		16.6	0.6
Delay (s)	36.8	7.9	45.7		50.4	14.5
Level of Service	D	A	D		D	B
Approach Delay (s)		25.5	45.7		28.3	
Approach LOS		C	D		C	

Intersection Summary

HCM 2000 Control Delay	34.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	87.4	Sum of lost time (s)	18.1
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues

42: Cameron St & Market St

06/29/2023



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	596	195	59	146	1100	76	872
v/c Ratio	0.68	0.85	0.10	0.54	0.77	0.42	0.71
Control Delay	20.8	56.2	0.4	19.3	22.8	17.7	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.8	56.2	0.4	19.3	22.8	17.7	22.6
Queue Length 50th (ft)	93	81	0	27	200	14	154
Queue Length 95th (ft)	144	#177	0	#79	#376	40	262
Internal Link Dist (ft)	305	673			343		286
Turn Bay Length (ft)				250		220	
Base Capacity (vph)	1493	318	725	268	1522	181	1440
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.61	0.08	0.54	0.72	0.42	0.61

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

42: Cameron St & Market St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕	↕	↕	↕↕		↕	↕↕	
Traffic Volume (vph)	99	222	245	71	114	56	139	879	166	72	797	31
Future Volume (vph)	99	222	245	71	114	56	139	879	166	72	797	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	11	12	10	11	12	10	11	12
Grade (%)		3%			-2%			2%			4%	
Total Lost time (s)		6.0			6.7	6.7	5.7	6.8		5.7	6.9	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.94			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.99			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3232			1784	1599	1635	3306		1619	3334	
Flt Permitted		0.85			0.47	1.00	0.21	1.00		0.16	1.00	
Satd. Flow (perm)		2769			850	1599	369	3306		279	3334	
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)	104	234	258	75	120	59	146	925	175	76	839	33
RTOR Reduction (vph)	0	99	0	0	0	43	0	16	0	0	3	0
Lane Group Flow (vph)	0	497	0	0	195	16	146	1084	0	76	869	0
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)		18.9			18.2	18.2	33.3	28.7		28.6	26.3	
Effective Green, g (s)		18.9			18.2	18.2	33.3	28.7		28.6	26.3	
Actuated g/C Ratio		0.28			0.27	0.27	0.49	0.42		0.42	0.38	
Clearance Time (s)		6.0			6.7	6.7	5.7	6.8		5.7	6.9	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		765			226	425	264	1387		161	1281	
v/s Ratio Prot							c0.04	c0.33		0.02	0.26	
v/s Ratio Perm		0.18			c0.23	0.01	0.23			0.18		
v/c Ratio		0.65			0.86	0.04	0.55	0.78		0.47	0.68	
Uniform Delay, d1		21.8			23.9	18.6	10.8	17.1		13.0	17.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.9			27.0	0.0	2.5	2.9		2.2	1.4	
Delay (s)		23.7			50.9	18.6	13.3	20.1		15.2	19.0	
Level of Service		C			D	B	B	C		B	B	
Approach Delay (s)		23.7			43.4			19.3			18.7	
Approach LOS		C			D			B			B	

Intersection Summary

HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	68.4	Sum of lost time (s)	25.3
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

5: Market St & City Island Ramp

06/29/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↗
Traffic Volume (veh/h)	0	568	852	66	0	42
Future Volume (Veh/h)	0	568	852	66	0	42
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	624	936	73	0	46
Pedestrians		10				
Lane Width (ft)		12.0				
Walking Speed (ft/s)		3.5				
Percent Blockage		1				
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1009				1284	514
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1009				1284	514
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	91
cM capacity (veh/h)	683				156	500
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	312	312	624	385	46	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	73	46	
cSH	1700	1700	1700	1700	500	
Volume to Capacity	0.18	0.18	0.37	0.23	0.09	
Queue Length 95th (ft)	0	0	0	0	8	
Control Delay (s)	0.0	0.0	0.0	0.0	12.9	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		12.9	
Approach LOS					B	
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			38.7%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

7: City Island Ramp & Market St

06/29/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	550	18	0	918	0	88
Future Volume (Veh/h)	550	18	0	918	0	88
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	604	20	0	1009	0	97
Pedestrians				2		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				3.5		
Percent Blockage				0		
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			624		1118	314
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			624		1118	314
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	86
cM capacity (veh/h)			953		201	680
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	403	221	504	504	97	
Volume Left	0	0	0	0	0	
Volume Right	0	20	0	0	97	
cSH	1700	1700	1700	1700	680	
Volume to Capacity	0.24	0.13	0.30	0.30	0.14	
Queue Length 95th (ft)	0	0	0	0	12	
Control Delay (s)	0.0	0.0	0.0	0.0	11.2	
Lane LOS						B
Approach Delay (s)	0.0		0.0		11.2	
Approach LOS						B
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			36.0%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

28: Aberdeen St & Market St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑					↑		↑	
Traffic Volume (veh/h)	0	636	11	13	0	0	0	0	0	186	115	0
Future Volume (Veh/h)	0	636	11	13	0	0	0	0	0	186	115	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	723	12	15	0	0	0	0	0	211	131	0
Pedestrians					63			64				
Lane Width (ft)					12.0			12.0				
Walking Speed (ft/s)					3.5			3.5				
Percent Blockage					6			6				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		244			245							
pX, platoon unblocked				0.92			0.92	0.92	0.92	0.92	0.92	
vC, conflicting volume	0			799			888	823	374	334	829	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			493			590	519	33	0	526	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			100	100	100	75	66	100
cM capacity (veh/h)	1622			925			237	392	842	836	389	1084
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	NB 1	SB 1						
Volume Total	289	289	157	15	0	342						
Volume Left	0	0	0	15	0	211						
Volume Right	0	0	12	0	0	0						
cSH	1700	1700	1700	925	1700	580						
Volume to Capacity	0.17	0.17	0.09	0.02	0.00	0.59						
Queue Length 95th (ft)	0	0	0	1	0	95						
Control Delay (s)	0.0	0.0	0.0	9.0	0.0	19.7						
Lane LOS				A	A	C						
Approach Delay (s)	0.0			9.0	0.0	19.7						
Approach LOS					A	C						
Intersection Summary												
Average Delay			6.3									
Intersection Capacity Utilization			51.9%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

52: 10th St & Market St

06/29/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Volume (veh/h)	6	507	6	11	268	8	20	1	48	15	0	15
Future Volume (Veh/h)	6	507	6	11	268	8	20	1	48	15	0	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	7	557	7	12	295	9	22	1	53	16	0	16
Pedestrians												2
Lane Width (ft)												12.0
Walking Speed (ft/s)												3.5
Percent Blockage												0
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		906			385							
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	306			564			762	904	282	672	904	154
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	306			445			653	802	149	558	801	154
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			93	100	94	96	100	98
cM capacity (veh/h)	1249			1060			325	295	830	361	296	863
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	286	286	160	156	76	32						
Volume Left	7	0	12	0	22	16						
Volume Right	0	7	0	9	53	16						
cSH	1249	1700	1060	1700	563	509						
Volume to Capacity	0.01	0.17	0.01	0.09	0.13	0.06						
Queue Length 95th (ft)	0	0	1	0	12	5						
Control Delay (s)	0.2	0.0	0.7	0.0	12.4	12.5						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.1		0.4		12.4	12.5						
Approach LOS					B	B						
Intersection Summary												
Average Delay			1.5									
Intersection Capacity Utilization			29.6%		ICU Level of Service				A			
Analysis Period (min)			15									



Appendix F Travel Time Analysis – No- Build

Arterial Level of Service 2045 No-Build

Arterial Level of Service: EB Market St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
S. Front St	1	5.7	22.0	0.1	19
City Island Ramp	5	26.4	56.5	0.3	22
City Island Ramp	7	3.5	5.2	0.0	13
N.Front St	4	608.4	641.9	0.4	2
2nd St	16	242.9	298.9	0.1	1
	12	0.9	4.8	0.0	21
3rd St	21	18.0	28.2	0.1	10
4th St	26	10.5	23.6	0.1	14
Aberdeen St	28	2.3	9.0	0.0	19
Greyhound Driveway	9	1.5	8.3	0.0	20
10th St	52	0.9	25.2	0.2	25
Cameron St	42	16.1	26.1	0.1	10
Total		937.0	1149.5	1.5	5

Arterial Level of Service: WB Market St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Cameron St	42	19.9	39.7	0.1	13
10th St	52	1.3	12.6	0.1	21
5th St	9	41.2	66.5	0.2	9
Aberdeen St	28	3.5	11.5	0.0	15
N.Front St	4	23.6	39.0	0.1	8
City Island Ramp	7	3.7	39.5	0.4	36
City Island Ramp	5	0.2	1.9	0.0	34
S. Front St	1	22.8	52.9	0.3	23
Total		116.3	263.6	1.3	18

Arterial Level of Service: SB N.Front St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Walnut St	10	83.1	99.9	0.2	6
Market St	4	49.3	59.0	0.1	6
Chestnut St	46	4.6	15.1	0.1	24
Total		136.9	174.1	0.4	7

Arterial Level of Service: NB 5th St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Walnut St	30	-	-	0.1	-
Total		-	-	0.1	-

Arterial Level of Service: WB Walnut St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Forum Driveway	30	20.9	32.2	0.1	9
	31	5.6	11.8	0.0	15
Captial Parking Driv	32	6.2	13.1	0.0	12
3rd St	22	14.3	27.0	0.1	12
	36	0.9	8.1	0.1	22
2nd St	15	14.7	20.4	0.1	9
N.Front St	10	22.7	38.3	0.1	9
Total		85.4	150.9	0.5	11

Arterial Level of Service: NB 2nd St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Chestnut St	44	30.3	45.9	0.1	8
Market St	16	6.5	19.4	0.1	18
Walnut St	15	13.5	28.2	0.1	12
Total		50.3	93.5	0.3	12

Arterial Level of Service: EB Market St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
S. Front St	1	4.7	20.9	0.1	20
City Island Ramp	5	42.5	71.0	0.3	17
City Island Ramp	7	5.9	7.6	0.0	9
N.Front St	4	534.9	568.4	0.4	3
2nd St	16	409.4	421.0	0.1	1
	12	0.9	4.7	0.0	21
3rd St	21	16.9	27.7	0.1	10
4th St	26	41.7	51.4	0.1	6
Aberdeen St	28	2.0	8.4	0.0	20
Greyhound Driveway	9	5.1	11.8	0.0	14
10th St	52	1.4	25.9	0.2	24
Cameron St	42	17.8	27.8	0.1	9
Total		1083.3	1246.6	1.5	4

Arterial Level of Service: WB Market St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Cameron St	42	24.5	43.7	0.1	12
10th St	52	1.5	12.2	0.1	22
5th St	9	39.1	63.9	0.2	10
Aberdeen St	28	5.5	13.5	0.0	12
N.Front St	4	8.8	12.5	0.1	26
City Island Ramp	7	5.3	41.4	0.4	34
City Island Ramp	5	0.4	2.1	0.0	31
S. Front St	1	41.6	71.8	0.3	17
Total		126.8	261.2	1.3	18

Arterial Level of Service: SB N.Front St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Walnut St	10	98.1	116.1	0.2	5
Market St	4	74.7	84.9	0.1	4
Chestnut St	46	12.4	22.7	0.1	16
Total		185.2	223.6	0.4	6

Arterial Level of Service: NB 5th St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Walnut St	30	26.6	49.3	0.1	10
Total		26.6	49.3	0.1	10

Arterial Level of Service: WB Walnut St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Forum Driveway	30	29.2	41.1	0.1	7
	31	25.5	31.6	0.0	5
Captial Parking Driv	32	33.7	41.0	0.0	4
3rd St	22	115.7	129.8	0.1	3
	36	31.5	38.7	0.1	5
2nd St	15	79.2	152.6	0.1	2
N.Front St	10	151.0	176.6	0.1	2
Total		465.9	611.4	0.5	3

Arterial Level of Service: NB 2nd St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Chestnut St	44	21.9	36.0	0.1	10
Market St	16	6.9	20.3	0.1	18
Walnut St	15	19.9	33.5	0.1	10
Total		48.7	89.8	0.3	12

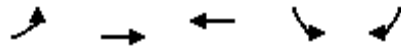


Appendix G
Capacity and Queue
Analysis Results-
Alternative 1

Queues

1: Market St & S. Front St

07/16/2023



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	545	618	309	162	319
v/c Ratio	0.68	0.46	0.55	0.49	0.29
Control Delay	21.7	8.4	27.1	28.5	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	8.4	27.1	28.5	3.7
Queue Length 50th (ft)	167	113	52	57	28
Queue Length 95th (ft)	296	222	95	107	52
Internal Link Dist (ft)		522	1732	480	
Turn Bay Length (ft)	400			340	
Base Capacity (vph)	931	1275	576	567	1198
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.48	0.54	0.29	0.27

Intersection Summary

HCM Signalized Intersection Capacity Analysis

1: Market St & S. Front St

07/16/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑	↑↑		↙	↙
Traffic Volume (vph)	485	550	219	56	144	284
Future Volume (vph)	485	550	219	56	144	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	16	13	11	12	11	14
Grade (%)		-2%	-4%		-1%	
Total Lost time (s)	5.5	6.4	6.4		6.2	5.5
Lane Util. Factor	1.00	1.00	0.95		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	2026	1944	3383		1719	1697
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	2026	1944	3383		1719	1697
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	545	618	246	63	162	319
RTOR Reduction (vph)	0	0	31	0	0	37
Lane Group Flow (vph)	545	618	278	0	162	282
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	2	1 2	1		4	2
Permitted Phases						4
Actuated Green, G (s)	23.0	37.6	9.1		9.0	32.0
Effective Green, g (s)	23.0	32.1	9.1		9.0	32.0
Actuated g/C Ratio	0.39	0.54	0.15		0.15	0.54
Clearance Time (s)	5.5		6.4		6.2	5.5
Vehicle Extension (s)	4.0		4.0		3.0	4.0
Lane Grp Cap (vph)	787	1054	520		261	917
v/s Ratio Prot	c0.27	c0.32	0.08		c0.09	0.12
v/s Ratio Perm						0.05
v/c Ratio	0.69	0.59	0.53		0.62	0.31
Uniform Delay, d1	15.1	9.1	23.1		23.5	7.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.9	1.0	1.3		4.5	0.3
Delay (s)	18.0	10.1	24.4		28.0	7.8
Level of Service	B	B	C		C	A
Approach Delay (s)		13.8	24.4		14.6	
Approach LOS		B	C		B	

Intersection Summary

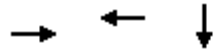
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	59.2	Sum of lost time (s)	18.1
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

4: N.Front St & Market St

07/16/2023















Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	771	297	1478
v/c Ratio	0.61	0.43	0.61
Control Delay	24.6	14.4	10.3
Queue Delay	0.0	0.0	0.0
Total Delay	24.6	14.4	10.3
Queue Length 50th (ft)	185	92	241
Queue Length 95th (ft)	247	137	285
Internal Link Dist (ft)	2011	397	440
Turn Bay Length (ft)			
Base Capacity (vph)	1257	691	2415
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.61	0.43	0.61
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

4: N.Front St & Market St

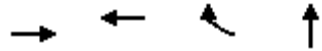
07/16/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑						↑↑↑	
Traffic Volume (vph)	0	407	287	0	267	0	0	0	0	163	1131	36
Future Volume (vph)	0	407	287	0	267	0	0	0	0	163	1131	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	12	10	12	12	12	12	13	12	13
Grade (%)		-1%			0%			0%			0%	
Total Lost time (s)		5.8			5.8						6.0	
Lane Util. Factor		0.95			1.00						0.91	
Frt		0.94			1.00						1.00	
Flt Protected		1.00			1.00						0.99	
Satd. Flow (prot)		3114			1739						5034	
Flt Permitted		1.00			1.00						0.99	
Satd. Flow (perm)		3114			1739						5034	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	452	319	0	297	0	0	0	0	181	1257	40
RTOR Reduction (vph)	0	19	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	752	0	0	297	0	0	0	0	0	1475	0
Turn Type		NA			NA					Perm	NA	
Protected Phases		2			2						1	
Permitted Phases										1		
Actuated Green, G (s)		38.2			38.2						46.0	
Effective Green, g (s)		38.2			38.2						46.0	
Actuated g/C Ratio		0.40			0.40						0.48	
Clearance Time (s)		5.8			5.8						6.0	
Lane Grp Cap (vph)		1239			691						2412	
v/s Ratio Prot		c0.24			0.17							
v/s Ratio Perm											0.29	
v/c Ratio		0.61			0.43						0.61	
Uniform Delay, d1		22.9			21.0						18.4	
Progression Factor		1.00			0.58						0.50	
Incremental Delay, d2		2.2			1.9						1.1	
Delay (s)		25.2			14.1						10.2	
Level of Service		C			B						B	
Approach Delay (s)		25.2			14.1			0.0			10.2	
Approach LOS		C			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			15.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			96.0			Sum of lost time (s)			11.8			
Intersection Capacity Utilization			68.2%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

9: Greyhound Driveway/5th St & Market St

07/16/2023



Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	688	398	341	4
v/c Ratio	0.50	0.48	0.39	0.04
Control Delay	4.9	20.4	5.1	43.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.9	20.4	5.1	43.8
Queue Length 50th (ft)	32	117	20	2
Queue Length 95th (ft)	79	m257	m60	13
Internal Link Dist (ft)	165	826		109
Turn Bay Length (ft)				
Base Capacity (vph)	1377	821	881	104
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.50	0.48	0.39	0.04

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

9: Greyhound Driveway/5th St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↔	↔		↕				
Traffic Volume (vph)	352	281	0	0	331	349	0	3	1	0	0	0
Future Volume (vph)	352	281	0	0	331	349	0	3	1	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	12	12	12	12	12	12	12	12	12
Grade (%)		-6%			6%			-10%				0%
Total Lost time (s)		7.0			7.0	7.0		7.5				
Lane Util. Factor		0.95			0.95	0.95		1.00				
Frt		1.00			0.99	0.85		0.97				
Flt Protected		0.97			1.00	1.00		1.00				
Satd. Flow (prot)		3547			1692	1459		1890				
Flt Permitted		0.59			1.00	1.00		1.00				
Satd. Flow (perm)		2144			1692	1459		1890				
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)	383	305	0	0	360	379	0	3	1	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	197	0	0	0	0	0	0
Lane Group Flow (vph)	0	688	0	0	395	144	0	4	0	0	0	0
Turn Type	pm+pt	NA			NA	Prot		NA				
Protected Phases	1	6			2	2	3	3				
Permitted Phases	6											
Actuated Green, G (s)		52.4			40.4	40.4		1.1				
Effective Green, g (s)		52.4			40.4	40.4		1.1				
Actuated g/C Ratio		0.55			0.42	0.42		0.01				
Clearance Time (s)		7.0			7.0	7.0		7.5				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		1243			712	613		21				
v/s Ratio Prot		c0.03			0.23	0.10		c0.00				
v/s Ratio Perm		c0.27										
v/c Ratio		0.55			0.55	0.23		0.19				
Uniform Delay, d1		14.2			21.0	17.9		47.0				
Progression Factor		0.32			1.05	1.86		1.00				
Incremental Delay, d2		1.4			2.3	0.6		4.4				
Delay (s)		5.9			24.2	33.8		51.4				
Level of Service		A			C	C		D				
Approach Delay (s)		5.9			28.6			51.4			0.0	
Approach LOS		A			C			D			A	

Intersection Summary

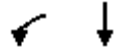
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

10: N.Front St & Walnut St

07/16/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	84	1472
v/c Ratio	0.09	0.47
Control Delay	7.1	11.0
Queue Delay	0.0	0.0
Total Delay	7.1	11.0
Queue Length 50th (ft)	3	166
Queue Length 95th (ft)	m6	193
Internal Link Dist (ft)	439	727
Turn Bay Length (ft)		
Base Capacity (vph)	904	3109
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.09	0.47

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

10: N.Front St & Walnut St

07/16/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶↷					↶↶↶
Traffic Volume (vph)	74	0	0	0	0	1295
Future Volume (vph)	74	0	0	0	0	1295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12
Grade (%)	-1%		0%			-1%
Total Lost time (s)	5.4					5.6
Lane Util. Factor	0.97					0.91
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	3051					5111
Flt Permitted	0.95					1.00
Satd. Flow (perm)	3051					5111
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	84	0	0	0	0	1472
RTOR Reduction (vph)	59	0	0	0	0	0
Lane Group Flow (vph)	25	0	0	0	0	1472
Parking (#/hr)	1					
Turn Type	Prot					NA
Protected Phases	3					2
Permitted Phases						
Actuated Green, G (s)	26.6					58.4
Effective Green, g (s)	26.6					58.4
Actuated g/C Ratio	0.28					0.61
Clearance Time (s)	5.4					5.6
Lane Grp Cap (vph)	845					3109
v/s Ratio Prot	c0.01					c0.29
v/s Ratio Perm						
v/c Ratio	0.03					0.47
Uniform Delay, d1	25.3					10.3
Progression Factor	1.06					1.00
Incremental Delay, d2	0.1					0.5
Delay (s)	26.8					10.9
Level of Service	C					B
Approach Delay (s)	26.8		0.0			10.9
Approach LOS	C		A			B

Intersection Summary

HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues

15: 2nd St & Walnut St

07/16/2023



Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	75	42	1471
v/c Ratio	0.08	0.09	0.63
Control Delay	23.0	5.9	13.1
Queue Delay	0.0	0.0	0.0
Total Delay	23.0	5.9	13.1
Queue Length 50th (ft)	19	0	104
Queue Length 95th (ft)	38	22	120
Internal Link Dist (ft)	194		432
Turn Bay Length (ft)			
Base Capacity (vph)	968	473	2318
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.08	0.09	0.63
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

15: 2nd St & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑↑↑				
Traffic Volume (vph)	0	0	0	0	69	39	95	1259	0	0	0	0
Future Volume (vph)	0	0	0	0	69	39	95	1259	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	11	11	10	12	12	12
Grade (%)		0%			-1%			1%			0%	
Total Lost time (s)					5.4	5.4		5.0				
Lane Util. Factor					0.95	1.00		0.91				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		1.00				
Satd. Flow (prot)					3320	1485		4874				
Flt Permitted					1.00	1.00		1.00				
Satd. Flow (perm)					3320	1485		4874				
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	75	42	103	1368	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	30	0	33	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	75	12	0	1438	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					28.0	28.0		43.8				
Effective Green, g (s)					28.0	28.0		43.8				
Actuated g/C Ratio					0.29	0.29		0.46				
Clearance Time (s)					5.4	5.4		5.0				
Vehicle Extension (s)					3.0	3.0		3.0				
Lane Grp Cap (vph)					968	433		2223				
v/s Ratio Prot					c0.02							
v/s Ratio Perm						0.01		0.29				
v/c Ratio					0.08	0.03		0.65				
Uniform Delay, d1					24.6	24.3		20.1				
Progression Factor					0.92	1.18		0.59				
Incremental Delay, d2					0.2	0.1		1.1				
Delay (s)					22.9	28.9		12.9				
Level of Service					C	C		B				
Approach Delay (s)		0.0			25.0			12.9			0.0	
Approach LOS		A			C			B			A	

Intersection Summary

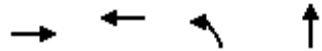
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

16: 2nd St & Market St

07/16/2023



Lane Group	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	665	298	139	1431
v/c Ratio	0.63	0.39	0.18	0.67
Control Delay	14.5	19.1	3.4	6.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	14.5	19.1	3.4	6.5
Queue Length 50th (ft)	85	177	11	110
Queue Length 95th (ft)	108	243	m14	111
Internal Link Dist (ft)	397	69		443
Turn Bay Length (ft)				
Base Capacity (vph)	1062	766	770	2136
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.63	0.39	0.18	0.67













Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

16: 2nd St & Market St

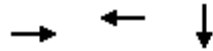
07/16/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔		↔	↔↔↔				
Traffic Volume (vph)	236	382	0	0	137	140	129	1024	307	0	0	0
Future Volume (vph)	236	382	0	0	137	140	129	1024	307	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			1%			0%	
Total Lost time (s)		6.0			6.0		6.0	6.0				
Lane Util. Factor		0.95			1.00		1.00	0.91				
Frt		1.00			0.93		1.00	0.97				
Flt Protected		0.98			1.00		0.95	1.00				
Satd. Flow (prot)		3473			1753		1761	4885				
Flt Permitted		0.69			1.00		0.95	1.00				
Satd. Flow (perm)		2429			1753		1761	4885				
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)	254	411	0	0	147	151	139	1101	330	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	665	0	0	298	0	139	1431	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		42.0			42.0		42.0	42.0				
Effective Green, g (s)		42.0			42.0		42.0	42.0				
Actuated g/C Ratio		0.44			0.44		0.44	0.44				
Clearance Time (s)		6.0			6.0		6.0	6.0				
Vehicle Extension (s)		3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)		1062			766		770	2137				
v/s Ratio Prot					0.17			c0.29				
v/s Ratio Perm		c0.27					0.08					
v/c Ratio		0.63			0.39		0.18	0.67				
Uniform Delay, d1		20.9			18.3		16.5	21.5				
Progression Factor		0.57			0.95		0.19	0.25				
Incremental Delay, d2		2.3			1.4		0.3	1.1				
Delay (s)		14.2			18.7		3.4	6.5				
Level of Service		B			B		A	A				
Approach Delay (s)		14.2			18.7			6.2			0.0	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.8					HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			96.0					Sum of lost time (s)		18.0		
Intersection Capacity Utilization			74.8%					ICU Level of Service		D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

21: 3rd St & Market St

07/16/2023



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	733	340	231
v/c Ratio	0.40	0.40	0.37
Control Delay	14.0	4.4	17.6
Queue Delay	0.0	0.0	0.0
Total Delay	14.0	4.4	17.6
Queue Length 50th (ft)	144	33	111
Queue Length 95th (ft)	173	40	170
Internal Link Dist (ft)	324	407	433
Turn Bay Length (ft)			
Base Capacity (vph)	1837	853	623
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.40	0.40	0.37
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

21: 3rd St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑			↔							↔	
Traffic Volume (vph)	0	550	80	41	251	0	0	0	0	81	118	0	
Future Volume (vph)	0	550	80	41	251	0	0	0	0	81	118	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	11	11	11	12	12	12	12	12	12	12	16	12	
Grade (%)		-1%			0%			0%				0%	
Total Lost time (s)		5.7			5.5							5.7	
Lane Util. Factor		0.95			1.00							1.00	
Frt		0.98			1.00							1.00	
Flt Protected		1.00			0.99							0.98	
Satd. Flow (prot)		3373			1850							1852	
Flt Permitted		1.00			0.84							0.98	
Satd. Flow (perm)		3373			1560							1852	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Adj. Flow (vph)	0	640	93	48	292	0	0	0	0	94	137	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	733	0	0	340	0	0	0	0	0	231	0	
Parking (#/hr)												1	
Turn Type		NA		Perm	NA					Split		NA	
Protected Phases		2			6					4		4	
Permitted Phases				6									
Actuated Green, G (s)		52.3			52.5							32.3	
Effective Green, g (s)		52.3			52.5							32.3	
Actuated g/C Ratio		0.54			0.55							0.34	
Clearance Time (s)		5.7			5.5							5.7	
Vehicle Extension (s)		3.0			3.0							3.0	
Lane Grp Cap (vph)		1837			853							623	
v/s Ratio Prot		0.22										c0.12	
v/s Ratio Perm					c0.22								
v/c Ratio		0.40			0.40							0.37	
Uniform Delay, d1		12.7			12.6							24.1	
Progression Factor		1.05			0.23							0.65	
Incremental Delay, d2		0.5			1.3							1.7	
Delay (s)		13.8			4.3							17.3	
Level of Service		B			A							B	
Approach Delay (s)		13.8			4.3			0.0				17.3	
Approach LOS		B			A			A				B	
Intersection Summary													
HCM 2000 Control Delay			11.9									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.42										
Actuated Cycle Length (s)			96.0									Sum of lost time (s)	17.4
Intersection Capacity Utilization			58.0%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

Queues

22: 3rd St & Walnut St

07/16/2023



Lane Group	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	180	306	205	131
v/c Ratio	0.13	0.41	0.23	0.17
Control Delay	7.8	6.1	14.8	14.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	7.8	6.1	14.8	14.2
Queue Length 50th (ft)	2	0	69	42
Queue Length 95th (ft)	25	0	95	65
Internal Link Dist (ft)	408		564	
Turn Bay Length (ft)				
Base Capacity (vph)	1423	740	891	783
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.13	0.41	0.23	0.17
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

22: 3rd St & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↕↕	↗					↕	↗	
Traffic Volume (vph)	0	0	0	40	101	239	0	0	0	0	160	102	
Future Volume (vph)	0	0	0	40	101	239	0	0	0	0	160	102	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12	
Grade (%)		0%			-1%			0%			-1%		
Total Lost time (s)					5.7	5.7					5.7	5.7	
Lane Util. Factor					0.95	1.00					1.00	1.00	
Frt					1.00	0.85					1.00	0.85	
Flt Protected					0.99	1.00					1.00	1.00	
Satd. Flow (prot)					3507	1424					1810	1591	
Flt Permitted					0.99	1.00					1.00	1.00	
Satd. Flow (perm)					3507	1424					1810	1591	
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	
Adj. Flow (vph)	0	0	0	51	129	306	0	0	0	0	205	131	
RTOR Reduction (vph)	0	0	0	0	61	187	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	119	119	0	0	0	0	205	131	
Parking (#/hr)				1		1							
Turn Type				Perm	NA	Perm					NA	Perm	
Protected Phases					4						2		
Permitted Phases				4		4						2	
Actuated Green, G (s)					37.3	37.3					47.3	47.3	
Effective Green, g (s)					37.3	37.3					47.3	47.3	
Actuated g/C Ratio					0.39	0.39					0.49	0.49	
Clearance Time (s)					5.7	5.7					5.7	5.7	
Vehicle Extension (s)					3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)					1362	553					891	783	
v/s Ratio Prot											c0.11		
v/s Ratio Perm					0.03	c0.08						0.08	
v/c Ratio					0.09	0.21					0.23	0.17	
Uniform Delay, d1					18.6	19.6					13.9	13.5	
Progression Factor					0.86	1.77					1.00	1.00	
Incremental Delay, d2					0.1	0.9					0.6	0.5	
Delay (s)					16.1	35.5					14.5	13.9	
Level of Service					B	D					B	B	
Approach Delay (s)		0.0			28.3			0.0			14.3		
Approach LOS		A			C			A			B		
Intersection Summary													
HCM 2000 Control Delay			22.6		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.24										
Actuated Cycle Length (s)			96.0		Sum of lost time (s)					17.4			
Intersection Capacity Utilization			51.2%		ICU Level of Service					A			
Analysis Period (min)			15										
c Critical Lane Group													

Queues

26: 4th St & Market St

07/16/2023



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	690	275	423	7	81
v/c Ratio	0.68	0.41	0.74	0.04	0.15
Control Delay	18.0	13.9	27.0	5.2	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	13.9	27.0	5.2	6.1
Queue Length 50th (ft)	78	45	152	0	8
Queue Length 95th (ft)	105	70	174	2	33
Internal Link Dist (ft)	407	164	432		435
Turn Bay Length (ft)					
Base Capacity (vph)	1016	672	574	187	549
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.68	0.41	0.74	0.04	0.15

Intersection Summary

HCM Signalized Intersection Capacity Analysis

26: 4th St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕			↕		↕	↕	
Traffic Volume (vph)	96	432	79	12	221	9	30	167	175	6	71	0
Future Volume (vph)	96	432	79	12	221	9	30	167	175	6	71	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	12	12	10	10	12
Grade (%)		0%			0%			-1%			1%	
Total Lost time (s)		5.5			5.5			5.5		5.5	5.5	
Lane Util. Factor		0.95			1.00			1.00		1.00	1.00	
Frt		0.98			1.00			0.94		1.00	1.00	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3328			1849			1746		1643	1730	
Flt Permitted		0.79			0.95			0.97		0.34	1.00	
Satd. Flow (perm)		2642			1770			1703		590	1730	
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)	109	491	90	14	251	10	34	190	199	7	81	0
RTOR Reduction (vph)	0	12	0	0	0	0	0	33	0	0	0	0
Lane Group Flow (vph)	0	678	0	0	275	0	0	390	0	7	81	0
Parking (#/hr)	1											
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		36.5			36.5			30.5		30.5	30.5	
Effective Green, g (s)		36.5			36.5			30.5		30.5	30.5	
Actuated g/C Ratio		0.38			0.38			0.32		0.32	0.32	
Clearance Time (s)		5.5			5.5			5.5		5.5	5.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		1004			672			541		187	549	
v/s Ratio Prot											0.05	
v/s Ratio Perm		c0.26			0.16			c0.23		0.01		
v/c Ratio		0.67			0.41			0.72		0.04	0.15	
Uniform Delay, d1		24.8			21.8			29.0		22.6	23.4	
Progression Factor		0.59			0.55			0.72		0.21	0.23	
Incremental Delay, d2		3.4			0.4			7.6		0.4	0.6	
Delay (s)		18.1			12.4			28.6		5.0	6.0	
Level of Service		B			B			C		A	A	
Approach Delay (s)		18.1			12.4			28.6			5.9	
Approach LOS		B			B			C			A	

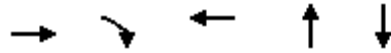
Intersection Summary

HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues

27: 4th St & Chestnut St/Amtrak Driveway

07/16/2023



Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	292	137	74	264	150
v/c Ratio	0.76	0.21	0.17	0.25	0.18
Control Delay	40.5	5.8	12.2	13.6	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	5.8	12.2	13.6	10.8
Queue Length 50th (ft)	132	4	27	76	22
Queue Length 95th (ft)	191	27	51	147	m70
Internal Link Dist (ft)	412		305	245	432
Turn Bay Length (ft)					
Base Capacity (vph)	630	1002	713	1045	843
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.14	0.10	0.25	0.18

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

27: 4th St & Chestnut St/Amtrak Driveway

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕	↗		↕			↕			↕		
Traffic Volume (vph)	220	22	114	37	16	8	47	160	12	10	89	26	
Future Volume (vph)	220	22	114	37	16	8	47	160	12	10	89	26	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	10	10	16	12	12	12	14	14	14	11	11	11	
Grade (%)		5%			-3%			-8%			4%		
Total Lost time (s)		5.5	5.5		5.5			5.5			5.5		
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00		
Frt		1.00	0.85		0.98			0.99			0.97		
Flt Protected		0.96	1.00		0.97			0.99			1.00		
Satd. Flow (prot)		1622	1750		1801			2030			1529		
Flt Permitted		0.69	1.00		0.71			0.91			0.97		
Satd. Flow (perm)		1175	1750		1321			1866			1494		
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	
Adj. Flow (vph)	265	27	137	45	19	10	57	193	14	12	107	31	
RTOR Reduction (vph)	0	0	92	0	7	0	0	1	0	0	7	0	
Lane Group Flow (vph)	0	292	45	0	67	0	0	263	0	0	143	0	
Parking (#/hr)										1	1	1	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4		4	8			2			6			
Actuated Green, G (s)		31.2	31.2		31.2			53.8			53.8		
Effective Green, g (s)		31.2	31.2		31.2			53.8			53.8		
Actuated g/C Ratio		0.32	0.32		0.32			0.56			0.56		
Clearance Time (s)		5.5	5.5		5.5			5.5			5.5		
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0		
Lane Grp Cap (vph)		381	568		429			1045			837		
v/s Ratio Prot													
v/s Ratio Perm		c0.25	0.03		0.05			c0.14			0.10		
v/c Ratio		0.77	0.08		0.16			0.25			0.17		
Uniform Delay, d1		29.1	22.4		23.0			10.8			10.3		
Progression Factor		0.99	1.67		0.67			1.00			0.88		
Incremental Delay, d2		8.6	0.1		0.2			0.6			0.4		
Delay (s)		37.4	37.6		15.5			11.4			9.4		
Level of Service		D	D		B			B			A		
Approach Delay (s)		37.5			15.5			11.4			9.4		
Approach LOS		D			B			B			A		
Intersection Summary													
HCM 2000 Control Delay			23.6									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.44										
Actuated Cycle Length (s)			96.0									Sum of lost time (s)	11.0
Intersection Capacity Utilization			46.5%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

30: 5th St/Forum Driveway & Walnut St

07/16/2023



Lane Group	WBT	NBL	NBR	SBL	SBR
Lane Group Flow (vph)	335	300	267	7	2
v/c Ratio	0.26	0.17	0.37	0.06	0.01
Control Delay	20.6	0.4	9.0	43.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	0.4	9.0	43.4	0.0
Queue Length 50th (ft)	71	0	37	4	0
Queue Length 95th (ft)	105	2	144	18	0
Internal Link Dist (ft)	349				
Turn Bay Length (ft)	150				
Base Capacity (vph)	1278	1772	728	121	187
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.26	0.17	0.37	0.06	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 30: 5th St/Forum Driveway & Walnut St

07/16/2023

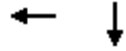


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑		↑↑		↑	↑		↑
Traffic Volume (vph)	0	0	0	0	315	0	282	0	251	7	0	2
Future Volume (vph)	0	0	0	0	315	0	282	0	251	7	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	16	11	12	11	12	12	12
Grade (%)		0%			-1%			7%				0%
Total Lost time (s)					5.0		5.4		5.4	5.4		5.4
Lane Util. Factor					0.95		0.97		1.00	1.00		1.00
Frt					1.00		1.00		0.85	1.00		0.85
Flt Protected					1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)					3258		3202		1477	1770		1583
Flt Permitted					1.00		0.95		1.00	0.95		1.00
Satd. Flow (perm)					3258		3202		1477	1770		1583
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	0	335	0	300	0	267	7	0	2
RTOR Reduction (vph)	0	0	0	0	0	0	186	0	165	0	0	2
Lane Group Flow (vph)	0	0	0	0	335	0	114	0	102	7	0	0
Parking (#/hr)					1							
Turn Type					NA		Prot		Prot	Prot		Perm
Protected Phases					2		3		3	4		
Permitted Phases												4
Actuated Green, G (s)					37.7		36.6		36.6	5.9		5.9
Effective Green, g (s)					37.7		36.6		36.6	5.9		5.9
Actuated g/C Ratio					0.39		0.38		0.38	0.06		0.06
Clearance Time (s)					5.0		5.4		5.4	5.4		5.4
Vehicle Extension (s)					3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)					1279		1220		563	108		97
v/s Ratio Prot					c0.10		0.04		c0.07	c0.00		
v/s Ratio Perm												0.00
v/c Ratio					0.26		0.09		0.18	0.06		0.00
Uniform Delay, d1					19.7		19.1		19.7	42.5		42.3
Progression Factor					1.00		1.00		2.80	1.00		1.00
Incremental Delay, d2					0.5		0.1		0.6	0.3		0.0
Delay (s)					20.2		19.2		56.0	42.7		42.3
Level of Service					C		B		E	D		D
Approach Delay (s)		0.0			20.2			36.5			42.6	
Approach LOS		A			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			30.6		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.21									
Actuated Cycle Length (s)			96.0	Sum of lost time (s)					15.8			
Intersection Capacity Utilization			44.2%	ICU Level of Service				A				
Analysis Period (min)			15									
c Critical Lane Group												

Queues

31: Aberdeen St & Walnut St

07/16/2023



Lane Group	WBT	SBT
Lane Group Flow (vph)	641	194
v/c Ratio	0.27	0.25
Control Delay	0.5	15.1
Queue Delay	0.2	0.0
Total Delay	0.6	15.1
Queue Length 50th (ft)	0	57
Queue Length 95th (ft)	3	106
Internal Link Dist (ft)	172	900
Turn Bay Length (ft)		
Base Capacity (vph)	2391	777
Starvation Cap Reductn	912	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.43	0.25
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

31: Aberdeen St & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑↑						↑	
Traffic Volume (vph)	0	0	0	60	183	334	0	0	0	0	104	70
Future Volume (vph)	0	0	0	60	183	334	0	0	0	0	104	70
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	16	12
Grade (%)		0%			-1%			0%				-3%
Total Lost time (s)					5.6							5.2
Lane Util. Factor					0.91							1.00
Frt					0.91							0.95
Flt Protected					0.99							1.00
Satd. Flow (prot)					4643							1814
Flt Permitted					0.99							1.00
Satd. Flow (perm)					4643							1814
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	67	203	371	0	0	0	0	116	78
RTOR Reduction (vph)	0	0	0	0	196	0	0	0	0	0	25	0
Lane Group Flow (vph)	0	0	0	0	445	0	0	0	0	0	169	0
Parking (#/hr)				1		1						1
Turn Type				Split	NA							NA
Protected Phases				2	2							4
Permitted Phases												
Actuated Green, G (s)					45.4							39.8
Effective Green, g (s)					45.4							39.8
Actuated g/C Ratio					0.47							0.41
Clearance Time (s)					5.6							5.2
Vehicle Extension (s)					3.0							3.0
Lane Grp Cap (vph)					2195							752
v/s Ratio Prot					c0.10							c0.09
v/s Ratio Perm												
v/c Ratio					0.20							0.22
Uniform Delay, d1					14.8							18.1
Progression Factor					0.03							1.00
Incremental Delay, d2					0.2							0.7
Delay (s)					0.6							18.8
Level of Service					A							B
Approach Delay (s)		0.0			0.6			0.0				18.8
Approach LOS		A			A			A				B
Intersection Summary												
HCM 2000 Control Delay			4.9		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.21									
Actuated Cycle Length (s)			96.0		Sum of lost time (s)			10.8				
Intersection Capacity Utilization			62.3%		ICU Level of Service				B			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

32: 4th St/Captial Parking Driveway & Walnut St

07/16/2023



Lane Group	WBT	NBL	SBT
Lane Group Flow (vph)	330	253	8
v/c Ratio	0.18	0.42	0.01
Control Delay	14.9	9.8	10.4
Queue Delay	0.6	0.0	0.0
Total Delay	15.5	9.8	10.4
Queue Length 50th (ft)	45	62	2
Queue Length 95th (ft)	60	m101	8
Internal Link Dist (ft)	145		257
Turn Bay Length (ft)			
Base Capacity (vph)	1834	603	915
Starvation Cap Reductn	1130	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.47	0.42	0.01

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 32: 4th St/Captial Parking Driveway & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑		↑				↑	
Traffic Volume (vph)	0	0	0	109	175	0	218	0	0	0	5	2
Future Volume (vph)	0	0	0	109	175	0	218	0	0	0	5	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	12	12	12
Grade (%)		0%			-1%			-3%			0%	
Total Lost time (s)					5.6		5.2				5.2	
Lane Util. Factor					0.91		1.00				1.00	
Frt					1.00		1.00				0.97	
Flt Protected					0.98		0.95				1.00	
Satd. Flow (prot)					4839		1500				1800	
Flt Permitted					0.98		0.75				1.00	
Satd. Flow (perm)					4839		1188				1800	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	127	203	0	253	0	0	0	6	2
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	0	0	0	330	0	253	0	0	0	7	0
Parking (#/hr)				1	1		1					
Turn Type				Perm	NA		D.Pm				NA	
Protected Phases					2						3	
Permitted Phases				2			3					
Actuated Green, G (s)					36.4		48.8				48.8	
Effective Green, g (s)					36.4		48.8				48.8	
Actuated g/C Ratio					0.38		0.51				0.51	
Clearance Time (s)					5.6		5.2				5.2	
Lane Grp Cap (vph)					1834		603				915	
v/s Ratio Prot											0.00	
v/s Ratio Perm					0.07		c0.21					
v/c Ratio					0.18		0.42				0.01	
Uniform Delay, d1					19.9		14.7				11.6	
Progression Factor					0.74		0.54				1.00	
Incremental Delay, d2					0.2		1.5				0.0	
Delay (s)					14.8		9.5				11.7	
Level of Service					B		A				B	
Approach Delay (s)		0.0			14.8			9.5			11.7	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

42: Cameron St & Market St

07/16/2023



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	167	225	127	422	987	118	796
v/c Ratio	0.49	0.34	0.72	0.27	0.83	0.63	0.42	0.79
Control Delay	18.1	12.1	49.3	1.4	38.6	23.2	16.9	34.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	12.1	49.3	1.4	38.6	23.2	16.9	34.1
Queue Length 50th (ft)	31	42	130	0	186	244	29	207
Queue Length 95th (ft)	26	32	194	1	#421	344	63	#308
Internal Link Dist (ft)		305	673			844		763
Turn Bay Length (ft)					250		220	
Base Capacity (vph)	220	639	421	566	506	1577	286	1003
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.26	0.53	0.22	0.83	0.63	0.41	0.79























Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

42: Cameron St & Market St

07/16/2023

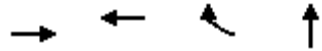
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	118	34	34	171	116	384	872	26	107	452	272
Future Volume (vph)	97	118	34	34	171	116	384	872	26	107	452	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	11	12	10	11	12	10	11	12
Grade (%)		3%			-2%			2%				4%
Total Lost time (s)	5.6	6.3			6.3	6.3	4.8	6.5		4.8	6.6	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.97			1.00	0.85	1.00	1.00		1.00	0.94	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	1774			1804	1599	1635	3372		1619	3164	
Flt Permitted	0.35	1.00			0.91	1.00	0.14	1.00		0.29	1.00	
Satd. Flow (perm)	635	1774			1659	1599	235	3372		495	3164	
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)	107	130	37	37	188	127	422	958	29	118	497	299
RTOR Reduction (vph)	0	12	0	0	0	103	0	2	0	0	92	0
Lane Group Flow (vph)	107	155	0	0	225	24	422	985	0	118	704	0
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	26.9	26.9			18.1	18.1	56.3	43.7		34.4	26.6	
Effective Green, g (s)	26.9	26.9			18.1	18.1	56.3	43.7		34.4	26.6	
Actuated g/C Ratio	0.28	0.28			0.19	0.19	0.59	0.46		0.36	0.28	
Clearance Time (s)	5.6	6.3			6.3	6.3	4.8	6.5		4.8	6.6	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	214	497			312	301	499	1534		268	876	
v/s Ratio Prot	c0.02	0.09					c0.22	0.29		0.04	0.22	
v/s Ratio Perm	0.12				c0.14	0.01	c0.28			0.12		
v/c Ratio	0.50	0.31			0.72	0.08	0.85	0.64		0.44	0.80	
Uniform Delay, d1	29.6	27.2			36.6	32.1	23.3	20.1		21.3	32.3	
Progression Factor	0.45	0.44			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	0.3			8.0	0.1	12.5	2.1		1.2	7.7	
Delay (s)	15.1	12.4			44.5	32.2	35.7	22.2		22.5	40.0	
Level of Service	B	B			D	C	D	C		C	D	
Approach Delay (s)		13.5			40.1			26.3			37.8	
Approach LOS		B			D			C			D	
Intersection Summary												
HCM 2000 Control Delay			30.3									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			96.0									Sum of lost time (s) 23.3
Intersection Capacity Utilization			81.6%									ICU Level of Service D
Analysis Period (min)			15									

c Critical Lane Group

Queues

44: 2nd St & Chestnut St

07/16/2023





















Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	115	33	43	1928
v/c Ratio	0.22	0.10	0.14	0.78
Control Delay	10.1	28.3	29.1	21.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.1	28.3	29.1	21.1
Queue Length 50th (ft)	43	18	24	328
Queue Length 95th (ft)	77	48	57	391
Internal Link Dist (ft)	425	433		446
Turn Bay Length (ft)				
Base Capacity (vph)	517	326	301	2484
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.22	0.10	0.14	0.78
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

44: 2nd St & Chestnut St

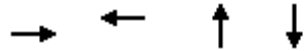
07/16/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	73	0	0	32	41	76	1445	330	0	0	0
Future Volume (vph)	37	73	0	0	32	41	76	1445	330	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	16	12	12	12	12	12	12
Grade (%)		0%			0%			1%			0%	
Total Lost time (s)		6.1			6.1	6.1		5.5				
Lane Util. Factor		1.00			1.00	1.00		0.91				
Frt		1.00			1.00	0.85		0.97				
Flt Protected		0.98			1.00	1.00		1.00				
Satd. Flow (prot)		1530			1739	1606		4742				
Flt Permitted		0.92			1.00	1.00		1.00				
Satd. Flow (perm)		1425			1739	1606		4742				
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)	39	76	0	0	33	43	79	1505	344	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	115	0	0	33	43	0	1928	0	0	0	0
Parking (#/hr)		1				1	1	1	1			
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)		34.1			18.0	18.0		50.3				
Effective Green, g (s)		34.1			18.0	18.0		50.3				
Actuated g/C Ratio		0.36			0.19	0.19		0.52				
Clearance Time (s)		6.1			6.1	6.1		5.5				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		517			326	301		2484				
v/s Ratio Prot		c0.02			0.02							
v/s Ratio Perm		c0.06				0.03		0.41				
v/c Ratio		0.22			0.10	0.14		0.78				
Uniform Delay, d1		21.7			32.3	32.6		18.3				
Progression Factor		0.42			0.85	0.85		1.00				
Incremental Delay, d2		0.9			0.6	1.0		2.5				
Delay (s)		10.0			28.0	28.7		20.8				
Level of Service		A			C	C		C				
Approach Delay (s)		10.0			28.4			20.8			0.0	
Approach LOS		A			C			C			A	
Intersection Summary												
HCM 2000 Control Delay			20.5				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			96.0				Sum of lost time (s)		21.7			
Intersection Capacity Utilization			60.8%				ICU Level of Service			B		
Analysis Period (min)			15									
c	Critical Lane Group											

Queues

45: 3rd St & Chestnut St

07/16/2023



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	179	110	47	245
v/c Ratio	0.30	0.09	0.06	0.37
Control Delay	12.6	14.5	13.0	13.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.6	14.5	13.0	13.3
Queue Length 50th (ft)	45	25	14	81
Queue Length 95th (ft)	m60	22	32	101
Internal Link Dist (ft)	433	412	443	437
Turn Bay Length (ft)				
Base Capacity (vph)	603	1207	793	660
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	0.09	0.06	0.37













Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

45: 3rd St & Chestnut St

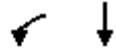
07/16/2023

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑			↑↑			↕			↕		
Traffic Volume (vph)	0	154	0	0	95	0	2	0	39	184	0	27	
Future Volume (vph)	0	154	0	0	95	0	2	0	39	184	0	27	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	10	10	10	10	10	10	16	16	16	16	16	16	
Grade (%)		1%			2%			3%			0%		
Total Lost time (s)		5.6			5.6			5.6			5.6		
Lane Util. Factor		1.00			0.95			1.00			1.00		
Frt		1.00			1.00			0.87			0.98		
Flt Protected		1.00			1.00			1.00			0.96		
Satd. Flow (prot)		1548			3099			1617			1779		
Flt Permitted		1.00			1.00			0.99			0.72		
Satd. Flow (perm)		1548			3099			1608			1336		
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Adj. Flow (vph)	0	179	0	0	110	0	2	0	45	214	0	31	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	179	0	0	110	0	0	47	0	0	245	0	
Parking (#/hr)		1			1		1	1	1	1	1	1	
Turn Type		NA			NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases							2			6			
Actuated Green, G (s)		37.4			37.4			47.4			47.4		
Effective Green, g (s)		37.4			37.4			47.4			47.4		
Actuated g/C Ratio		0.39			0.39			0.49			0.49		
Clearance Time (s)		5.6			5.6			5.6			5.6		
Vehicle Extension (s)		3.0			3.0			3.0			3.0		
Lane Grp Cap (vph)		603			1207			793			659		
v/s Ratio Prot		c0.12			0.04								
v/s Ratio Perm								0.03			c0.18		
v/c Ratio		0.30			0.09			0.06			0.37		
Uniform Delay, d1		20.2			18.5			12.7			15.1		
Progression Factor		0.57			0.77			1.00			0.76		
Incremental Delay, d2		0.9			0.1			0.1			1.5		
Delay (s)		12.4			14.4			12.8			12.9		
Level of Service		B			B			B			B		
Approach Delay (s)		12.4			14.4			12.8			12.9		
Approach LOS		B			B			B			B		
Intersection Summary													
HCM 2000 Control Delay			13.0									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.36										
Actuated Cycle Length (s)			96.0									Sum of lost time (s)	17.2
Intersection Capacity Utilization			35.9%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

46: N.Front St & Chestnut St

07/16/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	151	1517
v/c Ratio	0.31	0.53
Control Delay	34.1	5.2
Queue Delay	0.0	0.0
Total Delay	34.1	5.2
Queue Length 50th (ft)	71	69
Queue Length 95th (ft)	m105	80
Internal Link Dist (ft)	425	455
Turn Bay Length (ft)		
Base Capacity (vph)	480	2882
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.31	0.53

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

46: N.Front St & Chestnut St

07/16/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵					↵↵↵
Traffic Volume (vph)	137	0	0	0	193	1188
Future Volume (vph)	137	0	0	0	193	1188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11
Grade (%)	-1%		0%			-1%
Total Lost time (s)	5.2					5.6
Lane Util. Factor	1.00					0.91
Frt	1.00					1.00
Flt Protected	0.95					0.99
Satd. Flow (prot)	1601					4906
Flt Permitted	0.95					0.99
Satd. Flow (perm)	1601					4906
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	151	0	0	0	212	1305
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	151	0	0	0	0	1517
Parking (#/hr)	0					
Turn Type	Prot				Perm	NA
Protected Phases	8					6
Permitted Phases					6	
Actuated Green, G (s)	28.8					56.4
Effective Green, g (s)	28.8					56.4
Actuated g/C Ratio	0.30					0.59
Clearance Time (s)	5.2					5.6
Lane Grp Cap (vph)	480					2882
v/s Ratio Prot	c0.09					
v/s Ratio Perm						0.31
v/c Ratio	0.31					0.53
Uniform Delay, d1	26.0					11.8
Progression Factor	1.23					0.39
Incremental Delay, d2	1.6					0.5
Delay (s)	33.4					5.1
Level of Service	C					A
Approach Delay (s)	33.4		0.0			5.1
Approach LOS	C		A			A

Intersection Summary

HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

5: Market St & City Island Ramp

07/16/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Volume (veh/h)	0	693	267	36	0	4
Future Volume (Veh/h)	0	693	267	36	0	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	770	297	40	0	4
Pedestrians		6				
Lane Width (ft)		12.0				
Walking Speed (ft/s)		3.5				
Percent Blockage		1				
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	337				702	174
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	337				702	174
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1219				372	834
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	385	385	198	139	4	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	40	4	
cSH	1700	1700	1700	1700	834	
Volume to Capacity	0.23	0.23	0.12	0.08	0.00	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	0.0	0.0	0.0	0.0	9.3	
Lane LOS					A	
Approach Delay (s)	0.0		0.0		9.3	
Approach LOS					A	
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			31.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

7: City Island Ramp & Market St

07/16/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	663	30	0	303	0	18
Future Volume (Veh/h)	663	30	0	303	0	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	737	33	0	337	0	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			770		922	385
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			770		922	385
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			840		269	613
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	491	279	168	168	20	
Volume Left	0	0	0	0	0	
Volume Right	0	33	0	0	20	
cSH	1700	1700	1700	1700	613	
Volume to Capacity	0.29	0.16	0.10	0.10	0.03	
Queue Length 95th (ft)	0	0	0	0	3	
Control Delay (s)	0.0	0.0	0.0	0.0	11.1	
Lane LOS						B
Approach Delay (s)	0.0		0.0		11.1	
Approach LOS						B
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			29.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

28: Aberdeen St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↔			↔			↔	
Traffic Volume (veh/h)	0	660	1	45	247	0	0	0	0	54	1	0
Future Volume (Veh/h)	0	660	1	45	247	0	0	0	0	54	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	725	1	49	271	0	0	0	0	59	1	0
Pedestrians					89			37				
Lane Width (ft)					12.0			12.0				
Walking Speed (ft/s)					3.5			3.5				
Percent Blockage					8			4				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		244			245							
pX, platoon unblocked	0.84			0.88			0.90	0.90	0.88	0.90	0.90	0.84
vC, conflicting volume	271			763			1132	1132	489	820	1132	271
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	41			445			577	577	132	233	577	41
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			100	100	100	89	100	100
cM capacity (veh/h)	1320			939			325	352	690	543	352	860
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1							
Volume Total	483	243	320	0	60							
Volume Left	0	0	49	0	59							
Volume Right	0	1	0	0	0							
cSH	1700	1700	939	1700	538							
Volume to Capacity	0.28	0.14	0.05	0.00	0.11							
Queue Length 95th (ft)	0	0	4	0	9							
Control Delay (s)	0.0	0.0	1.9	0.0	12.5							
Lane LOS			A	A	B							
Approach Delay (s)	0.0		1.9	0.0	12.5							
Approach LOS			A	A	B							
Intersection Summary												
Average Delay			1.2									
Intersection Capacity Utilization			53.8%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

52: 10th St & Market St

07/16/2023

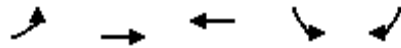


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Volume (veh/h)	8	241	24	58	794	12	2	0	10	4	1	14
Future Volume (Veh/h)	8	241	24	58	794	12	2	0	10	4	1	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	9	277	28	67	913	14	2	0	11	5	1	16
Pedestrians					14						3	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						0	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		906			385							
pX, platoon unblocked												
vC, conflicting volume	930			305			916	1373	166	1238	1380	466
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	930			305			916	1373	166	1238	1380	466
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			99	100	99	96	99	97
cM capacity (veh/h)	729			1253			208	135	837	121	133	541
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	148	166	524	470	13	22						
Volume Left	9	0	67	0	2	5						
Volume Right	0	28	0	14	11	16						
cSH	729	1700	1253	1700	571	281						
Volume to Capacity	0.01	0.10	0.05	0.28	0.02	0.08						
Queue Length 95th (ft)	1	0	4	0	2	6						
Control Delay (s)	0.7	0.0	1.5	0.0	11.4	18.9						
Lane LOS	A		A		B	C						
Approach Delay (s)	0.3		0.8		11.4	18.9						
Approach LOS					B	C						
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			48.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues

1: Market St & S. Front St

07/16/2023



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	525	329	1024	252	444
v/c Ratio	0.86	0.25	0.93	0.79	0.45
Control Delay	45.1	6.6	41.2	52.5	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	6.6	41.2	52.5	11.2
Queue Length 50th (ft)	279	68	261	135	113
Queue Length 95th (ft)	#455	105	#396	#242	183
Internal Link Dist (ft)		522	1732	480	
Turn Bay Length (ft)	400			340	
Base Capacity (vph)	634	1294	1110	358	995
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.83	0.25	0.92	0.70	0.45

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

1: Market St & S. Front St

07/16/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	478	299	577	355	229	404
Future Volume (vph)	478	299	577	355	229	404
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	16	13	11	12	11	14
Grade (%)		-2%	-4%		-1%	
Total Lost time (s)	5.5	6.4	6.4		6.2	5.5
Lane Util. Factor	1.00	1.00	0.95		1.00	1.00
Frt	1.00	1.00	0.94		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	2026	1944	3290		1719	1697
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	2026	1944	3290		1719	1697
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	525	329	634	390	252	444
RTOR Reduction (vph)	0	0	104	0	0	32
Lane Group Flow (vph)	525	329	920	0	252	412
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	2	1 2	1		4	2
Permitted Phases						4
Actuated Green, G (s)	26.2	58.2	26.5		16.3	42.5
Effective Green, g (s)	26.2	52.7	26.5		16.3	42.5
Actuated g/C Ratio	0.30	0.61	0.30		0.19	0.49
Clearance Time (s)	5.5		6.4		6.2	5.5
Vehicle Extension (s)	4.0		4.0		3.0	4.0
Lane Grp Cap (vph)	609	1176	1000		321	828
v/s Ratio Prot	c0.26	0.17	c0.28		c0.15	0.15
v/s Ratio Perm						0.09
v/c Ratio	0.86	0.28	0.92		0.79	0.50
Uniform Delay, d1	28.7	8.2	29.3		33.7	15.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	12.4	0.2	13.4		11.9	0.6
Delay (s)	41.1	8.4	42.7		45.6	15.7
Level of Service	D	A	D		D	B
Approach Delay (s)		28.5	42.7		26.6	
Approach LOS		C	D		C	

Intersection Summary

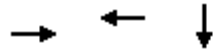
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	87.1	Sum of lost time (s)	18.1
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues

4: N.Front St & Market St

07/16/2023



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	685	677	2370
v/c Ratio	0.63	1.08	0.90
Control Delay	30.8	87.5	17.8
Queue Delay	0.0	7.9	0.5
Total Delay	30.8	95.3	18.4
Queue Length 50th (ft)	197	~510	253
Queue Length 95th (ft)	261	#741	275
Internal Link Dist (ft)	2011	397	440
Turn Bay Length (ft)			
Base Capacity (vph)	1093	626	2643
Starvation Cap Reductn	0	52	0
Spillback Cap Reductn	0	0	66
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.63	1.18	0.92



















Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

4: N.Front St & Market St

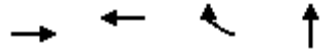
07/16/2023

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		 									  			
Traffic Volume (vph)	0	246	371	0	609	0	0	0	0	69	1723	341		
Future Volume (vph)	0	246	371	0	609	0	0	0	0	69	1723	341		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width	10	10	10	12	10	12	12	12	12	13	12	13		
Grade (%)		-1%			0%			0%			0%			
Total Lost time (s)		5.8			5.8						6.0			
Lane Util. Factor		0.95			1.00						0.91			
Frt		0.91			1.00						0.98			
Flt Protected		1.00			1.00						1.00			
Satd. Flow (prot)		3020			1739						4955			
Flt Permitted		1.00			1.00						1.00			
Satd. Flow (perm)		3020			1739						4955			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90		
Adj. Flow (vph)	0	273	412	0	677	0	0	0	0	77	1914	379		
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	26	0		
Lane Group Flow (vph)	0	681	0	0	677	0	0	0	0	0	2344	0		
Turn Type		NA			NA					Perm	NA			
Protected Phases		2			2						1			
Permitted Phases										1				
Actuated Green, G (s)		38.2			38.2						56.0			
Effective Green, g (s)		38.2			38.2						56.0			
Actuated g/C Ratio		0.36			0.36						0.53			
Clearance Time (s)		5.8			5.8						6.0			
Lane Grp Cap (vph)		1088			626						2617			
v/s Ratio Prot		0.23			c0.39									
v/s Ratio Perm											0.47			
v/c Ratio		0.63			1.08						0.90			
Uniform Delay, d1		28.0			33.9						22.4			
Progression Factor		1.00			0.88						0.59			
Incremental Delay, d2		2.7			57.1						4.5			
Delay (s)		30.7			86.8						17.7			
Level of Service		C			F						B			
Approach Delay (s)		30.7			86.8			0.0			17.7			
Approach LOS		C			F			A			B			
Intersection Summary														
HCM 2000 Control Delay			32.6									HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.97											
Actuated Cycle Length (s)			106.0								11.8			
Intersection Capacity Utilization			84.2%										ICU Level of Service	E
Analysis Period (min)			15											
c	Critical Lane Group													

Queues

9: Greyhound Driveway/5th St & Market St

07/16/2023



Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	700	566	255	4
v/c Ratio	0.49	0.62	0.28	0.05
Control Delay	5.2	17.6	2.1	49.5
Queue Delay	0.0	0.1	0.0	0.0
Total Delay	5.2	17.6	2.1	49.5
Queue Length 50th (ft)	26	180	4	3
Queue Length 95th (ft)	93	m372	m18	14
Internal Link Dist (ft)	165	826		109
Turn Bay Length (ft)				
Base Capacity (vph)	1420	910	896	84
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	15	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.49	0.63	0.28	0.05

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

9: Greyhound Driveway/5th St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↔	↔		↕				
Traffic Volume (vph)	177	453	0	0	484	255	0	1	3	0	0	0
Future Volume (vph)	177	453	0	0	484	255	0	1	3	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	12	12	12	12	12	12	12	12	12
Grade (%)		-6%			6%			-10%				0%
Total Lost time (s)		7.0			7.0	7.0		7.5				
Lane Util. Factor		0.95			0.95	0.95		1.00				
Frt		1.00			0.99	0.85		0.90				
Flt Protected		0.99			1.00	1.00		1.00				
Satd. Flow (prot)		3595			1704	1459		1758				
Flt Permitted		0.57			1.00	1.00		1.00				
Satd. Flow (perm)		2088			1704	1459		1758				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	197	503	0	0	538	283	0	1	3	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	134	0	0	0	0	0	0
Lane Group Flow (vph)	0	700	0	0	564	121	0	4	0	0	0	0
Turn Type	pm+pt	NA			NA	Prot		NA				
Protected Phases	1	6			2	2	3	3				
Permitted Phases	6						3					
Actuated Green, G (s)		62.5			50.5	50.5		1.0				
Effective Green, g (s)		62.5			50.5	50.5		1.0				
Actuated g/C Ratio		0.59			0.48	0.48		0.01				
Clearance Time (s)		7.0			7.0	7.0		7.5				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		1302			811	695		16				
v/s Ratio Prot		c0.03			c0.33	0.08		c0.00				
v/s Ratio Perm		0.29										
v/c Ratio		0.54			0.70	0.17		0.25				
Uniform Delay, d1		13.1			21.7	15.8		52.1				
Progression Factor		0.36			0.81	0.74		1.00				
Incremental Delay, d2		1.5			3.3	0.4		8.1				
Delay (s)		6.2			21.0	12.1		60.2				
Level of Service		A			C	B		E				
Approach Delay (s)		6.2			18.2			60.2			0.0	
Approach LOS		A			B			E			A	

Intersection Summary

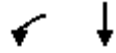
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

10: N.Front St & Walnut St

07/16/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	547	1704
v/c Ratio	0.51	0.61
Control Delay	5.3	17.2
Queue Delay	0.0	0.0
Total Delay	5.3	17.2
Queue Length 50th (ft)	20	270
Queue Length 95th (ft)	31	317
Internal Link Dist (ft)	439	727
Turn Bay Length (ft)		
Base Capacity (vph)	1073	2815
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	103
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.51	0.63
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

10: N.Front St & Walnut St

07/16/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔					↑↑↑
Traffic Volume (vph)	503	0	0	0	0	1568
Future Volume (vph)	503	0	0	0	0	1568
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12
Grade (%)	-1%		0%			-1%
Total Lost time (s)	5.4					5.6
Lane Util. Factor	0.97					0.91
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	3051					5111
Flt Permitted	0.95					1.00
Satd. Flow (perm)	3051					5111
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	547	0	0	0	0	1704
RTOR Reduction (vph)	20	0	0	0	0	0
Lane Group Flow (vph)	527	0	0	0	0	1704
Parking (#/hr)	1					
Turn Type	Prot					NA
Protected Phases	3					2
Permitted Phases						
Actuated Green, G (s)	36.6					58.4
Effective Green, g (s)	36.6					58.4
Actuated g/C Ratio	0.35					0.55
Clearance Time (s)	5.4					5.6
Lane Grp Cap (vph)	1053					2815
v/s Ratio Prot	c0.17					c0.33
v/s Ratio Perm						
v/c Ratio	0.50					0.61
Uniform Delay, d1	27.5					16.0
Progression Factor	0.14					1.00
Incremental Delay, d2	1.5					1.0
Delay (s)	5.5					17.0
Level of Service	A					B
Approach Delay (s)	5.5		0.0			17.0
Approach LOS	A		A			B

Intersection Summary

HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	94.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues

15: 2nd St & Walnut St

07/16/2023



Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	467	84	1174
v/c Ratio	0.46	0.16	0.60
Control Delay	24.1	3.8	16.6
Queue Delay	0.0	0.0	0.0
Total Delay	24.1	3.8	16.6
Queue Length 50th (ft)	132	17	129
Queue Length 95th (ft)	178	34	150
Internal Link Dist (ft)	194		432
Turn Bay Length (ft)			
Base Capacity (vph)	1021	514	1966
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.46	0.16	0.60
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

15: 2nd St & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑↑↑				
Traffic Volume (vph)	0	0	0	0	439	79	56	1047	0	0	0	0
Future Volume (vph)	0	0	0	0	439	79	56	1047	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	11	11	10	12	12	12
Grade (%)		0%			-1%			1%			0%	
Total Lost time (s)					5.4	5.4		5.0				
Lane Util. Factor					0.95	1.00		0.91				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		1.00				
Satd. Flow (prot)					3320	1485		4879				
Flt Permitted					1.00	1.00		1.00				
Satd. Flow (perm)					3320	1485		4879				
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	0	467	84	60	1114	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	58	0	34	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	467	26	0	1140	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					32.6	32.6		42.0				
Effective Green, g (s)					32.6	32.6		42.0				
Actuated g/C Ratio					0.31	0.31		0.40				
Clearance Time (s)					5.4	5.4		5.0				
Vehicle Extension (s)					3.0	3.0		3.0				
Lane Grp Cap (vph)					1021	456		1933				
v/s Ratio Prot					c0.14							
v/s Ratio Perm						0.02		0.23				
v/c Ratio					0.46	0.06		0.59				
Uniform Delay, d1					29.6	25.9		25.2				
Progression Factor					0.76	0.52		0.64				
Incremental Delay, d2					1.5	0.2		1.2				
Delay (s)					23.9	13.7		17.3				
Level of Service					C	B		B				
Approach Delay (s)		0.0			22.3			17.3			0.0	
Approach LOS		A			C			B			A	

Intersection Summary

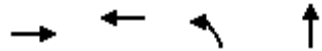
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

16: 2nd St & Market St

07/16/2023



Lane Group	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	345	553	329	814
v/c Ratio	0.37	0.67	0.58	0.52
Control Delay	7.6	7.9	21.8	18.1
Queue Delay	0.0	9.3	0.7	0.0
Total Delay	7.6	17.2	22.6	18.1
Queue Length 50th (ft)	30	33	87	69
Queue Length 95th (ft)	m36	51	172	95
Internal Link Dist (ft)	397	69		443
Turn Bay Length (ft)				
Base Capacity (vph)	923	828	564	1564
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	241	65	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.37	0.94	0.66	0.52

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

16: 2nd St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔		↔	↔↔↔				
Traffic Volume (vph)	132	206	0	0	277	265	322	606	192	0	0	0
Future Volume (vph)	132	206	0	0	277	265	322	606	192	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			1%			0%	
Total Lost time (s)		6.0			6.0		6.0	6.0				
Lane Util. Factor		0.95			1.00		1.00	0.91				
Frt		1.00			0.93		1.00	0.96				
Flt Protected		0.98			1.00		0.95	1.00				
Satd. Flow (prot)		3471			1757		1761	4877				
Flt Permitted		0.55			1.00		0.95	1.00				
Satd. Flow (perm)		1957			1757		1761	4877				
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)	135	210	0	0	283	270	329	618	196	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	345	0	0	553	0	329	814	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		50.0			50.0		34.0	34.0				
Effective Green, g (s)		50.0			50.0		34.0	34.0				
Actuated g/C Ratio		0.47			0.47		0.32	0.32				
Clearance Time (s)		6.0			6.0		6.0	6.0				
Lane Grp Cap (vph)		923			828		564	1564				
v/s Ratio Prot					c0.31			0.17				
v/s Ratio Perm		0.18					c0.19					
v/c Ratio		0.37			0.67		0.58	0.52				
Uniform Delay, d1		18.0			21.6		30.1	29.4				
Progression Factor		0.37			0.18		0.58	0.58				
Incremental Delay, d2		0.8			3.9		3.9	1.1				
Delay (s)		7.5			7.7		21.5	18.0				
Level of Service		A			A		C	B				
Approach Delay (s)		7.5			7.7		19.0				0.0	
Approach LOS		A			A		B				A	

Intersection Summary

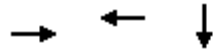
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues

21: 3rd St & Market St

07/16/2023



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	433	524	233
v/c Ratio	0.22	0.49	0.40
Control Delay	12.6	1.9	24.5
Queue Delay	0.0	0.6	0.0
Total Delay	12.6	2.5	24.5
Queue Length 50th (ft)	74	19	130
Queue Length 95th (ft)	108	m21	203
Internal Link Dist (ft)	324	407	433
Turn Bay Length (ft)			
Base Capacity (vph)	1948	1071	584
Starvation Cap Reductn	0	240	0
Spillback Cap Reductn	0	10	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.22	0.63	0.40

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

21: 3rd St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↔							↔
Traffic Volume (vph)	0	350	53	9	478	0	0	0	0	65	152	0
Future Volume (vph)	0	350	53	9	478	0	0	0	0	65	152	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	12	12	12	16	12
Grade (%)		-1%			0%			0%				0%
Total Lost time (s)		5.7			5.5							5.7
Lane Util. Factor		0.95			1.00							1.00
Frt		0.98			1.00							1.00
Flt Protected		1.00			1.00							0.99
Satd. Flow (prot)		3370			1861							1861
Flt Permitted		1.00			0.99							0.99
Satd. Flow (perm)		3370			1845							1861
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	376	57	10	514	0	0	0	0	70	163	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	433	0	0	524	0	0	0	0	0	233	0
Parking (#/hr)												1
Turn Type		NA		Perm	NA					Split		NA
Protected Phases		2			6					4		4
Permitted Phases				6								
Actuated Green, G (s)		61.3			61.5							33.3
Effective Green, g (s)		61.3			61.5							33.3
Actuated g/C Ratio		0.58			0.58							0.31
Clearance Time (s)		5.7			5.5							5.7
Vehicle Extension (s)		3.0			3.0							3.0
Lane Grp Cap (vph)		1948			1070							584
v/s Ratio Prot		0.13										c0.13
v/s Ratio Perm					c0.28							
v/c Ratio		0.22			0.49							0.40
Uniform Delay, d1		10.8			13.0							28.5
Progression Factor		1.13			0.07							0.77
Incremental Delay, d2		0.2			1.0							2.0
Delay (s)		12.5			1.9							24.1
Level of Service		B			A							C
Approach Delay (s)		12.5			1.9			0.0				24.1
Approach LOS		B			A			A				C
Intersection Summary												
HCM 2000 Control Delay			10.1			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			106.0			Sum of lost time (s)			17.4			
Intersection Capacity Utilization			53.3%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

22: 3rd St & Walnut St

07/16/2023



Lane Group	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	328	236	193	159
v/c Ratio	0.35	0.45	0.19	0.18
Control Delay	21.0	7.4	12.7	12.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	21.0	7.4	12.7	12.6
Queue Length 50th (ft)	61	10	63	51
Queue Length 95th (ft)	90	36	101	87
Internal Link Dist (ft)	408		564	
Turn Bay Length (ft)				
Base Capacity (vph)	944	530	995	875
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.35	0.45	0.19	0.18
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

22: 3rd St & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕	↗					↕	↗
Traffic Volume (vph)	0	0	0	39	270	222	0	0	0	0	181	149
Future Volume (vph)	0	0	0	39	270	222	0	0	0	0	181	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12
Grade (%)		0%			-1%			0%			-1%	
Total Lost time (s)					5.7	5.7					5.7	5.7
Lane Util. Factor					0.95	1.00					1.00	1.00
Frt					1.00	0.85					1.00	0.85
Flt Protected					0.99	1.00					1.00	1.00
Satd. Flow (prot)					3535	1424					1810	1591
Flt Permitted					0.99	1.00					1.00	1.00
Satd. Flow (perm)					3535	1424					1810	1591
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	41	287	236	0	0	0	0	193	159
RTOR Reduction (vph)	0	0	0	0	68	177	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	260	59	0	0	0	0	193	159
Parking (#/hr)				1		1						
Turn Type				Perm	NA	Perm					NA	Perm
Protected Phases					4						2	
Permitted Phases				4		4						2
Actuated Green, G (s)					26.3	26.3					58.3	58.3
Effective Green, g (s)					26.3	26.3					58.3	58.3
Actuated g/C Ratio					0.25	0.25					0.55	0.55
Clearance Time (s)					5.7	5.7					5.7	5.7
Lane Grp Cap (vph)					877	353					995	875
v/s Ratio Prot											c0.11	
v/s Ratio Perm					0.07	0.04						0.10
v/c Ratio					0.30	0.17					0.19	0.18
Uniform Delay, d1					32.3	31.2					12.0	11.9
Progression Factor					0.85	1.09					1.00	1.00
Incremental Delay, d2					0.8	0.9					0.4	0.5
Delay (s)					28.3	35.1					12.4	12.4
Level of Service					C	D					B	B
Approach Delay (s)		0.0			31.1			0.0			12.4	
Approach LOS		A			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	17.4
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

26: 4th St & Market St

07/16/2023



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	490	598	409	40	129
v/c Ratio	0.48	0.79	0.76	0.24	0.25
Control Delay	14.5	19.1	32.1	19.1	15.9
Queue Delay	0.0	0.5	0.0	0.0	0.0
Total Delay	14.5	19.6	32.1	19.1	15.9
Queue Length 50th (ft)	68	322	225	19	63
Queue Length 95th (ft)	78	74	344	44	101
Internal Link Dist (ft)	407	164	432		435
Turn Bay Length (ft)					
Base Capacity (vph)	1026	759	535	164	514
Starvation Cap Reductn	0	22	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.48	0.81	0.76	0.24	0.25

Intersection Summary

HCM Signalized Intersection Capacity Analysis

26: 4th St & Market St

07/16/2023

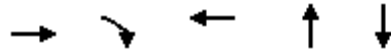


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕↕			↕↕			↕↕		↕	↕		
Traffic Volume (vph)	63	320	23	23	425	48	24	164	151	33	107	0	
Future Volume (vph)	63	320	23	23	425	48	24	164	151	33	107	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	11	11	11	12	12	12	12	12	12	10	10	12	
Grade (%)		0%			0%			-1%			1%		
Total Lost time (s)		5.5			5.5			5.5		5.5	5.5		
Lane Util. Factor		0.95			1.00			1.00		1.00	1.00		
Frt		0.99			0.99			0.94		1.00	1.00		
Flt Protected		0.99			1.00			1.00		0.95	1.00		
Satd. Flow (prot)		3366			1834			1753		1643	1730		
Flt Permitted		0.70			0.96			0.97		0.32	1.00		
Satd. Flow (perm)		2383			1768			1710		554	1730		
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	
Adj. Flow (vph)	76	386	28	28	512	58	29	198	182	40	129	0	
RTOR Reduction (vph)	0	4	0	0	0	0	0	27	0	0	0	0	
Lane Group Flow (vph)	0	486	0	0	598	0	0	382	0	40	129	0	
Parking (#/hr)	1												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		45.5			45.5			31.5		31.5	31.5		
Effective Green, g (s)		45.5			45.5			31.5		31.5	31.5		
Actuated g/C Ratio		0.43			0.43			0.30		0.30	0.30		
Clearance Time (s)		5.5			5.5			5.5		5.5	5.5		
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0		
Lane Grp Cap (vph)		1022			758			508		164	514		
v/s Ratio Prot											0.07		
v/s Ratio Perm		0.20			0.34			0.22		0.07			
v/c Ratio		0.48			0.79			0.75		0.24	0.25		
Uniform Delay, d1		21.7			26.1			33.7		28.2	28.3		
Progression Factor		0.60			0.43			0.71		0.53	0.51		
Incremental Delay, d2		1.6			4.8			9.5		3.5	1.2		
Delay (s)		14.5			16.1			33.4		18.4	15.7		
Level of Service		B			B			C		B	B		
Approach Delay (s)		14.5			16.1			33.4			16.3		
Approach LOS		B			B			C			B		
Intersection Summary													
HCM 2000 Control Delay			19.9									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.64										
Actuated Cycle Length (s)			106.0									Sum of lost time (s)	13.0
Intersection Capacity Utilization			79.3%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

Queues

27: 4th St & Chestnut St/Amtrak Driveway

07/16/2023



Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	296	224	73	187	192
v/c Ratio	0.74	0.31	0.13	0.18	0.22
Control Delay	39.4	8.4	13.5	13.5	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	8.4	13.5	13.5	9.3
Queue Length 50th (ft)	143	31	31	56	24
Queue Length 95th (ft)	222	53	m47	111	m137
Internal Link Dist (ft)	412		305	245	432
Turn Bay Length (ft)					
Base Capacity (vph)	679	1066	930	1043	864
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.21	0.08	0.18	0.22

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

27: 4th St & Chestnut St/Amtrak Driveway

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕	↗		↕			↕			↕		
Traffic Volume (vph)	214	29	184	14	40	6	39	106	8	9	107	42	
Future Volume (vph)	214	29	184	14	40	6	39	106	8	9	107	42	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	10	10	16	12	12	12	14	14	14	11	11	11	
Grade (%)		5%			-3%			-8%			4%		
Total Lost time (s)		5.5	5.5		5.5			5.5			5.5		
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00		
Frt		1.00	0.85		0.99			0.99			0.96		
Flt Protected		0.96	1.00		0.99			0.99			1.00		
Satd. Flow (prot)		1624	1750		1845			2025			1518		
Flt Permitted		0.73	1.00		0.90			0.89			0.98		
Satd. Flow (perm)		1233	1750		1681			1822			1498		
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	
Adj. Flow (vph)	261	35	224	17	49	7	48	129	10	11	130	51	
RTOR Reduction (vph)	0	0	151	0	5	0	0	1	0	0	8	0	
Lane Group Flow (vph)	0	296	73	0	68	0	0	186	0	0	184	0	
Parking (#/hr)										1	1	1	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4		4	8			2			6			
Actuated Green, G (s)		34.4	34.4		34.4			60.6			60.6		
Effective Green, g (s)		34.4	34.4		34.4			60.6			60.6		
Actuated g/C Ratio		0.32	0.32		0.32			0.57			0.57		
Clearance Time (s)		5.5	5.5		5.5			5.5			5.5		
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0		
Lane Grp Cap (vph)		400	567		545			1041			856		
v/s Ratio Prot													
v/s Ratio Perm		c0.24	0.04		0.04			0.10			c0.12		
v/c Ratio		0.74	0.13		0.13			0.18			0.21		
Uniform Delay, d1		31.8	25.2		25.2			10.8			11.1		
Progression Factor		0.92	2.80		0.67			1.00			0.70		
Incremental Delay, d2		6.9	0.1		0.1			0.4			0.5		
Delay (s)		36.1	70.7		16.9			11.2			8.3		
Level of Service		D	E		B			B			A		
Approach Delay (s)		51.0			16.9			11.2			8.3		
Approach LOS		D			B			B			A		
Intersection Summary													
HCM 2000 Control Delay			32.4									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.40										
Actuated Cycle Length (s)			106.0									Sum of lost time (s)	11.0
Intersection Capacity Utilization			49.9%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

30: 5th St/Forum Driveway & Walnut St

07/16/2023



Lane Group	WBT	NBL	NBR	SBL	SBR
Lane Group Flow (vph)	72	370	413	17	3
v/c Ratio	0.08	0.15	0.43	0.15	0.02
Control Delay	29.0	0.1	2.6	49.7	0.3
Queue Delay	0.0	0.0	0.2	0.0	0.0
Total Delay	29.0	0.1	2.7	49.7	0.3
Queue Length 50th (ft)	18	0	6	11	0
Queue Length 95th (ft)	37	0	25	34	0
Internal Link Dist (ft)	349				
Turn Bay Length (ft)	150				
Base Capacity (vph)	891	2445	961	160	212
Starvation Cap Reductn	0	0	109	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.08	0.15	0.48	0.11	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 30: 5th St/Forum Driveway & Walnut St

07/16/2023

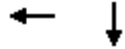


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑		↗↘		↗	↘		↗
Traffic Volume (vph)	0	0	0	0	65	0	333	0	372	15	0	3
Future Volume (vph)	0	0	0	0	65	0	333	0	372	15	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	16	11	12	11	12	12	12
Grade (%)		0%			-1%			7%				0%
Total Lost time (s)					5.0		5.4		5.4	5.4		5.4
Lane Util. Factor					0.95		0.97		1.00	1.00		1.00
Frt					1.00		1.00		0.85	1.00		0.85
Flt Protected					1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)					3258		3202		1477	1770		1583
Flt Permitted					1.00		0.95		1.00	0.95		1.00
Satd. Flow (perm)					3258		3202		1477	1770		1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	72	0	370	0	413	17	0	3
RTOR Reduction (vph)	0	0	0	0	0	0	179	0	200	0	0	3
Lane Group Flow (vph)	0	0	0	0	72	0	191	0	213	17	0	0
Parking (#/hr)					1							
Turn Type					NA		Prot		Prot	Prot		Perm
Protected Phases					2		3		3	4		
Permitted Phases												4
Actuated Green, G (s)					29.0		54.6		54.6	6.6		6.6
Effective Green, g (s)					29.0		54.6		54.6	6.6		6.6
Actuated g/C Ratio					0.27		0.52		0.52	0.06		0.06
Clearance Time (s)					5.0		5.4		5.4	5.4		5.4
Vehicle Extension (s)					3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)					891		1649		760	110		98
v/s Ratio Prot					c0.02		0.06		c0.14	c0.01		
v/s Ratio Perm												0.00
v/c Ratio					0.08		0.12		0.28	0.15		0.00
Uniform Delay, d1					28.6		13.3		14.6	47.1		46.6
Progression Factor					1.00		1.00		0.77	1.00		1.00
Incremental Delay, d2					0.2		0.1		0.9	0.7		0.0
Delay (s)					28.8		13.4		12.1	47.7		46.6
Level of Service					C		B		B	D		D
Approach Delay (s)		0.0			28.8			12.7			47.6	
Approach LOS		A			C			B			D	
Intersection Summary												
HCM 2000 Control Delay			14.8				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.21									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)		15.8			
Intersection Capacity Utilization			45.7%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

31: Aberdeen St & Walnut St

07/16/2023



Lane Group	WBT	SBT
Lane Group Flow (vph)	384	260
v/c Ratio	0.18	0.29
Control Delay	4.8	15.8
Queue Delay	0.3	0.0
Total Delay	5.1	15.8
Queue Length 50th (ft)	15	90
Queue Length 95th (ft)	19	147
Internal Link Dist (ft)	172	900
Turn Bay Length (ft)		
Base Capacity (vph)	2078	895
Starvation Cap Reductn	1133	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.41	0.29
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

31: Aberdeen St & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑							↑
Traffic Volume (vph)	0	0	0	48	126	176	0	0	0	0	164	73
Future Volume (vph)	0	0	0	48	126	176	0	0	0	0	164	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	16	12
Grade (%)		0%			-1%			0%				-3%
Total Lost time (s)					5.6							5.2
Lane Util. Factor					0.91							1.00
Frt					0.92							0.96
Flt Protected					0.99							1.00
Satd. Flow (prot)					4693							1838
Flt Permitted					0.99							1.00
Satd. Flow (perm)					4693							1838
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	53	138	193	0	0	0	0	180	80
RTOR Reduction (vph)	0	0	0	0	112	0	0	0	0	0	15	0
Lane Group Flow (vph)	0	0	0	0	272	0	0	0	0	0	245	0
Parking (#/hr)				1		1					1	
Turn Type				Split	NA							NA
Protected Phases				2	2							4
Permitted Phases												
Actuated Green, G (s)					44.4							50.8
Effective Green, g (s)					44.4							50.8
Actuated g/C Ratio					0.42							0.48
Clearance Time (s)					5.6							5.2
Lane Grp Cap (vph)					1965							880
v/s Ratio Prot					c0.06							c0.13
v/s Ratio Perm												
v/c Ratio					0.14							0.28
Uniform Delay, d1					19.0							16.6
Progression Factor					0.49							1.00
Incremental Delay, d2					0.1							0.8
Delay (s)					9.5							17.4
Level of Service					A							B
Approach Delay (s)		0.0			9.5			0.0				17.4
Approach LOS		A			A			A				B

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

32: 4th St/Captial Parking Driveway & Walnut St

07/16/2023



Lane Group	WBT	NBL	SBT
Lane Group Flow (vph)	317	377	20
v/c Ratio	0.19	0.59	0.02
Control Delay	20.3	13.1	8.2
Queue Delay	0.8	0.0	0.0
Total Delay	21.2	13.1	8.2
Queue Length 50th (ft)	46	172	4
Queue Length 95th (ft)	62	m247	14
Internal Link Dist (ft)	145		257
Turn Bay Length (ft)			
Base Capacity (vph)	1710	640	964
Starvation Cap Reductn	1089	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.51	0.59	0.02

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 32: 4th St/Captial Parking Driveway & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑↑		↑				↑		
Traffic Volume (vph)	0	0	0	94	179	0	324	0	0	0	10	7	
Future Volume (vph)	0	0	0	94	179	0	324	0	0	0	10	7	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	10	10	10	12	12	12	
Grade (%)		0%			-1%			-3%			0%		
Total Lost time (s)					5.6		5.2				5.2		
Lane Util. Factor					0.91		1.00				1.00		
Frt					1.00		1.00				0.95		
Flt Protected					0.98		0.95				1.00		
Satd. Flow (prot)					4848		1500				1762		
Flt Permitted					0.98		0.74				1.00		
Satd. Flow (perm)					4848		1176				1762		
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Adj. Flow (vph)	0	0	0	109	208	0	377	0	0	0	12	8	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	4	0	
Lane Group Flow (vph)	0	0	0	0	317	0	377	0	0	0	16	0	
Parking (#/hr)				1	1		1						
Turn Type				Perm	NA		D.Pm				NA		
Protected Phases					2						3		
Permitted Phases				2			3						
Actuated Green, G (s)					37.4		57.8				57.8		
Effective Green, g (s)					37.4		57.8				57.8		
Actuated g/C Ratio					0.35		0.55				0.55		
Clearance Time (s)					5.6		5.2				5.2		
Lane Grp Cap (vph)					1710		641				960		
v/s Ratio Prot											0.01		
v/s Ratio Perm					0.07		c0.32						
v/c Ratio					0.19		0.59				0.02		
Uniform Delay, d1					23.8		16.1				11.1		
Progression Factor					0.84		0.59				1.00		
Incremental Delay, d2					0.2		3.1				0.0		
Delay (s)					20.2		12.6				11.1		
Level of Service					C		B				B		
Approach Delay (s)		0.0			20.2			12.6			11.1		
Approach LOS		A			C			B			B		
Intersection Summary													
HCM 2000 Control Delay			15.9		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.43										
Actuated Cycle Length (s)			106.0		Sum of lost time (s)						10.8		
Intersection Capacity Utilization			63.2%		ICU Level of Service						B		
Analysis Period (min)			15										

c Critical Lane Group

Queues

42: Cameron St & Market St

07/16/2023



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	174	331	279	63	283	942	177	1166
v/c Ratio	0.97	0.64	0.81	0.14	0.88	0.61	0.56	0.88
Control Delay	79.6	22.2	58.5	0.7	54.9	24.6	18.0	38.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.6	22.2	58.5	0.7	54.9	24.6	18.0	38.2
Queue Length 50th (ft)	71	164	180	0	138	254	50	382
Queue Length 95th (ft)	#196	239	267	0	#312	338	90	#525
Internal Link Dist (ft)		305	673			844		763
Turn Bay Length (ft)					250		220	
Base Capacity (vph)	180	573	404	485	323	1533	332	1325
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.58	0.69	0.13	0.88	0.61	0.53	0.88

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

42: Cameron St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗	↖	↗		↖	↗	
Traffic Volume (vph)	165	206	108	21	244	60	269	815	80	168	862	246
Future Volume (vph)	165	206	108	21	244	60	269	815	80	168	862	246
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	11	12	10	11	12	10	11	12
Grade (%)		3%			-2%			2%			4%	
Total Lost time (s)	5.6	6.3			6.3	6.3	4.8	6.5		4.8	5.5	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.95			1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	1740			1812	1599	1635	3342		1619	3241	
Flt Permitted	0.26	1.00			0.95	1.00	0.09	1.00		0.24	1.00	
Satd. Flow (perm)	481	1740			1721	1599	148	3342		415	3241	
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)	174	217	114	22	257	63	283	858	84	177	907	259
RTOR Reduction (vph)	0	19	0	0	0	50	0	7	0	0	24	0
Lane Group Flow (vph)	174	312	0	0	279	13	283	935	0	177	1142	0
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	30.2	30.2			21.2	21.2	63.0	48.5		52.3	42.6	
Effective Green, g (s)	30.2	30.2			21.2	21.2	63.0	48.5		52.3	42.6	
Actuated g/C Ratio	0.28	0.28			0.20	0.20	0.59	0.46		0.49	0.40	
Clearance Time (s)	5.6	6.3			6.3	6.3	4.8	6.5		4.8	5.5	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	177	495			344	319	320	1529		314	1302	
v/s Ratio Prot	c0.03	0.18					c0.14	0.28		0.05	0.35	
v/s Ratio Perm	c0.25				0.16	0.01	c0.39			0.23		
v/c Ratio	0.98	0.63			0.81	0.04	0.88	0.61		0.56	0.88	
Uniform Delay, d1	39.7	33.0			40.5	34.2	30.4	21.7		15.8	29.3	
Progression Factor	0.61	0.55			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	59.6	2.4			13.5	0.1	23.8	1.8		2.3	8.6	
Delay (s)	83.7	20.6			54.0	34.2	54.2	23.5		18.1	37.8	
Level of Service	F	C			D	C	D	C		B	D	
Approach Delay (s)		42.3			50.3			30.6			35.2	
Approach LOS		D			D			C			D	

Intersection Summary

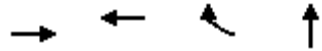
HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	23.2
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues

44: 2nd St & Chestnut St

07/16/2023



Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	132	134	40	1333
v/c Ratio	0.29	0.36	0.12	0.54
Control Delay	21.7	20.6	18.0	17.8
Queue Delay	0.0	0.2	0.0	0.0
Total Delay	21.7	20.9	18.0	17.8
Queue Length 50th (ft)	80	22	7	210
Queue Length 95th (ft)	m86	62	25	252
Internal Link Dist (ft)	425	433		446
Turn Bay Length (ft)				
Base Capacity (vph)	451	375	346	2490
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	36	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.29	0.40	0.12	0.54

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

44: 2nd St & Chestnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↑	↗		↖↗↘				
Traffic Volume (vph)	68	60	0	0	130	39	237	930	126	0	0	0
Future Volume (vph)	68	60	0	0	130	39	237	930	126	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	16	12	12	12	12	12	12
Grade (%)		0%			0%			1%			0%	
Total Lost time (s)		6.1			6.1	6.1		5.5				
Lane Util. Factor		1.00			1.00	1.00		0.91				
Frt		1.00			1.00	0.85		0.99				
Flt Protected		0.97			1.00	1.00		0.99				
Satd. Flow (prot)		1516			1739	1606		4768				
Flt Permitted		0.72			1.00	1.00		0.99				
Satd. Flow (perm)		1126			1739	1606		4768				
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)	70	62	0	0	134	40	244	959	130	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	132	0	0	134	40	0	1333	0	0	0	0
Parking (#/hr)		1				1	1	1	1			
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)		39.0			22.9	22.9		55.4				
Effective Green, g (s)		39.0			22.9	22.9		55.4				
Actuated g/C Ratio		0.37			0.22	0.22		0.52				
Clearance Time (s)		6.1			6.1	6.1		5.5				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		451			375	346		2491				
v/s Ratio Prot		c0.03			c0.08							
v/s Ratio Perm		0.08				0.02		0.28				
v/c Ratio		0.29			0.36	0.12		0.54				
Uniform Delay, d1		23.7			35.3	33.4		16.8				
Progression Factor		0.89			0.50	0.51		1.00				
Incremental Delay, d2		0.8			2.6	0.7		0.8				
Delay (s)		21.8			20.3	17.7		17.6				
Level of Service		C			C	B		B				
Approach Delay (s)		21.8			19.7			17.6			0.0	
Approach LOS		C			B			B			A	

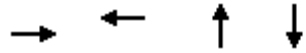
Intersection Summary

HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	21.7
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

45: 3rd St & Chestnut St

07/16/2023



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	184	139	69	170
v/c Ratio	0.30	0.11	0.10	0.32
Control Delay	27.4	22.5	20.0	10.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	27.4	22.5	20.0	10.7
Queue Length 50th (ft)	92	35	28	59
Queue Length 95th (ft)	141	54	57	138
Internal Link Dist (ft)	433	412	443	437
Turn Bay Length (ft)				
Base Capacity (vph)	604	1210	658	527
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	0.11	0.10	0.32

Intersection Summary

HCM Signalized Intersection Capacity Analysis

45: 3rd St & Chestnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑↑			↕			↕	
Traffic Volume (vph)	0	178	0	0	135	0	2	0	65	157	0	8
Future Volume (vph)	0	178	0	0	135	0	2	0	65	157	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	16	16	16	16	16	16
Grade (%)		1%			2%			3%			0%	
Total Lost time (s)		5.6			5.6			5.6			5.6	
Lane Util. Factor		1.00			0.95			1.00			1.00	
Frt		1.00			1.00			0.87			0.99	
Flt Protected		1.00			1.00			1.00			0.95	
Satd. Flow (prot)		1548			3099			1615			1792	
Flt Permitted		1.00			1.00			1.00			0.69	
Satd. Flow (perm)		1548			3099			1609			1288	
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	184	0	0	139	0	2	0	67	162	0	8
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	184	0	0	139	0	0	69	0	0	170	0
Parking (#/hr)		1			1		1	1	1	1	1	1
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)		41.4			41.4			43.4			43.4	
Effective Green, g (s)		41.4			41.4			43.4			43.4	
Actuated g/C Ratio		0.39			0.39			0.41			0.41	
Clearance Time (s)		5.6			5.6			5.6			5.6	
Lane Grp Cap (vph)		604			1210			658			527	
v/s Ratio Prot		c0.12			0.04							
v/s Ratio Perm								0.04			c0.13	
v/c Ratio		0.30			0.11			0.10			0.32	
Uniform Delay, d1		22.3			20.6			19.3			21.3	
Progression Factor		1.15			1.07			1.00			0.42	
Incremental Delay, d2		1.2			0.2			0.3			1.5	
Delay (s)		26.9			22.3			19.6			10.5	
Level of Service		C			C			B			B	
Approach Delay (s)		26.9			22.3			19.6			10.5	
Approach LOS		C			C			B			B	

Intersection Summary

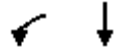
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues

46: N.Front St & Chestnut St

07/16/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	454	2346
v/c Ratio	0.80	0.88
Control Delay	41.4	11.7
Queue Delay	0.0	1.3
Total Delay	41.4	13.0
Queue Length 50th (ft)	225	137
Queue Length 95th (ft)	#433	261
Internal Link Dist (ft)	425	455
Turn Bay Length (ft)		
Base Capacity (vph)	570	2667
Starvation Cap Reductn	0	151
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.80	0.93

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

46: N.Front St & Chestnut St

07/16/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶					↷↷↷
Traffic Volume (vph)	422	0	0	0	121	2061
Future Volume (vph)	422	0	0	0	121	2061
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11
Grade (%)	-1%		0%			-1%
Total Lost time (s)	5.2					5.6
Lane Util. Factor	1.00					0.91
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1601					4927
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1601					4927
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	454	0	0	0	130	2216
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	454	0	0	0	0	2346
Parking (#/hr)	0					
Turn Type	Prot				Perm	NA
Protected Phases	8					6
Permitted Phases					6	
Actuated Green, G (s)	37.8					57.4
Effective Green, g (s)	37.8					57.4
Actuated g/C Ratio	0.36					0.54
Clearance Time (s)	5.2					5.6
Lane Grp Cap (vph)	570					2668
v/s Ratio Prot	c0.28					
v/s Ratio Perm						0.48
v/c Ratio	0.80					0.88
Uniform Delay, d1	30.6					21.3
Progression Factor	0.98					0.42
Incremental Delay, d2	10.4					2.4
Delay (s)	40.3					11.4
Level of Service	D					B
Approach Delay (s)	40.3		0.0			11.4
Approach LOS	D		A			B

Intersection Summary

HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

5: Market St & City Island Ramp

07/16/2023

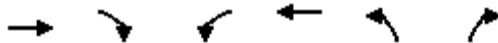


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Volume (veh/h)	0	530	883	66	0	42
Future Volume (Veh/h)	0	530	883	66	0	42
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	582	970	73	0	46
Pedestrians		10				
Lane Width (ft)		12.0				
Walking Speed (ft/s)		3.5				
Percent Blockage		1				
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1043				1298	532
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1043				1298	532
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	91
cM capacity (veh/h)	663				153	488
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	291	291	647	396	46	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	73	46	
cSH	1700	1700	1700	1700	488	
Volume to Capacity	0.17	0.17	0.38	0.23	0.09	
Queue Length 95th (ft)	0	0	0	0	8	
Control Delay (s)	0.0	0.0	0.0	0.0	13.1	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		13.1	
Approach LOS					B	
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			39.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

7: City Island Ramp & Market St

07/16/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	512	18	0	949	0	88
Future Volume (Veh/h)	512	18	0	949	0	88
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	563	20	0	1043	0	97
Pedestrians				2		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				3.5		
Percent Blockage				0		
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			583	1094		294
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			583	1094		294
tC, single (s)			4.1	6.8		6.9
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			100	100		86
cM capacity (veh/h)			987	208		702
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	375	208	522	522	97	
Volume Left	0	0	0	0	0	
Volume Right	0	20	0	0	97	
cSH	1700	1700	1700	1700	702	
Volume to Capacity	0.22	0.12	0.31	0.31	0.14	
Queue Length 95th (ft)	0	0	0	0	12	
Control Delay (s)	0.0	0.0	0.0	0.0	11.0	
Lane LOS					B	
Approach Delay (s)	0.0	0.0		11.0		
Approach LOS					B	
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			36.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

28: Aberdeen St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↔			↔			↔	
Traffic Volume (veh/h)	0	513	0	45	437	0	0	0	0	162	3	64
Future Volume (Veh/h)	0	513	0	45	437	0	0	0	0	162	3	64
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	583	0	51	497	0	0	0	0	184	3	73
Pedestrians					63			64				
Lane Width (ft)					12.0			12.0				
Walking Speed (ft/s)					3.5			3.5				
Percent Blockage					6			6				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		244			245							
pX, platoon unblocked	0.74			0.93			0.78	0.78	0.93	0.78	0.78	0.74
vC, conflicting volume	497			647			1320	1246	418	954	1246	497
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	148			467			927	831	221	455	831	148
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			100	100	100	44	99	89
cM capacity (veh/h)	1062			951			131	210	642	327	210	647
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1							
Volume Total	389	194	548	0	260							
Volume Left	0	0	51	0	184							
Volume Right	0	0	0	0	73							
cSH	1700	1700	951	1700	377							
Volume to Capacity	0.23	0.11	0.05	0.00	0.69							
Queue Length 95th (ft)	0	0	4	0	125							
Control Delay (s)	0.0	0.0	1.5	0.0	33.3							
Lane LOS			A	A	D							
Approach Delay (s)	0.0		1.5	0.0	33.3							
Approach LOS			A	A	D							
Intersection Summary												
Average Delay			6.8									
Intersection Capacity Utilization			68.7%		ICU Level of Service				C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

52: 10th St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	3	444	3	14	751	12	21	0	47	15	0	15
Future Volume (Veh/h)	3	444	3	14	751	12	21	0	47	15	0	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	3	488	3	15	825	13	23	0	52	16	0	16
Pedestrians												2
Lane Width (ft)												12.0
Walking Speed (ft/s)												3.5
Percent Blockage												0
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		906			385							
pX, platoon unblocked												
vC, conflicting volume	840			491			954	1366	246	1166	1360	421
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	840			491			954	1366	246	1166	1360	421
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			89	100	93	88	100	97
cM capacity (veh/h)	789			1069			204	143	755	137	144	580

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	247	247	428	426	75	32
Volume Left	3	0	15	0	23	16
Volume Right	0	3	0	13	52	16
cSH	789	1700	1069	1700	413	221
Volume to Capacity	0.00	0.15	0.01	0.25	0.18	0.14
Queue Length 95th (ft)	0	0	1	0	16	12
Control Delay (s)	0.2	0.0	0.4	0.0	15.6	24.0
Lane LOS	A		A		C	C
Approach Delay (s)	0.1		0.2		15.6	24.0
Approach LOS					C	C

Intersection Summary

Average Delay		1.5				
Intersection Capacity Utilization		42.2%		ICU Level of Service		A
Analysis Period (min)		15				



Appendix H
Travel Time Analysis-
Alternative 1

Arterial Level of Service: EB Market St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
S. Front St	1	5.3	22.8	0.1	20
City Island Ramp	5	2.1	34.4	0.3	36
City Island Ramp	7	0.2	1.9	0.0	36
N.Front St	4	21.6	56.3	0.4	25
2nd St	16	9.1	22.1	0.1	15
	12	0.7	4.5	0.0	22
3rd St	21	12.4	22.9	0.1	12
4th St	26	15.9	28.9	0.1	11
Aberdeen St	28	3.1	9.5	0.0	18
Greyhound Driveway	9	3.6	10.0	0.0	17
10th St	52	1.0	25.2	0.2	24
Cameron St	42	21.7	31.6	0.1	8
Total		96.8	270.0	1.5	20

Arterial Level of Service: WB Market St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Cameron St	42	38.9	58.2	0.1	9
10th St	52	1.6	11.4	0.1	23
5th St	9	10.4	31.4	0.2	20
Aberdeen St	28	3.2	9.9	0.0	17
4th St	26	13.0	19.2	0.0	9
3rd St	21	5.8	18.2	0.1	18
	12	3.7	14.4	0.1	19
2nd St	16	15.0	18.5	0.0	6
N.Front St	4	6.4	20.1	0.1	16
City Island Ramp	7	2.2	38.7	0.4	37
City Island Ramp	5	0.2	1.9	0.0	35
S. Front St	1	22.3	52.2	0.3	24
Total		122.8	294.2	1.5	19

Arterial Level of Service: EB Market St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
S. Front St	1	7.1	24.6	0.1	18
City Island Ramp	5	1.7	33.3	0.3	37
City Island Ramp	7	0.2	1.9	0.0	35
N.Front St	4	25.4	59.2	0.4	24
2nd St	16	10.5	23.6	0.1	14
	12	0.6	4.4	0.0	23
3rd St	21	9.0	20.0	0.1	14
4th St	26	18.0	28.1	0.1	12
Aberdeen St	28	1.7	8.4	0.0	20
Greyhound Driveway	9	5.2	11.7	0.0	14
10th St	52	1.1	25.2	0.2	25
Cameron St	42	21.2	30.8	0.1	9
Total		101.8	271.2	1.5	20

Arterial Level of Service: WB Market St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Cameron St	42	47.5	66.8	0.1	8
10th St	52	1.3	12.1	0.1	22
5th St	9	16.5	40.4	0.2	15
Aberdeen St	28	8.5	15.6	0.0	11
4th St	26	16.0	21.1	0.0	8
3rd St	21	2.3	15.5	0.1	22
	12	5.9	16.7	0.1	16
2nd St	16	12.1	25.1	0.0	7
N.Front St	4	55.7	70.8	0.1	5
City Island Ramp	7	3.3	40.0	0.4	36
City Island Ramp	5	0.3	2.1	0.0	32
S. Front St	1	31.0	61.3	0.3	20
Total		200.4	387.4	1.5	15

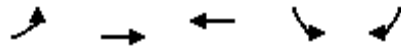


Appendix I
Capacity and Queue
Analysis – Alternative 2

Queues

1: Market St & S. Front St

07/16/2023



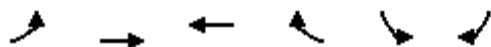
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	548	597	312	140	324
v/c Ratio	0.52	0.42	0.58	0.59	0.25
Control Delay	18.7	6.6	19.4	48.4	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	6.6	19.4	48.4	2.9
Queue Length 50th (ft)	216	119	32	81	28
Queue Length 95th (ft)	348	212	106	133	55
Internal Link Dist (ft)		522	1732	480	
Turn Bay Length (ft)	400			340	
Base Capacity (vph)	1055	1460	607	336	1271
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.52	0.41	0.51	0.42	0.25

Intersection Summary

HCM Signalized Intersection Capacity Analysis

1: Market St & S. Front St

07/16/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	488	531	226	52	125	288
Future Volume (vph)	488	531	226	52	125	288
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	16	13	11	12	11	14
Grade (%)		-2%	-4%		-1%	
Total Lost time (s)	5.5	6.4	6.4		6.2	5.5
Lane Util. Factor	1.00	1.00	0.95		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	2026	1944	3392		1719	1697
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	2026	1944	3392		1719	1697
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	548	597	254	58	140	324
RTOR Reduction (vph)	0	0	21	0	0	54
Lane Group Flow (vph)	548	597	291	0	140	270
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	2	1 2	1		4	2
Permitted Phases						4
Actuated Green, G (s)	50.0	70.1	14.6		13.3	63.3
Effective Green, g (s)	50.0	64.6	14.6		13.3	63.3
Actuated g/C Ratio	0.52	0.67	0.15		0.14	0.66
Clearance Time (s)	5.5		6.4		6.2	5.5
Vehicle Extension (s)	4.0		4.0		3.0	4.0
Lane Grp Cap (vph)	1055	1308	515		238	1118
v/s Ratio Prot	c0.27	0.31	c0.09		c0.08	0.13
v/s Ratio Perm						0.03
v/c Ratio	0.52	0.46	0.56		0.59	0.24
Uniform Delay, d1	15.1	7.4	37.8		38.8	6.6
Progression Factor	1.00	1.00	0.44		1.00	1.00
Incremental Delay, d2	1.8	0.3	1.6		3.7	0.1
Delay (s)	16.9	7.8	18.4		42.5	6.7
Level of Service	B	A	B		D	A
Approach Delay (s)		12.2	18.4		17.5	
Approach LOS		B	B		B	

Intersection Summary

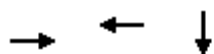
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

4: N.Front St & Market St

07/16/2023















Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	724	294	1484
v/c Ratio	0.59	0.44	0.60
Control Delay	19.6	19.7	9.3
Queue Delay	0.0	0.0	0.0
Total Delay	19.6	19.7	9.3
Queue Length 50th (ft)	128	94	54
Queue Length 95th (ft)	162	176	64
Internal Link Dist (ft)	2011	397	440
Turn Bay Length (ft)			
Base Capacity (vph)	1228	673	2468
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.59	0.44	0.60
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

4: N.Front St & Market St

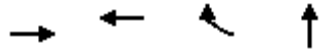
07/16/2023

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑			↑						↑↑↑			
Traffic Volume (vph)	0	388	264	0	265	0	0	0	0	168	1128	40		
Future Volume (vph)	0	388	264	0	265	0	0	0	0	168	1128	40		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width	10	10	10	12	10	12	12	12	12	13	12	13		
Grade (%)		-1%			0%			0%			0%			
Total Lost time (s)		5.8			5.8						6.0			
Lane Util. Factor		0.95			1.00						0.91			
Frt		0.94			1.00						1.00			
Flt Protected		1.00			1.00						0.99			
Satd. Flow (prot)		3118			1739						5031			
Flt Permitted		1.00			1.00						0.99			
Satd. Flow (perm)		3118			1739						5031			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90		
Adj. Flow (vph)	0	431	293	0	294	0	0	0	0	187	1253	44		
RTOR Reduction (vph)	0	21	0	0	0	0	0	0	0	0	3	0		
Lane Group Flow (vph)	0	703	0	0	294	0	0	0	0	0	1481	0		
Turn Type		NA			NA					Perm	NA			
Protected Phases		2			2						1			
Permitted Phases										1				
Actuated Green, G (s)		37.2			37.2						47.0			
Effective Green, g (s)		37.2			37.2						47.0			
Actuated g/C Ratio		0.39			0.39						0.49			
Clearance Time (s)		5.8			5.8						6.0			
Lane Grp Cap (vph)		1208			673						2463			
v/s Ratio Prot		0.23			0.17									
v/s Ratio Perm											0.29			
v/c Ratio		0.58			0.44						0.60			
Uniform Delay, d1		23.3			21.7						17.7			
Progression Factor		0.79			0.80						0.47			
Incremental Delay, d2		1.9			2.0						1.0			
Delay (s)		20.2			19.3						9.3			
Level of Service		C			B						A			
Approach Delay (s)		20.2			19.3			0.0			9.3			
Approach LOS		C			B			A			A			
Intersection Summary														
HCM 2000 Control Delay			13.6									HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio			0.59											
Actuated Cycle Length (s)			96.0								11.8			
Intersection Capacity Utilization			68.2%										ICU Level of Service	C
Analysis Period (min)			15											
c Critical Lane Group														

Queues

9: Greyhound Driveway/5th St & Market St

07/16/2023



Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	684	400	340	4
v/c Ratio	0.50	0.49	0.39	0.04
Control Delay	4.7	20.0	4.7	43.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.7	20.0	4.7	43.8
Queue Length 50th (ft)	33	116	22	2
Queue Length 95th (ft)	80	m249	m53	13
Internal Link Dist (ft)	165	826		109
Turn Bay Length (ft)				
Base Capacity (vph)	1376	821	881	104
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.50	0.49	0.39	0.04

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

9: Greyhound Driveway/5th St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↔	↔		↕				
Traffic Volume (vph)	351	278	0	0	333	348	0	3	1	0	0	0
Future Volume (vph)	351	278	0	0	333	348	0	3	1	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	12	12	12	12	12	12	12	12	12
Grade (%)		-6%			6%			-10%				0%
Total Lost time (s)		7.0			7.0	7.0		7.5				
Lane Util. Factor		0.95			0.95	0.95		1.00				
Frt		1.00			0.99	0.85		0.97				
Flt Protected		0.97			1.00	1.00		1.00				
Satd. Flow (prot)		3546			1692	1459		1890				
Flt Permitted		0.59			1.00	1.00		1.00				
Satd. Flow (perm)		2139			1692	1459		1890				
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)	382	302	0	0	362	378	0	3	1	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	197	0	0	0	0	0	0
Lane Group Flow (vph)	0	684	0	0	397	143	0	4	0	0	0	0
Turn Type	pm+pt	NA			NA	Prot		NA				
Protected Phases	1	6			2	2	3	3				
Permitted Phases	6											
Actuated Green, G (s)		52.4			40.4	40.4		1.1				
Effective Green, g (s)		52.4			40.4	40.4		1.1				
Actuated g/C Ratio		0.55			0.42	0.42		0.01				
Clearance Time (s)		7.0			7.0	7.0		7.5				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		1240			712	613		21				
v/s Ratio Prot		c0.03			0.23	0.10		c0.00				
v/s Ratio Perm		c0.27										
v/c Ratio		0.55			0.56	0.23		0.19				
Uniform Delay, d1		14.2			21.0	17.9		47.0				
Progression Factor		0.31			1.02	1.72		1.00				
Incremental Delay, d2		1.4			2.2	0.6		4.4				
Delay (s)		5.8			23.7	31.3		51.4				
Level of Service		A			C	C		D				
Approach Delay (s)		5.8			27.2			51.4			0.0	
Approach LOS		A			C			D			A	

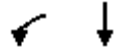
Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

10: N.Front St & Walnut St

07/16/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	86	1488
v/c Ratio	0.10	0.48
Control Delay	3.6	11.0
Queue Delay	0.0	0.0
Total Delay	3.6	11.0
Queue Length 50th (ft)	5	168
Queue Length 95th (ft)	m9	195
Internal Link Dist (ft)	439	727
Turn Bay Length (ft)		
Base Capacity (vph)	902	3109
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.10	0.48

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

10: N.Front St & Walnut St

07/16/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙↘				↑↑↑	
Traffic Volume (vph)	76	0	0	0	0	1309
Future Volume (vph)	76	0	0	0	0	1309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12
Grade (%)	-1%		0%		-1%	
Total Lost time (s)	5.4				5.6	
Lane Util. Factor	0.97				0.91	
Frt	1.00				1.00	
Flt Protected	0.95				1.00	
Satd. Flow (prot)	3051				5111	
Flt Permitted	0.95				1.00	
Satd. Flow (perm)	3051				5111	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	86	0	0	0	0	1488
RTOR Reduction (vph)	57	0	0	0	0	0
Lane Group Flow (vph)	29	0	0	0	0	1488
Parking (#/hr)	1					
Turn Type	Prot				NA	
Protected Phases	3				2	
Permitted Phases						
Actuated Green, G (s)	26.6				58.4	
Effective Green, g (s)	26.6				58.4	
Actuated g/C Ratio	0.28				0.61	
Clearance Time (s)	5.4				5.6	
Lane Grp Cap (vph)	845				3109	
v/s Ratio Prot	c0.01				c0.29	
v/s Ratio Perm						
v/c Ratio	0.03				0.48	
Uniform Delay, d1	25.3				10.4	
Progression Factor	0.46				1.00	
Incremental Delay, d2	0.1				0.5	
Delay (s)	11.7				10.9	
Level of Service	B				B	
Approach Delay (s)	11.7		0.0			10.9
Approach LOS	B		A			B
Intersection Summary						
HCM 2000 Control Delay			11.0	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.34			
Actuated Cycle Length (s)			96.0	Sum of lost time (s)		11.0
Intersection Capacity Utilization			93.3%	ICU Level of Service		F
Analysis Period (min)			15			

c Critical Lane Group

Queues

15: 2nd St & Walnut St

07/16/2023



Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	78	42	1475
v/c Ratio	0.08	0.09	0.64
Control Delay	21.3	4.5	11.7
Queue Delay	0.0	0.0	0.0
Total Delay	21.3	4.5	11.7
Queue Length 50th (ft)	14	0	96
Queue Length 95th (ft)	31	7	110
Internal Link Dist (ft)	194		432
Turn Bay Length (ft)			
Base Capacity (vph)	968	473	2318
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.08	0.09	0.64
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

15: 2nd St & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑↑↑				
Traffic Volume (vph)	0	0	0	0	72	39	95	1262	0	0	0	0
Future Volume (vph)	0	0	0	0	72	39	95	1262	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	11	11	10	12	12	12
Grade (%)		0%			-1%			1%			0%	
Total Lost time (s)					5.4	5.4		5.0				
Lane Util. Factor					0.95	1.00		0.91				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		1.00				
Satd. Flow (prot)					3320	1485		4874				
Flt Permitted					1.00	1.00		1.00				
Satd. Flow (perm)					3320	1485		4874				
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	78	42	103	1372	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	30	0	33	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	78	12	0	1442	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					28.0	28.0		43.8				
Effective Green, g (s)					28.0	28.0		43.8				
Actuated g/C Ratio					0.29	0.29		0.46				
Clearance Time (s)					5.4	5.4		5.0				
Vehicle Extension (s)					3.0	3.0		3.0				
Lane Grp Cap (vph)					968	433		2223				
v/s Ratio Prot					c0.02							
v/s Ratio Perm						0.01		0.30				
v/c Ratio					0.08	0.03		0.65				
Uniform Delay, d1					24.7	24.3		20.2				
Progression Factor					0.85	0.88		0.52				
Incremental Delay, d2					0.2	0.1		1.1				
Delay (s)					21.1	21.6		11.6				
Level of Service					C	C		B				
Approach Delay (s)		0.0			21.3			11.6			0.0	
Approach LOS		A			C			B			A	

Intersection Summary

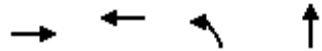
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

16: 2nd St & Market St

07/16/2023



Lane Group	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	648	302	138	1431
v/c Ratio	0.61	0.52	0.18	0.69
Control Delay	14.2	26.5	4.8	7.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	14.2	26.5	4.8	7.4
Queue Length 50th (ft)	82	189	9	72
Queue Length 95th (ft)	123	285	m11	82
Internal Link Dist (ft)	397	69		443
Turn Bay Length (ft)				
Base Capacity (vph)	1059	584	752	2087
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.61	0.52	0.18	0.69

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

16: 2nd St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↔		↕	↕↕↕				
Traffic Volume (vph)	230	373	0	0	139	142	128	1029	302	0	0	0
Future Volume (vph)	230	373	0	0	139	142	128	1029	302	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			1%			0%	
Total Lost time (s)		6.0			6.0		6.0	6.0				
Lane Util. Factor		0.95			1.00		1.00	0.91				
Frt		1.00			0.93		1.00	0.97				
Flt Protected		0.98			1.00		0.95	1.00				
Satd. Flow (prot)		3473			1753		1761	4887				
Flt Permitted		0.63			1.00		0.95	1.00				
Satd. Flow (perm)		2218			1753		1761	4887				
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)	247	401	0	0	149	153	138	1106	325	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	648	0	0	302	0	138	1431	0	0	0	0
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		43.0			32.0		41.0	41.0				
Effective Green, g (s)		43.0			32.0		41.0	41.0				
Actuated g/C Ratio		0.45			0.33		0.43	0.43				
Clearance Time (s)		6.0			6.0		6.0	6.0				
Vehicle Extension (s)		3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)		1084			584		752	2087				
v/s Ratio Prot		c0.04			0.17			c0.29				
v/s Ratio Perm		c0.22					0.08					
v/c Ratio		0.60			0.52		0.18	0.69				
Uniform Delay, d1		20.0			25.8		17.1	22.3				
Progression Factor		0.62			0.89		0.26	0.28				
Incremental Delay, d2		2.0			3.0		0.3	1.2				
Delay (s)		14.4			26.0		4.7	7.3				
Level of Service		B			C		A	A				
Approach Delay (s)		14.4			26.0			7.1			0.0	
Approach LOS		B			C			A			A	

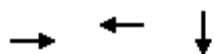
Intersection Summary

HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues

21: 3rd St & Market St

07/16/2023



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	715	339	246
v/c Ratio	0.40	0.41	0.37
Control Delay	16.1	6.2	17.5
Queue Delay	0.0	0.0	0.0
Total Delay	16.1	6.2	17.5
Queue Length 50th (ft)	138	40	60
Queue Length 95th (ft)	164	58	85
Internal Link Dist (ft)	324	407	433
Turn Bay Length (ft)			
Base Capacity (vph)	1767	833	662
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.40	0.41	0.37
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

21: 3rd St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↔							↔
Traffic Volume (vph)	0	537	78	38	254	0	0	0	0	82	130	0
Future Volume (vph)	0	537	78	38	254	0	0	0	0	82	130	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	12	12	12	16	12
Grade (%)		-1%			0%			0%				0%
Total Lost time (s)		5.7			5.7							5.7
Lane Util. Factor		0.95			1.00							1.00
Frt		0.98			1.00							1.00
Flt Protected		1.00			0.99							0.98
Satd. Flow (prot)		3373			1851							1854
Flt Permitted		1.00			0.85							0.98
Satd. Flow (perm)		3373			1590							1854
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	624	91	44	295	0	0	0	0	95	151	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	715	0	0	339	0	0	0	0	0	246	0
Parking (#/hr)												1
Turn Type		NA		Perm	NA					Split		NA
Protected Phases		2			6					4		4
Permitted Phases				6								
Actuated Green, G (s)		50.3			50.3							34.3
Effective Green, g (s)		50.3			50.3							34.3
Actuated g/C Ratio		0.52			0.52							0.36
Clearance Time (s)		5.7			5.7							5.7
Vehicle Extension (s)		3.0			3.0							3.0
Lane Grp Cap (vph)		1767			833							662
v/s Ratio Prot		0.21										c0.13
v/s Ratio Perm					c0.21							
v/c Ratio		0.40			0.41							0.37
Uniform Delay, d1		13.8			13.8							22.9
Progression Factor		1.12			0.34							0.68
Incremental Delay, d2		0.5			1.4							1.6
Delay (s)		15.9			6.1							17.2
Level of Service		B			A							B
Approach Delay (s)		15.9			6.1			0.0				17.2
Approach LOS		B			A			A				B
Intersection Summary												
HCM 2000 Control Delay			13.6			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			96.0			Sum of lost time (s)			17.4			
Intersection Capacity Utilization			58.4%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

22: 3rd St & Walnut St

07/16/2023



Lane Group	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	179	305	208	137
v/c Ratio	0.13	0.41	0.23	0.17
Control Delay	5.4	5.6	14.8	14.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	5.4	5.6	14.8	14.3
Queue Length 50th (ft)	16	38	70	44
Queue Length 95th (ft)	23	43	96	68
Internal Link Dist (ft)	408		564	
Turn Bay Length (ft)				
Base Capacity (vph)	1423	739	891	783
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.13	0.41	0.23	0.17

Intersection Summary

HCM Signalized Intersection Capacity Analysis

22: 3rd St & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↕↕	↗					↕	↗	
Traffic Volume (vph)	0	0	0	40	100	238	0	0	0	0	162	107	
Future Volume (vph)	0	0	0	40	100	238	0	0	0	0	162	107	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12	
Grade (%)		0%			-1%			0%			-1%		
Total Lost time (s)					5.7	5.7					5.7	5.7	
Lane Util. Factor					0.95	1.00					1.00	1.00	
Frt					1.00	0.85					1.00	0.85	
Flt Protected					0.99	1.00					1.00	1.00	
Satd. Flow (prot)					3507	1424					1810	1591	
Flt Permitted					0.99	1.00					1.00	1.00	
Satd. Flow (perm)					3507	1424					1810	1591	
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	
Adj. Flow (vph)	0	0	0	51	128	305	0	0	0	0	208	137	
RTOR Reduction (vph)	0	0	0	0	61	186	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	118	119	0	0	0	0	208	137	
Parking (#/hr)				1		1							
Turn Type				Perm	NA	Perm					NA	Perm	
Protected Phases					4						2		
Permitted Phases				4		4						2	
Actuated Green, G (s)					37.3	37.3					47.3	47.3	
Effective Green, g (s)					37.3	37.3					47.3	47.3	
Actuated g/C Ratio					0.39	0.39					0.49	0.49	
Clearance Time (s)					5.7	5.7					5.7	5.7	
Vehicle Extension (s)					3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)					1362	553					891	783	
v/s Ratio Prot											c0.11		
v/s Ratio Perm					0.03	c0.08						0.09	
v/c Ratio					0.09	0.21					0.23	0.17	
Uniform Delay, d1					18.6	19.6					14.0	13.5	
Progression Factor					0.59	1.58					1.00	1.00	
Incremental Delay, d2					0.1	0.9					0.6	0.5	
Delay (s)					11.1	31.8					14.6	14.0	
Level of Service					B	C					B	B	
Approach Delay (s)		0.0			24.1			0.0			14.3		
Approach LOS		A			C			A			B		
Intersection Summary													
HCM 2000 Control Delay			20.1		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.24										
Actuated Cycle Length (s)			96.0		Sum of lost time (s)					17.4			
Intersection Capacity Utilization			51.2%		ICU Level of Service					A			
Analysis Period (min)			15										
c Critical Lane Group													

Queues

26: 4th St & Market St

07/16/2023



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	680	276	423	7	81
v/c Ratio	0.67	0.41	0.74	0.04	0.15
Control Delay	13.8	14.6	27.7	11.3	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	14.6	27.7	11.3	12.2
Queue Length 50th (ft)	62	44	153	3	39
Queue Length 95th (ft)	90	80	201	14	73
Internal Link Dist (ft)	407	164	432		435
Turn Bay Length (ft)					
Base Capacity (vph)	1020	673	574	187	549
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.67	0.41	0.74	0.04	0.15

Intersection Summary

HCM Signalized Intersection Capacity Analysis

26: 4th St & Market St

07/16/2023

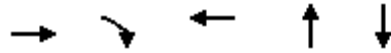


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕↕			↕↕			↕↕		↕	↕		
Traffic Volume (vph)	93	426	79	12	222	9	30	168	174	6	71	0	
Future Volume (vph)	93	426	79	12	222	9	30	168	174	6	71	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	11	11	11	12	12	12	12	12	12	10	10	12	
Grade (%)		0%			0%			-1%			1%		
Total Lost time (s)		5.5			5.5			5.5		5.5	5.5		
Lane Util. Factor		0.95			1.00			1.00		1.00	1.00		
Frt		0.98			1.00			0.94		1.00	1.00		
Flt Protected		0.99			1.00			1.00		0.95	1.00		
Satd. Flow (prot)		3327			1849			1747		1643	1730		
Flt Permitted		0.79			0.96			0.97		0.34	1.00		
Satd. Flow (perm)		2653			1771			1704		590	1730		
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)	106	484	90	14	252	10	34	191	198	7	81	0	
RTOR Reduction (vph)	0	12	0	0	0	0	0	33	0	0	0	0	
Lane Group Flow (vph)	0	668	0	0	276	0	0	390	0	7	81	0	
Parking (#/hr)	1												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		36.5			36.5			30.5		30.5	30.5		
Effective Green, g (s)		36.5			36.5			30.5		30.5	30.5		
Actuated g/C Ratio		0.38			0.38			0.32		0.32	0.32		
Clearance Time (s)		5.5			5.5			5.5		5.5	5.5		
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0		
Lane Grp Cap (vph)		1008			673			541		187	549		
v/s Ratio Prot											0.05		
v/s Ratio Perm		c0.25			0.16			c0.23		0.01			
v/c Ratio		0.66			0.41			0.72		0.04	0.15		
Uniform Delay, d1		24.6			21.8			29.0		22.6	23.4		
Progression Factor		0.43			0.58			0.75		0.47	0.49		
Incremental Delay, d2		3.2			0.4			7.7		0.4	0.6		
Delay (s)		13.9			13.0			29.4		11.1	12.0		
Level of Service		B			B			C		B	B		
Approach Delay (s)		13.9			13.0			29.4			11.9		
Approach LOS		B			B			C			B		
Intersection Summary													
HCM 2000 Control Delay			18.1									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.56										
Actuated Cycle Length (s)			96.0									Sum of lost time (s)	13.0
Intersection Capacity Utilization			83.6%									ICU Level of Service	E
Analysis Period (min)			15										
c	Critical Lane Group												

Queues

27: 4th St & Chestnut St/Amtrak Driveway

07/16/2023



Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	283	135	78	270	152
v/c Ratio	0.74	0.21	0.18	0.25	0.18
Control Delay	36.9	5.2	12.4	13.1	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	5.2	12.4	13.1	10.7
Queue Length 50th (ft)	127	0	29	76	23
Queue Length 95th (ft)	126	25	54	147	m77
Internal Link Dist (ft)	412		305	245	432
Turn Bay Length (ft)					
Base Capacity (vph)	638	984	703	1068	854
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.14	0.11	0.25	0.18

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

27: 4th St & Chestnut St/Amtrak Driveway

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕	↗		↕			↕			↕		
Traffic Volume (vph)	214	21	112	38	18	8	45	166	13	10	88	28	
Future Volume (vph)	214	21	112	38	18	8	45	166	13	10	88	28	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	10	10	16	12	12	12	14	14	14	11	11	11	
Grade (%)		5%			-3%			-8%				4%	
Total Lost time (s)		5.5	5.5		5.5			5.5			5.5		
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00		
Frt		1.00	0.85		0.98			0.99			0.97		
Flt Protected		0.96	1.00		0.97			0.99			1.00		
Satd. Flow (prot)		1621	1750		1805			2030			1526		
Flt Permitted		0.72	1.00		0.72			0.92			0.97		
Satd. Flow (perm)		1214	1750		1329			1879			1490		
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	
Adj. Flow (vph)	258	25	135	46	22	10	54	200	16	12	106	34	
RTOR Reduction (vph)	0	0	92	0	7	0	0	2	0	0	7	0	
Lane Group Flow (vph)	0	283	43	0	71	0	0	268	0	0	145	0	
Parking (#/hr)										1	1	1	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4		4	8			2			6			
Actuated Green, G (s)		30.5	30.5		30.5			54.5			54.5		
Effective Green, g (s)		30.5	30.5		30.5			54.5			54.5		
Actuated g/C Ratio		0.32	0.32		0.32			0.57			0.57		
Clearance Time (s)		5.5	5.5		5.5			5.5			5.5		
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0		
Lane Grp Cap (vph)		385	555		422			1066			845		
v/s Ratio Prot													
v/s Ratio Perm		c0.23	0.02		0.05			c0.14			0.10		
v/c Ratio		0.74	0.08		0.17			0.25			0.17		
Uniform Delay, d1		29.2	22.9		23.6			10.5			9.9		
Progression Factor		0.92	1.41		0.65			1.00			0.92		
Incremental Delay, d2		6.9	0.1		0.2			0.6			0.4		
Delay (s)		33.6	32.4		15.5			11.0			9.5		
Level of Service		C	C		B			B			A		
Approach Delay (s)		33.2			15.5			11.0			9.5		
Approach LOS		C			B			B			A		
Intersection Summary													
HCM 2000 Control Delay			21.3									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.42										
Actuated Cycle Length (s)			96.0									Sum of lost time (s)	11.0
Intersection Capacity Utilization			46.6%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

30: 5th St/Forum Driveway & Walnut St

07/16/2023



Lane Group	WBT	NBL	NBR	SBL	SBR
Lane Group Flow (vph)	338	299	267	7	2
v/c Ratio	0.26	0.17	0.37	0.06	0.01
Control Delay	20.6	0.3	6.6	43.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	0.3	6.6	43.4	0.0
Queue Length 50th (ft)	72	0	4	4	0
Queue Length 95th (ft)	106	1	125	18	0
Internal Link Dist (ft)	349				
Turn Bay Length (ft)	150				
Base Capacity (vph)	1278	1768	728	121	187
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.26	0.17	0.37	0.06	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 30: 5th St/Forum Driveway & Walnut St

07/16/2023

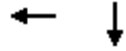


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑		↗↘		↗	↘		↗
Traffic Volume (vph)	0	0	0	0	318	0	281	0	251	7	0	2
Future Volume (vph)	0	0	0	0	318	0	281	0	251	7	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	16	11	12	11	12	12	12
Grade (%)		0%			-1%			7%			0%	
Total Lost time (s)					5.0		5.4		5.4	5.4		5.4
Lane Util. Factor					0.95		0.97		1.00	1.00		1.00
Frt					1.00		1.00		0.85	1.00		0.85
Flt Protected					1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)					3258		3202		1477	1770		1583
Flt Permitted					1.00		0.95		1.00	0.95		1.00
Satd. Flow (perm)					3258		3202		1477	1770		1583
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	0	338	0	299	0	267	7	0	2
RTOR Reduction (vph)	0	0	0	0	0	0	185	0	165	0	0	2
Lane Group Flow (vph)	0	0	0	0	338	0	114	0	102	7	0	0
Parking (#/hr)					1							
Turn Type					NA		Prot		Prot	Prot		Perm
Protected Phases					2		3		3	4		
Permitted Phases												4
Actuated Green, G (s)					37.7		36.6		36.6	5.9		5.9
Effective Green, g (s)					37.7		36.6		36.6	5.9		5.9
Actuated g/C Ratio					0.39		0.38		0.38	0.06		0.06
Clearance Time (s)					5.0		5.4		5.4	5.4		5.4
Vehicle Extension (s)					3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)					1279		1220		563	108		97
v/s Ratio Prot					c0.10		0.04		c0.07	c0.00		
v/s Ratio Perm												0.00
v/c Ratio					0.26		0.09		0.18	0.06		0.00
Uniform Delay, d1					19.8		19.1		19.7	42.5		42.3
Progression Factor					1.00		1.00		1.93	1.00		1.00
Incremental Delay, d2					0.5		0.1		0.6	0.3		0.0
Delay (s)					20.3		19.2		38.8	42.7		42.3
Level of Service					C		B		D	D		D
Approach Delay (s)		0.0			20.3			28.5			42.6	
Approach LOS		A			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			25.6		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.21									
Actuated Cycle Length (s)			96.0		Sum of lost time (s)				15.8			
Intersection Capacity Utilization			44.2%		ICU Level of Service			A				
Analysis Period (min)			15									
c Critical Lane Group												

Queues

31: Aberdeen St & Walnut St

07/16/2023



Lane Group	WBT	SBT
Lane Group Flow (vph)	642	198
v/c Ratio	0.27	0.25
Control Delay	1.2	15.2
Queue Delay	0.2	0.0
Total Delay	1.4	15.2
Queue Length 50th (ft)	5	59
Queue Length 95th (ft)	11	108
Internal Link Dist (ft)	172	900
Turn Bay Length (ft)		
Base Capacity (vph)	2393	777
Starvation Cap Reductn	896	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.43	0.25
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

31: Aberdeen St & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					←↑↑						↑		
Traffic Volume (vph)	0	0	0	62	183	333	0	0	0	0	107	71	
Future Volume (vph)	0	0	0	62	183	333	0	0	0	0	107	71	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	12	16	12	12	16	12	
Grade (%)		0%			-1%			0%				-3%	
Total Lost time (s)					5.6							5.2	
Lane Util. Factor					0.91							1.00	
Frt					0.91							0.95	
Flt Protected					0.99							1.00	
Satd. Flow (prot)					4644							1814	
Flt Permitted					0.99							1.00	
Satd. Flow (perm)					4644							1814	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	0	0	0	69	203	370	0	0	0	0	119	79	
RTOR Reduction (vph)	0	0	0	0	195	0	0	0	0	0	25	0	
Lane Group Flow (vph)	0	0	0	0	447	0	0	0	0	0	173	0	
Parking (#/hr)				1		1						1	
Turn Type				Split	NA							NA	
Protected Phases				2	2							4	
Permitted Phases													
Actuated Green, G (s)					45.4							39.8	
Effective Green, g (s)					45.4							39.8	
Actuated g/C Ratio					0.47							0.41	
Clearance Time (s)					5.6							5.2	
Vehicle Extension (s)					3.0							3.0	
Lane Grp Cap (vph)					2196							752	
v/s Ratio Prot					c0.10							c0.10	
v/s Ratio Perm													
v/c Ratio					0.20							0.23	
Uniform Delay, d1					14.8							18.2	
Progression Factor					0.15							1.00	
Incremental Delay, d2					0.2							0.7	
Delay (s)					2.4							18.9	
Level of Service					A							B	
Approach Delay (s)		0.0			2.4			0.0				18.9	
Approach LOS		A			A			A				B	
Intersection Summary													
HCM 2000 Control Delay			6.3		HCM 2000 Level of Service						A		
HCM 2000 Volume to Capacity ratio			0.22										
Actuated Cycle Length (s)			96.0		Sum of lost time (s)						10.8		
Intersection Capacity Utilization			62.3%		ICU Level of Service						B		
Analysis Period (min)			15										
c Critical Lane Group													

Queues

32: 4th St/Captial Parking Driveway & Walnut St

07/16/2023



Lane Group	WBT	NBL	SBT
Lane Group Flow (vph)	333	251	8
v/c Ratio	0.18	0.42	0.01
Control Delay	15.2	13.2	10.4
Queue Delay	0.6	0.0	0.0
Total Delay	15.8	13.2	10.4
Queue Length 50th (ft)	46	49	2
Queue Length 95th (ft)	59	m64	8
Internal Link Dist (ft)	145		257
Turn Bay Length (ft)			
Base Capacity (vph)	1834	603	915
Starvation Cap Reductn	1120	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.47	0.42	0.01

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 32: 4th St/Captial Parking Driveway & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑		↑				↑	
Traffic Volume (vph)	0	0	0	109	177	0	216	0	0	0	5	2
Future Volume (vph)	0	0	0	109	177	0	216	0	0	0	5	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	12	12	12
Grade (%)		0%			-1%			-3%			0%	
Total Lost time (s)					5.6		5.2				5.2	
Lane Util. Factor					0.91		1.00				1.00	
Frt					1.00		1.00				0.97	
Flt Protected					0.98		0.95				1.00	
Satd. Flow (prot)					4840		1500				1800	
Flt Permitted					0.98		0.75				1.00	
Satd. Flow (perm)					4840		1188				1800	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	127	206	0	251	0	0	0	6	2
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	0	0	0	333	0	251	0	0	0	7	0
Parking (#/hr)				1	1		1					
Turn Type				Perm	NA		D.Pm				NA	
Protected Phases					2						3	
Permitted Phases				2			3					
Actuated Green, G (s)					36.4		48.8				48.8	
Effective Green, g (s)					36.4		48.8				48.8	
Actuated g/C Ratio					0.38		0.51				0.51	
Clearance Time (s)					5.6		5.2				5.2	
Lane Grp Cap (vph)					1835		603				915	
v/s Ratio Prot											0.00	
v/s Ratio Perm					0.07		c0.21					
v/c Ratio					0.18		0.42				0.01	
Uniform Delay, d1					19.9		14.7				11.6	
Progression Factor					0.75		0.77				1.00	
Incremental Delay, d2					0.2		1.5				0.0	
Delay (s)					15.1		12.8				11.7	
Level of Service					B		B				B	
Approach Delay (s)		0.0			15.1			12.8			11.7	
Approach LOS		A			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			14.1		HCM 2000 Level of Service						B	
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			96.0		Sum of lost time (s)						10.8	
Intersection Capacity Utilization			59.0%		ICU Level of Service						B	
Analysis Period (min)			15									

c Critical Lane Group

Queues

42: Cameron St & Market St

07/16/2023



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	163	227	125	418	985	116	799
v/c Ratio	0.49	0.33	0.72	0.26	0.82	0.61	0.41	0.79
Control Delay	19.4	13.9	49.3	1.3	37.2	22.2	16.8	33.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.4	13.9	49.3	1.3	37.2	22.2	16.8	33.9
Queue Length 50th (ft)	33	45	131	0	180	237	29	207
Queue Length 95th (ft)	21	26	195	0	#412	336	63	#308
Internal Link Dist (ft)		305	673			623		536
Turn Bay Length (ft)					250		220	
Base Capacity (vph)	219	638	423	566	507	1612	286	1009
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.26	0.54	0.22	0.82	0.61	0.41	0.79

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

42: Cameron St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗	↖	↗		↖	↗	
Traffic Volume (vph)	97	116	33	33	174	114	380	870	26	106	453	274
Future Volume (vph)	97	116	33	33	174	114	380	870	26	106	453	274
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	11	12	10	11	12	10	11	12
Grade (%)		3%			-2%			2%			4%	
Total Lost time (s)	5.6	6.3			6.3	6.3	4.8	5.5		4.8	6.6	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.97			1.00	0.85	1.00	1.00		1.00	0.94	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	1774			1804	1599	1635	3372		1619	3163	
Flt Permitted	0.34	1.00			0.92	1.00	0.14	1.00		0.29	1.00	
Satd. Flow (perm)	628	1774			1666	1599	247	3372		496	3163	
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)	107	127	36	36	191	125	418	956	29	116	498	301
RTOR Reduction (vph)	0	12	0	0	0	101	0	2	0	0	92	0
Lane Group Flow (vph)	107	151	0	0	227	24	418	983	0	116	707	0
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	26.9	26.9			18.1	18.1	57.3	44.8		34.5	26.8	
Effective Green, g (s)	26.9	26.9			18.1	18.1	57.3	44.8		34.5	26.8	
Actuated g/C Ratio	0.28	0.28			0.19	0.19	0.60	0.47		0.36	0.28	
Clearance Time (s)	5.6	6.3			6.3	6.3	4.8	5.5		4.8	6.6	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	213	497			314	301	503	1573		268	883	
v/s Ratio Prot	c0.02	0.09					c0.21	0.29		0.03	0.22	
v/s Ratio Perm	0.12				c0.14	0.01	c0.28			0.12		
v/c Ratio	0.50	0.30			0.72	0.08	0.83	0.62		0.43	0.80	
Uniform Delay, d1	29.7	27.2			36.6	32.1	22.3	19.3		21.2	32.1	
Progression Factor	0.50	0.52			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	0.3			8.0	0.1	11.2	1.9		1.1	7.5	
Delay (s)	16.5	14.5			44.6	32.2	33.4	21.2		22.3	39.7	
Level of Service	B	B			D	C	C	C		C	D	
Approach Delay (s)		15.3			40.2			24.8			37.5	
Approach LOS		B			D			C			D	

Intersection Summary

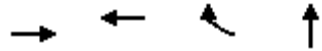
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues

44: 2nd St & Chestnut St

07/16/2023





















Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	102	38	40	1923
v/c Ratio	0.20	0.12	0.13	0.77
Control Delay	9.3	28.4	28.8	21.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.3	28.4	28.8	21.0
Queue Length 50th (ft)	36	21	23	327
Queue Length 95th (ft)	67	53	55	390
Internal Link Dist (ft)	425	433		446
Turn Bay Length (ft)				
Base Capacity (vph)	514	326	301	2484
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.20	0.12	0.13	0.77

Intersection Summary

HCM Signalized Intersection Capacity Analysis

44: 2nd St & Chestnut St

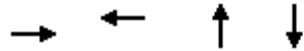
07/16/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	61	0	0	36	38	71	1445	330	0	0	0
Future Volume (vph)	36	61	0	0	36	38	71	1445	330	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	16	12	12	12	12	12	12
Grade (%)		0%			0%			1%			0%	
Total Lost time (s)		6.1			6.1	6.1		5.5				
Lane Util. Factor		1.00			1.00	1.00		0.91				
Frt		1.00			1.00	0.85		0.97				
Flt Protected		0.98			1.00	1.00		1.00				
Satd. Flow (prot)		1528			1739	1606		4743				
Flt Permitted		0.91			1.00	1.00		1.00				
Satd. Flow (perm)		1414			1739	1606		4743				
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)	38	64	0	0	38	40	74	1505	344	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	102	0	0	38	40	0	1923	0	0	0	0
Parking (#/hr)		1				1	1	1	1			
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)		34.1			18.0	18.0		50.3				
Effective Green, g (s)		34.1			18.0	18.0		50.3				
Actuated g/C Ratio		0.36			0.19	0.19		0.52				
Clearance Time (s)		6.1			6.1	6.1		5.5				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		514			326	301		2485				
v/s Ratio Prot		c0.02			0.02							
v/s Ratio Perm		c0.05				0.02		0.41				
v/c Ratio		0.20			0.12	0.13		0.77				
Uniform Delay, d1		21.5			32.4	32.5		18.3				
Progression Factor		0.39			0.84	0.84		1.00				
Incremental Delay, d2		0.8			0.7	0.9		2.4				
Delay (s)		9.1			28.0	28.3		20.7				
Level of Service		A			C	C		C				
Approach Delay (s)		9.1			28.2			20.7			0.0	
Approach LOS		A			C			C			A	
Intersection Summary												
HCM 2000 Control Delay			20.4				HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			96.0				Sum of lost time (s)		21.7			
Intersection Capacity Utilization			60.0%				ICU Level of Service		B			
Analysis Period (min)			15									
c	Critical Lane Group											

Queues

45: 3rd St & Chestnut St

07/16/2023



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	170	112	47	242
v/c Ratio	0.28	0.09	0.06	0.37
Control Delay	11.4	15.5	13.0	15.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	11.4	15.5	13.0	15.7
Queue Length 50th (ft)	45	27	14	79
Queue Length 95th (ft)	m58	25	32	123
Internal Link Dist (ft)	433	412	443	437
Turn Bay Length (ft)				
Base Capacity (vph)	603	1207	793	661
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.28	0.09	0.06	0.37

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

45: 3rd St & Chestnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑			↑↑			↕			↕		
Traffic Volume (vph)	0	146	0	0	96	0	2	0	39	180	0	28	
Future Volume (vph)	0	146	0	0	96	0	2	0	39	180	0	28	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	10	10	10	10	10	10	16	16	16	16	16	16	
Grade (%)		1%			2%			3%			0%		
Total Lost time (s)		5.6			5.6			5.6			5.6		
Lane Util. Factor		1.00			0.95			1.00			1.00		
Frt		1.00			1.00			0.87			0.98		
Flt Protected		1.00			1.00			1.00			0.96		
Satd. Flow (prot)		1548			3099			1617			1778		
Flt Permitted		1.00			1.00			0.99			0.72		
Satd. Flow (perm)		1548			3099			1608			1339		
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Adj. Flow (vph)	0	170	0	0	112	0	2	0	45	209	0	33	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	170	0	0	112	0	0	47	0	0	242	0	
Parking (#/hr)		1			1		1	1	1	1	1	1	
Turn Type		NA			NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases							2			6			
Actuated Green, G (s)		37.4			37.4			47.4			47.4		
Effective Green, g (s)		37.4			37.4			47.4			47.4		
Actuated g/C Ratio		0.39			0.39			0.49			0.49		
Clearance Time (s)		5.6			5.6			5.6			5.6		
Vehicle Extension (s)		3.0			3.0			3.0			3.0		
Lane Grp Cap (vph)		603			1207			793			661		
v/s Ratio Prot		c0.11			0.04								
v/s Ratio Perm								0.03			c0.18		
v/c Ratio		0.28			0.09			0.06			0.37		
Uniform Delay, d1		20.1			18.6			12.7			15.0		
Progression Factor		0.51			0.82			1.00			0.92		
Incremental Delay, d2		0.8			0.2			0.1			1.5		
Delay (s)		11.2			15.4			12.8			15.3		
Level of Service		B			B			B			B		
Approach Delay (s)		11.2			15.4			12.8			15.3		
Approach LOS		B			B			B			B		
Intersection Summary													
HCM 2000 Control Delay			13.9									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.35										
Actuated Cycle Length (s)			96.0									Sum of lost time (s)	17.2
Intersection Capacity Utilization			35.4%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

46: N.Front St & Chestnut St

07/16/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	149	1489
v/c Ratio	0.31	0.52
Control Delay	33.0	4.9
Queue Delay	0.0	0.0
Total Delay	33.0	4.9
Queue Length 50th (ft)	67	65
Queue Length 95th (ft)	m99	74
Internal Link Dist (ft)	425	455
Turn Bay Length (ft)		
Base Capacity (vph)	480	2882
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.31	0.52

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

46: N.Front St & Chestnut St

07/16/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶					↷↷↷
Traffic Volume (vph)	136	0	0	0	182	1173
Future Volume (vph)	136	0	0	0	182	1173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11
Grade (%)	-1%		0%			-1%
Total Lost time (s)	5.2					5.6
Lane Util. Factor	1.00					0.91
Frt	1.00					1.00
Flt Protected	0.95					0.99
Satd. Flow (prot)	1601					4907
Flt Permitted	0.95					0.99
Satd. Flow (perm)	1601					4907
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	149	0	0	0	200	1289
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	149	0	0	0	0	1489
Parking (#/hr)	0					
Turn Type	Prot				Perm	NA
Protected Phases	8					6
Permitted Phases					6	
Actuated Green, G (s)	28.8					56.4
Effective Green, g (s)	28.8					56.4
Actuated g/C Ratio	0.30					0.59
Clearance Time (s)	5.2					5.6
Lane Grp Cap (vph)	480					2882
v/s Ratio Prot	c0.09					
v/s Ratio Perm						0.30
v/c Ratio	0.31					0.52
Uniform Delay, d1	25.9					11.7
Progression Factor	1.19					0.37
Incremental Delay, d2	1.6					0.5
Delay (s)	32.3					4.9
Level of Service	C					A
Approach Delay (s)	32.3		0.0			4.9
Approach LOS	C		A			A

Intersection Summary

HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

5: Market St & City Island Ramp

07/16/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Volume (veh/h)	0	656	269	36	0	4
Future Volume (Veh/h)	0	656	269	36	0	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	729	299	40	0	4
Pedestrians		6				
Lane Width (ft)		12.0				
Walking Speed (ft/s)		3.5				
Percent Blockage		1				
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	339				1048	325
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	339				1048	325
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1220				252	712
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	729	339	4			
Volume Left	0	0	0			
Volume Right	0	40	4			
cSH	1700	1700	712			
Volume to Capacity	0.43	0.20	0.01			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	10.1			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.1			
Approach LOS			B			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			46.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

7: City Island Ramp & Market St

07/16/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑		↗
Traffic Volume (veh/h)	626	30	0	305	0	18
Future Volume (Veh/h)	626	30	0	305	0	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	696	33	0	339	0	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			729	1052	364	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			729	1052	364	
tC, single (s)			4.1	6.8	6.9	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			100	100	97	
cM capacity (veh/h)			871	222	632	
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	464	265	339	20		
Volume Left	0	0	0	0		
Volume Right	0	33	0	20		
cSH	1700	1700	1700	632		
Volume to Capacity	0.27	0.16	0.20	0.03		
Queue Length 95th (ft)	0	0	0	2		
Control Delay (s)	0.0	0.0	0.0	10.9		
Lane LOS				B		
Approach Delay (s)	0.0		0.0	10.9		
Approach LOS				B		
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			28.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

28: Aberdeen St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↔			↔			↔	
Traffic Volume (veh/h)	0	653	1	48	248	0	0	0	0	56	1	4
Future Volume (Veh/h)	0	653	1	48	248	0	0	0	0	56	1	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	718	1	53	273	0	0	0	0	62	1	4
Pedestrians					89			37				
Lane Width (ft)					12.0			12.0				
Walking Speed (ft/s)					3.5			3.5				
Percent Blockage					8			4				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		244			245							
pX, platoon unblocked	0.84			0.88			0.90	0.90	0.88	0.90	0.90	0.84
vC, conflicting volume	273			756			1139	1134	486	827	1135	273
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	39			446			593	588	138	247	589	39
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			94			100	100	100	88	100	100
cM capacity (veh/h)	1318			942			313	344	687	527	344	860

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	479	240	326	0	67
Volume Left	0	0	53	0	62
Volume Right	0	1	0	0	4
cSH	1700	1700	942	1700	535
Volume to Capacity	0.28	0.14	0.06	0.00	0.13
Queue Length 95th (ft)	0	0	4	0	11
Control Delay (s)	0.0	0.0	2.0	0.0	12.7
Lane LOS			A	A	B
Approach Delay (s)	0.0		2.0	0.0	12.7
Approach LOS			A	A	B

Intersection Summary

Average Delay	1.3
Intersection Capacity Utilization	53.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
52: 10th St & Market St

07/16/2023

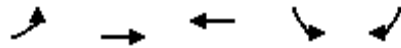


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (veh/h)	7	238	25	57	750	13	2	0	10	4	1	14
Future Volume (Veh/h)	7	238	25	57	750	13	2	0	10	4	1	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	8	274	29	66	862	15	2	0	11	5	1	16
Pedestrians					14						3	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						0	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		906			385							
pX, platoon unblocked												
vC, conflicting volume	880			303			884	1316	166	1182	1324	442
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	880			303			884	1316	166	1182	1324	442
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			99	100	99	96	99	97
cM capacity (veh/h)	762			1255			220	146	838	134	145	562
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	145	166	497	446	13	22						
Volume Left	8	0	66	0	2	5						
Volume Right	0	29	0	15	11	16						
cSH	762	1700	1255	1700	586	302						
Volume to Capacity	0.01	0.10	0.05	0.26	0.02	0.07						
Queue Length 95th (ft)	1	0	4	0	2	6						
Control Delay (s)	0.6	0.0	1.6	0.0	11.3	17.8						
Lane LOS	A		A		B	C						
Approach Delay (s)	0.3		0.8		11.3	17.8						
Approach LOS					B	C						
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			47.4%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues

1: Market St & S. Front St

07/16/2023



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	460	358	808	195	474
v/c Ratio	0.58	0.25	0.82	0.72	0.45
Control Delay	30.7	5.9	23.2	57.9	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.7	5.9	23.2	57.9	11.3
Queue Length 50th (ft)	258	73	164	126	144
Queue Length 95th (ft)	375	118	m217	199	215
Internal Link Dist (ft)		522	1732	480	
Turn Bay Length (ft)	400			340	
Base Capacity (vph)	789	1392	1041	321	1056
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.58	0.26	0.78	0.61	0.45

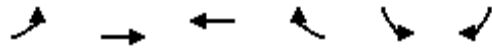
Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

1: Market St & S. Front St

07/16/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	419	326	540	196	177	431
Future Volume (vph)	419	326	540	196	177	431
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	16	13	11	12	11	14
Grade (%)		-2%	-4%		-1%	
Total Lost time (s)	5.5	6.4	6.4		6.2	5.5
Lane Util. Factor	1.00	1.00	0.95		1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	2026	1944	3350		1719	1697
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	2026	1944	3350		1719	1697
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	460	358	593	215	195	474
RTOR Reduction (vph)	0	0	36	0	0	35
Lane Group Flow (vph)	460	358	772	0	195	439
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	2	1 2	1		4	2
Permitted Phases						4
Actuated Green, G (s)	41.3	77.7	30.0		16.6	57.9
Effective Green, g (s)	41.3	77.7	30.0		16.6	57.9
Actuated g/C Ratio	0.39	0.73	0.28		0.16	0.55
Clearance Time (s)	5.5		6.4		6.2	5.5
Vehicle Extension (s)	4.0		4.0		3.0	4.0
Lane Grp Cap (vph)	789	1424	948		269	1014
v/s Ratio Prot	c0.23	0.18	c0.23		c0.11	0.17
v/s Ratio Perm						0.09
v/c Ratio	0.58	0.25	0.81		0.72	0.43
Uniform Delay, d1	25.5	4.6	35.4		42.5	14.3
Progression Factor	1.00	1.00	0.58		1.00	1.00
Incremental Delay, d2	3.1	0.1	2.9		9.3	0.3
Delay (s)	28.7	4.8	23.5		51.8	14.6
Level of Service	C	A	C		D	B
Approach Delay (s)		18.2	23.5		25.4	
Approach LOS		B	C		C	

Intersection Summary

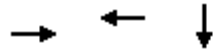
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

4: N.Front St & Market St

07/16/2023



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	665	681	2157
v/c Ratio	0.51	0.90	0.95
Control Delay	19.1	32.0	27.8
Queue Delay	0.0	0.1	0.4
Total Delay	19.1	32.1	28.1
Queue Length 50th (ft)	113	276	221
Queue Length 95th (ft)	182	#630	#625
Internal Link Dist (ft)	2011	397	440
Turn Bay Length (ft)			
Base Capacity (vph)	1315	757	2280
Starvation Cap Reductn	0	1	0
Spillback Cap Reductn	0	0	14
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.51	0.90	0.95

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: N.Front St & Market St

07/16/2023

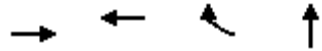


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑						↑↑↑	
Traffic Volume (vph)	0	232	366	0	613	0	0	0	0	66	1719	157
Future Volume (vph)	0	232	366	0	613	0	0	0	0	66	1719	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	12	10	12	12	12	12	13	12	13
Grade (%)		-1%			0%			0%				0%
Total Lost time (s)		5.8			5.8							6.0
Lane Util. Factor		0.95			1.00							0.91
Frt		0.91			1.00							0.99
Flt Protected		1.00			1.00							1.00
Satd. Flow (prot)		3015			1739							5015
Flt Permitted		1.00			1.00							1.00
Satd. Flow (perm)		3015			1739							5015
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	258	407	0	681	0	0	0	0	73	1910	174
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	663	0	0	681	0	0	0	0	0	2147	0
Turn Type		NA			NA					Perm		NA
Protected Phases		2			2							1
Permitted Phases										1		
Actuated Green, G (s)		46.2			46.2							48.0
Effective Green, g (s)		46.2			46.2							48.0
Actuated g/C Ratio		0.44			0.44							0.45
Clearance Time (s)		5.8			5.8							6.0
Lane Grp Cap (vph)		1314			757							2270
v/s Ratio Prot		0.22			c0.39							
v/s Ratio Perm												0.43
v/c Ratio		0.50			0.90							0.95
Uniform Delay, d1		21.6			27.7							27.8
Progression Factor		0.81			0.60							0.66
Incremental Delay, d2		1.3			13.9							8.9
Delay (s)		18.9			30.5							27.2
Level of Service		B			C							C
Approach Delay (s)		18.9			30.5			0.0				27.2
Approach LOS		B			C			A				C
Intersection Summary												
HCM 2000 Control Delay			26.2									C
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			106.0							11.8		
Intersection Capacity Utilization			80.1%									D
Analysis Period (min)			15									
c Critical Lane Group												

Queues

9: Greyhound Driveway/5th St & Market St

07/16/2023



Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	699	564	268	4
v/c Ratio	0.49	0.62	0.30	0.05
Control Delay	7.3	17.3	2.1	49.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	7.3	17.4	2.1	49.5
Queue Length 50th (ft)	44	175	4	3
Queue Length 95th (ft)	107	m365	m18	14
Internal Link Dist (ft)	165	826		109
Turn Bay Length (ft)				
Base Capacity (vph)	1422	909	902	84
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	8	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.49	0.63	0.30	0.05

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

9: Greyhound Driveway/5th St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↔	↔		↕				
Traffic Volume (vph)	177	452	0	0	481	268	0	1	3	0	0	0
Future Volume (vph)	177	452	0	0	481	268	0	1	3	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	12	12	12	12	12	12	12	12	12
Grade (%)		-6%			6%			-10%				0%
Total Lost time (s)		7.0			7.0	7.0		7.5				
Lane Util. Factor		0.95			0.95	0.95		1.00				
Frt		1.00			0.99	0.85		0.90				
Flt Protected		0.99			1.00	1.00		1.00				
Satd. Flow (prot)		3595			1703	1459		1758				
Flt Permitted		0.57			1.00	1.00		1.00				
Satd. Flow (perm)		2091			1703	1459		1758				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	197	502	0	0	534	298	0	1	3	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	140	0	0	0	0	0	0
Lane Group Flow (vph)	0	699	0	0	562	128	0	4	0	0	0	0
Turn Type	pm+pt	NA			NA	Prot		NA				
Protected Phases	1	6			2	2	3	3				
Permitted Phases	6						3					
Actuated Green, G (s)		62.5			50.5	50.5		1.0				
Effective Green, g (s)		62.5			50.5	50.5		1.0				
Actuated g/C Ratio		0.59			0.48	0.48		0.01				
Clearance Time (s)		7.0			7.0	7.0		7.5				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		1303			811	695		16				
v/s Ratio Prot		c0.03			c0.33	0.09		c0.00				
v/s Ratio Perm		0.29										
v/c Ratio		0.54			0.69	0.18		0.25				
Uniform Delay, d1		13.1			21.7	15.9		52.1				
Progression Factor		0.55			0.80	0.73		1.00				
Incremental Delay, d2		1.5			3.2	0.4		8.1				
Delay (s)		8.7			20.7	12.0		60.2				
Level of Service		A			C	B		E				
Approach Delay (s)		8.7			17.9			60.2			0.0	
Approach LOS		A			B			E			A	

Intersection Summary

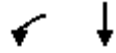
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

10: N.Front St & Walnut St

07/16/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	347	1668
v/c Ratio	0.34	0.57
Control Delay	3.3	15.5
Queue Delay	0.0	0.1
Total Delay	3.3	15.7
Queue Length 50th (ft)	7	249
Queue Length 95th (ft)	12	293
Internal Link Dist (ft)	439	727
Turn Bay Length (ft)		
Base Capacity (vph)	1022	2912
Starvation Cap Reductn	0	0
Spillback Cap Reductn	1	295
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.34	0.64
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

10: N.Front St & Walnut St

07/16/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔					↔↔↔
Traffic Volume (vph)	319	0	0	0	0	1535
Future Volume (vph)	319	0	0	0	0	1535
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12
Grade (%)	-1%		0%			-1%
Total Lost time (s)	5.4					5.6
Lane Util. Factor	0.97					0.91
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	3051					5111
Flt Permitted	0.95					1.00
Satd. Flow (perm)	3051					5111
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	347	0	0	0	0	1668
RTOR Reduction (vph)	26	0	0	0	0	0
Lane Group Flow (vph)	321	0	0	0	0	1668
Parking (#/hr)	1					
Turn Type	Prot					NA
Protected Phases	3					2
Permitted Phases						
Actuated Green, G (s)	34.6					60.4
Effective Green, g (s)	34.6					60.4
Actuated g/C Ratio	0.33					0.57
Clearance Time (s)	5.4					5.6
Lane Grp Cap (vph)	995					2912
v/s Ratio Prot	c0.11					c0.33
v/s Ratio Perm						
v/c Ratio	0.32					0.57
Uniform Delay, d1	26.9					14.6
Progression Factor	0.10					1.00
Incremental Delay, d2	0.8					0.8
Delay (s)	3.5					15.4
Level of Service	A					B
Approach Delay (s)	3.5		0.0			15.4
Approach LOS	A		A			B

Intersection Summary

HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues

15: 2nd St & Walnut St

07/16/2023



Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	301	104	1160
v/c Ratio	0.30	0.20	0.58
Control Delay	27.2	6.2	25.9
Queue Delay	0.0	0.0	0.0
Total Delay	27.2	6.2	25.9
Queue Length 50th (ft)	72	9	223
Queue Length 95th (ft)	116	33	272
Internal Link Dist (ft)	194		432
Turn Bay Length (ft)			
Base Capacity (vph)	989	515	2015
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.30	0.20	0.58
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

15: 2nd St & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑↑↑				
Traffic Volume (vph)	0	0	0	0	283	98	30	1060	0	0	0	0
Future Volume (vph)	0	0	0	0	283	98	30	1060	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	11	11	10	12	12	12
Grade (%)		0%			-1%			1%			0%	
Total Lost time (s)					5.4	5.4		5.0				
Lane Util. Factor					0.95	1.00		0.91				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		1.00				
Satd. Flow (prot)					3320	1485		4884				
Flt Permitted					1.00	1.00		1.00				
Satd. Flow (perm)					3320	1485		4884				
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	0	301	104	32	1128	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	73	0	33	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	301	31	0	1127	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					31.6	31.6		43.0				
Effective Green, g (s)					31.6	31.6		43.0				
Actuated g/C Ratio					0.30	0.30		0.41				
Clearance Time (s)					5.4	5.4		5.0				
Vehicle Extension (s)					3.0	3.0		3.0				
Lane Grp Cap (vph)					989	442		1981				
v/s Ratio Prot					c0.09							
v/s Ratio Perm						0.02		0.23				
v/c Ratio					0.30	0.07		0.57				
Uniform Delay, d1					28.7	26.7		24.3				
Progression Factor					0.91	0.94		1.06				
Incremental Delay, d2					0.8	0.3		1.1				
Delay (s)					27.0	25.3		26.9				
Level of Service					C	C		C				
Approach Delay (s)		0.0			26.5			26.9			0.0	
Approach LOS		A			C			C			A	

Intersection Summary

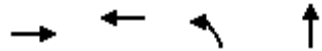
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

16: 2nd St & Market St

07/16/2023



Lane Group	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	328	549	323	809
v/c Ratio	0.31	0.71	0.53	0.48
Control Delay	24.6	7.4	18.0	15.3
Queue Delay	0.0	0.1	0.2	0.0
Total Delay	24.6	7.5	18.2	15.3
Queue Length 50th (ft)	90	34	70	60
Queue Length 95th (ft)	m130	44	144	80
Internal Link Dist (ft)	397	69		443
Turn Bay Length (ft)				
Base Capacity (vph)	1058	778	614	1702
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	14	33	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.31	0.72	0.56	0.48

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

16: 2nd St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔		↔	↔↔↔				
Traffic Volume (vph)	124	197	0	0	272	266	317	604	189	0	0	0
Future Volume (vph)	124	197	0	0	272	266	317	604	189	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			1%			0%	
Total Lost time (s)		6.0			6.0		6.0	6.0				
Lane Util. Factor		0.95			1.00		1.00	0.91				
Frt		1.00			0.93		1.00	0.96				
Flt Protected		0.98			1.00		0.95	1.00				
Satd. Flow (prot)		3472			1756		1761	4879				
Flt Permitted		0.53			1.00		0.95	1.00				
Satd. Flow (perm)		1891			1756		1761	4879				
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)	127	201	0	0	278	271	323	616	193	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	328	0	0	549	0	323	809	0	0	0	0
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		57.0			47.0		37.0	37.0				
Effective Green, g (s)		57.0			47.0		37.0	37.0				
Actuated g/C Ratio		0.54			0.44		0.35	0.35				
Clearance Time (s)		6.0			6.0		6.0	6.0				
Vehicle Extension (s)		3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)		1106			778		614	1703				
v/s Ratio Prot		c0.02			c0.31			0.17				
v/s Ratio Perm		0.14					c0.18					
v/c Ratio		0.30			0.71		0.53	0.48				
Uniform Delay, d1		13.5			23.9		27.5	26.9				
Progression Factor		1.86			0.10		0.54	0.53				
Incremental Delay, d2		0.5			4.9		2.9	0.9				
Delay (s)		25.6			7.3		17.7	15.2				
Level of Service		C			A		B	B				
Approach Delay (s)		25.6			7.3		15.9				0.0	
Approach LOS		C			A		B				A	

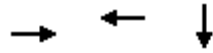
Intersection Summary

HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues

21: 3rd St & Market St

07/16/2023



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	418	516	245
v/c Ratio	0.21	0.48	0.42
Control Delay	4.7	1.5	21.7
Queue Delay	0.0	0.2	0.0
Total Delay	4.7	1.7	21.7
Queue Length 50th (ft)	41	13	61
Queue Length 95th (ft)	50	13	91
Internal Link Dist (ft)	324	407	433
Turn Bay Length (ft)			
Base Capacity (vph)	1948	1065	584
Starvation Cap Reductn	0	111	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.21	0.54	0.42
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

21: 3rd St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↔							↔
Traffic Volume (vph)	0	336	53	10	470	0	0	0	0	71	157	0
Future Volume (vph)	0	336	53	10	470	0	0	0	0	71	157	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	12	12	12	16	12
Grade (%)		-1%			0%			0%				0%
Total Lost time (s)		5.7			5.7							5.7
Lane Util. Factor		0.95			1.00							1.00
Frt		0.98			1.00							1.00
Flt Protected		1.00			1.00							0.98
Satd. Flow (prot)		3368			1861							1861
Flt Permitted		1.00			0.99							0.98
Satd. Flow (perm)		3368			1843							1861
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	361	57	11	505	0	0	0	0	76	169	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	418	0	0	516	0	0	0	0	0	245	0
Parking (#/hr)												1
Turn Type		NA		Perm	NA					Split		NA
Protected Phases		2			6					4		4
Permitted Phases				6								
Actuated Green, G (s)		61.3			61.3							33.3
Effective Green, g (s)		61.3			61.3							33.3
Actuated g/C Ratio		0.58			0.58							0.31
Clearance Time (s)		5.7			5.7							5.7
Vehicle Extension (s)		3.0			3.0							3.0
Lane Grp Cap (vph)		1947			1065							584
v/s Ratio Prot		0.12										c0.13
v/s Ratio Perm					c0.28							
v/c Ratio		0.21			0.48							0.42
Uniform Delay, d1		10.8			13.1							28.7
Progression Factor		0.41			0.04							0.67
Incremental Delay, d2		0.2			1.0							2.2
Delay (s)		4.7			1.5							21.3
Level of Service		A			A							C
Approach Delay (s)		4.7			1.5			0.0				21.3
Approach LOS		A			A			A				C
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)			106.0		Sum of lost time (s)			17.4				
Intersection Capacity Utilization			54.5%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

22: 3rd St & Walnut St

07/16/2023



Lane Group	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	196	240	214	140
v/c Ratio	0.22	0.46	0.21	0.16
Control Delay	7.9	5.4	12.3	11.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	7.9	5.4	12.3	11.9
Queue Length 50th (ft)	12	22	69	43
Queue Length 95th (ft)	24	23	109	75
Internal Link Dist (ft)	408		564	
Turn Bay Length (ft)				
Base Capacity (vph)	910	522	1012	890
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.22	0.46	0.21	0.16
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

22: 3rd St & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕	↗					↕	↗
Traffic Volume (vph)	0	0	0	29	155	226	0	0	0	0	201	132
Future Volume (vph)	0	0	0	29	155	226	0	0	0	0	201	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12
Grade (%)		0%			-1%			0%			-1%	
Total Lost time (s)					5.7	5.7					5.7	5.7
Lane Util. Factor					0.95	1.00					1.00	1.00
Frt					1.00	0.85					1.00	0.85
Flt Protected					0.99	1.00					1.00	1.00
Satd. Flow (prot)					3529	1424					1810	1591
Flt Permitted					0.99	1.00					1.00	1.00
Satd. Flow (perm)					3529	1424					1810	1591
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	31	165	240	0	0	0	0	214	140
RTOR Reduction (vph)	0	0	0	0	69	183	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	127	57	0	0	0	0	214	140
Parking (#/hr)				1		1						
Turn Type				Perm	NA	Perm					NA	Perm
Protected Phases					4						2	
Permitted Phases				4		4						2
Actuated Green, G (s)					25.3	25.3					59.3	59.3
Effective Green, g (s)					25.3	25.3					59.3	59.3
Actuated g/C Ratio					0.24	0.24					0.56	0.56
Clearance Time (s)					5.7	5.7					5.7	5.7
Lane Grp Cap (vph)					842	339					1012	890
v/s Ratio Prot											c0.12	
v/s Ratio Perm					0.04	c0.04						0.09
v/c Ratio					0.15	0.17					0.21	0.16
Uniform Delay, d1					31.9	32.0					11.7	11.3
Progression Factor					0.43	0.60					1.00	1.00
Incremental Delay, d2					0.3	1.0					0.5	0.4
Delay (s)					14.0	20.0					12.1	11.7
Level of Service					B	C					B	B
Approach Delay (s)		0.0			17.3			0.0			12.0	
Approach LOS		A			B			A			B	

Intersection Summary

HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	17.4
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

26: 4th St & Market St

07/16/2023



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	484	596	365	43	127
v/c Ratio	0.44	0.77	0.70	0.25	0.26
Control Delay	17.6	16.6	24.6	19.2	16.5
Queue Delay	0.0	0.4	0.0	0.0	0.0
Total Delay	17.6	17.0	24.6	19.2	16.5
Queue Length 50th (ft)	72	314	176	10	29
Queue Length 95th (ft)	95	62	121	22	50
Internal Link Dist (ft)	407	164	432		435
Turn Bay Length (ft)					
Base Capacity (vph)	1094	778	519	174	497
Starvation Cap Reductn	0	25	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.79	0.70	0.25	0.26
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

26: 4th St & Market St

07/16/2023

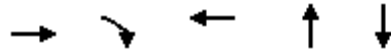


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕↕			↕↕			↕↕		↕	↕		
Traffic Volume (vph)	57	321	23	22	429	43	22	138	143	36	105	0	
Future Volume (vph)	57	321	23	22	429	43	22	138	143	36	105	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	11	11	11	12	12	12	12	12	12	10	10	12	
Grade (%)		0%			0%			-1%			1%		
Total Lost time (s)		5.5			5.5			5.5		5.5	5.5		
Lane Util. Factor		0.95			1.00			1.00		1.00	1.00		
Frt		0.99			0.99			0.94		1.00	1.00		
Flt Protected		0.99			1.00			1.00		0.95	1.00		
Satd. Flow (prot)		3368			1837			1747		1643	1730		
Flt Permitted		0.73			0.96			0.97		0.35	1.00		
Satd. Flow (perm)		2485			1774			1703		606	1730		
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	
Adj. Flow (vph)	69	387	28	27	517	52	27	166	172	43	127	0	
RTOR Reduction (vph)	0	4	0	0	0	0	0	30	0	0	0	0	
Lane Group Flow (vph)	0	480	0	0	596	0	0	335	0	43	127	0	
Parking (#/hr)	1												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		46.5			46.5			30.5		30.5	30.5		
Effective Green, g (s)		46.5			46.5			30.5		30.5	30.5		
Actuated g/C Ratio		0.44			0.44			0.29		0.29	0.29		
Clearance Time (s)		5.5			5.5			5.5		5.5	5.5		
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0		
Lane Grp Cap (vph)		1090			778			490		174	497		
v/s Ratio Prot											0.07		
v/s Ratio Perm		0.19			0.34			0.20		0.07			
v/c Ratio		0.44			0.77			0.68		0.25	0.26		
Uniform Delay, d1		20.7			25.2			33.5		28.9	29.0		
Progression Factor		0.79			0.40			0.57		0.52	0.52		
Incremental Delay, d2		1.3			4.0			7.2		3.4	1.2		
Delay (s)		17.6			14.0			26.2		18.5	16.2		
Level of Service		B			B			C		B	B		
Approach Delay (s)		17.6			14.0			26.2			16.8		
Approach LOS		B			B			C			B		
Intersection Summary													
HCM 2000 Control Delay			18.1									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.61										
Actuated Cycle Length (s)			106.0									Sum of lost time (s)	13.0
Intersection Capacity Utilization			77.5%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

Queues

27: 4th St & Chestnut St/Amtrak Driveway

07/16/2023



Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	296	235	69	140	193
v/c Ratio	0.75	0.32	0.13	0.14	0.22
Control Delay	45.1	7.0	22.0	13.2	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	7.0	22.0	13.2	8.5
Queue Length 50th (ft)	170	17	34	41	6
Queue Length 95th (ft)	157	36	m66	85	m137
Internal Link Dist (ft)	412		305	245	432
Turn Bay Length (ft)					
Base Capacity (vph)	671	1071	931	1027	863
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.22	0.07	0.14	0.22

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

27: 4th St & Chestnut St/Amtrak Driveway

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕	↗		↕			↕			↕		
Traffic Volume (vph)	212	30	193	14	41	2	35	75	5	10	104	44	
Future Volume (vph)	212	30	193	14	41	2	35	75	5	10	104	44	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	10	10	16	12	12	12	14	14	14	11	11	11	
Grade (%)		5%			-3%			-8%			4%		
Total Lost time (s)		5.5	5.5		5.5			5.5			5.5		
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00		
Frt		1.00	0.85		1.00			0.99			0.96		
Flt Protected		0.96	1.00		0.99			0.98			1.00		
Satd. Flow (prot)		1624	1750		1860			2023			1515		
Flt Permitted		0.72	1.00		0.90			0.87			0.98		
Satd. Flow (perm)		1217	1750		1688			1796			1495		
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	
Adj. Flow (vph)	259	37	235	17	50	2	43	91	6	12	127	54	
RTOR Reduction (vph)	0	0	159	0	1	0	0	1	0	0	9	0	
Lane Group Flow (vph)	0	296	76	0	68	0	0	139	0	0	184	0	
Parking (#/hr)										1	1	1	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4		4	8			2			6			
Actuated Green, G (s)		34.4	34.4		34.4			60.6			60.6		
Effective Green, g (s)		34.4	34.4		34.4			60.6			60.6		
Actuated g/C Ratio		0.32	0.32		0.32			0.57			0.57		
Clearance Time (s)		5.5	5.5		5.5			5.5			5.5		
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0		
Lane Grp Cap (vph)		394	567		547			1026			854		
v/s Ratio Prot													
v/s Ratio Perm		c0.24	0.04		0.04			0.08			c0.12		
v/c Ratio		0.75	0.13		0.12			0.14			0.22		
Uniform Delay, d1		32.0	25.3		25.2			10.5			11.1		
Progression Factor		1.08	2.30		1.02			1.00			0.64		
Incremental Delay, d2		7.8	0.1		0.1			0.3			0.6		
Delay (s)		42.2	58.2		25.8			10.8			7.6		
Level of Service		D	E		C			B			A		
Approach Delay (s)		49.3			25.8			10.8			7.6		
Approach LOS		D			C			B			A		
Intersection Summary													
HCM 2000 Control Delay			33.2									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.41										
Actuated Cycle Length (s)			106.0									Sum of lost time (s)	11.0
Intersection Capacity Utilization			46.1%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

30: 5th St/Forum Driveway & Walnut St

07/16/2023



Lane Group	WBT	NBL	NBR	SBL	SBR
Lane Group Flow (vph)	96	299	410	3	2
v/c Ratio	0.11	0.13	0.42	0.03	0.01
Control Delay	29.3	0.1	1.5	48.0	0.0
Queue Delay	0.0	0.0	0.2	0.0	0.0
Total Delay	29.3	0.1	1.7	48.0	0.0
Queue Length 50th (ft)	25	0	0	2	0
Queue Length 95th (ft)	46	0	0	12	0
Internal Link Dist (ft)	349				
Turn Bay Length (ft)	150				
Base Capacity (vph)	891	2379	967	110	169
Starvation Cap Reductn	0	0	115	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.13	0.48	0.03	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis

30: 5th St/Forum Driveway & Walnut St

07/16/2023

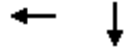


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑		↗↘		↗	↘		↗
Traffic Volume (vph)	0	0	0	0	86	0	269	0	369	3	0	2
Future Volume (vph)	0	0	0	0	86	0	269	0	369	3	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	16	11	12	11	12	12	12
Grade (%)		0%			-1%			7%			0%	
Total Lost time (s)					5.0		5.4		5.4	5.4		5.4
Lane Util. Factor					0.95		0.97		1.00	1.00		1.00
Frt					1.00		1.00		0.85	1.00		0.85
Flt Protected					1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)					3258		3202		1477	1770		1583
Flt Permitted					1.00		0.95		1.00	0.95		1.00
Satd. Flow (perm)					3258		3202		1477	1770		1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	96	0	299	0	410	3	0	2
RTOR Reduction (vph)	0	0	0	0	0	0	143	0	196	0	0	2
Lane Group Flow (vph)	0	0	0	0	96	0	156	0	214	3	0	0
Parking (#/hr)					1							
Turn Type					NA		Prot		Prot	Prot		Perm
Protected Phases					2		3		3	4		
Permitted Phases												4
Actuated Green, G (s)					29.0		55.4		55.4	5.8		5.8
Effective Green, g (s)					29.0		55.4		55.4	5.8		5.8
Actuated g/C Ratio					0.27		0.52		0.52	0.05		0.05
Clearance Time (s)					5.0		5.4		5.4	5.4		5.4
Vehicle Extension (s)					3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)					891		1673		771	96		86
v/s Ratio Prot					c0.03		0.05		c0.15	c0.00		
v/s Ratio Perm												0.00
v/c Ratio					0.11		0.09		0.28	0.03		0.00
Uniform Delay, d1					28.8		12.7		14.1	47.4		47.4
Progression Factor					1.00		1.00		0.14	1.00		1.00
Incremental Delay, d2					0.2		0.1		0.9	0.1		0.0
Delay (s)					29.1		12.8		2.9	47.6		47.4
Level of Service					C		B		A	D		D
Approach Delay (s)		0.0			29.1			7.1			47.5	
Approach LOS		A			C			A			D	
Intersection Summary												
HCM 2000 Control Delay			9.9		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.21									
Actuated Cycle Length (s)			106.0		Sum of lost time (s)				15.8			
Intersection Capacity Utilization			43.8%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

31: Aberdeen St & Walnut St

07/16/2023

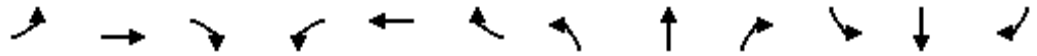


Lane Group	WBT	SBT
Lane Group Flow (vph)	409	305
v/c Ratio	0.20	0.34
Control Delay	3.8	15.5
Queue Delay	0.4	0.0
Total Delay	4.1	15.5
Queue Length 50th (ft)	13	105
Queue Length 95th (ft)	17	166
Internal Link Dist (ft)	172	900
Turn Bay Length (ft)		
Base Capacity (vph)	2043	910
Starvation Cap Reductn	1088	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.43	0.34
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

31: Aberdeen St & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑						↑	
Traffic Volume (vph)	0	0	0	37	134	201	0	0	0	0	174	104
Future Volume (vph)	0	0	0	37	134	201	0	0	0	0	174	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	16	12
Grade (%)		0%			-1%			0%				-3%
Total Lost time (s)					5.6							5.2
Lane Util. Factor					0.91							1.00
Frt					0.92							0.95
Flt Protected					1.00							1.00
Satd. Flow (prot)					4673							1821
Flt Permitted					1.00							1.00
Satd. Flow (perm)					4673							1821
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	41	147	221	0	0	0	0	191	114
RTOR Reduction (vph)	0	0	0	0	131	0	0	0	0	0	20	0
Lane Group Flow (vph)	0	0	0	0	278	0	0	0	0	0	285	0
Parking (#/hr)				1		1						1
Turn Type				Split	NA							NA
Protected Phases				2	2							4
Permitted Phases												
Actuated Green, G (s)					43.4							51.8
Effective Green, g (s)					43.4							51.8
Actuated g/C Ratio					0.41							0.49
Clearance Time (s)					5.6							5.2
Lane Grp Cap (vph)					1913							889
v/s Ratio Prot					c0.06							c0.16
v/s Ratio Perm												
v/c Ratio					0.15							0.32
Uniform Delay, d1					19.7							16.4
Progression Factor					0.40							1.00
Incremental Delay, d2					0.2							1.0
Delay (s)					8.0							17.4
Level of Service					A							B
Approach Delay (s)		0.0			8.0			0.0				17.4
Approach LOS		A			A			A				B

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

32: 4th St/Captial Parking Driveway & Walnut St

07/16/2023



Lane Group	WBT	NBL	SBT
Lane Group Flow (vph)	211	343	12
v/c Ratio	0.12	0.53	0.01
Control Delay	18.1	16.2	9.6
Queue Delay	0.0	0.0	0.0
Total Delay	18.1	16.2	9.6
Queue Length 50th (ft)	27	150	3
Queue Length 95th (ft)	39	214	11
Internal Link Dist (ft)	145		257
Turn Bay Length (ft)			
Base Capacity (vph)	1696	646	982
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.12	0.53	0.01
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

32: 4th St/Captial Parking Driveway & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑↑		↑				↑		
Traffic Volume (vph)	0	0	0	91	90	0	295	0	0	0	8	3	
Future Volume (vph)	0	0	0	91	90	0	295	0	0	0	8	3	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	10	10	10	12	12	12	
Grade (%)		0%			-1%			-3%			0%		
Total Lost time (s)					5.6		5.2				5.2		
Lane Util. Factor					0.91		1.00				1.00		
Frt					1.00		1.00				0.97		
Flt Protected					0.98		0.95				1.00		
Satd. Flow (prot)					4811		1500				1800		
Flt Permitted					0.98		0.75				1.00		
Satd. Flow (perm)					4811		1184				1800		
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Adj. Flow (vph)	0	0	0	106	105	0	343	0	0	0	9	3	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	1	0	
Lane Group Flow (vph)	0	0	0	0	211	0	343	0	0	0	11	0	
Parking (#/hr)				1	1		1						
Turn Type				Perm	NA		D.Pm				NA		
Protected Phases					2						3		
Permitted Phases				2			3						
Actuated Green, G (s)					37.4		57.8				57.8		
Effective Green, g (s)					37.4		57.8				57.8		
Actuated g/C Ratio					0.35		0.55				0.55		
Clearance Time (s)					5.6		5.2				5.2		
Lane Grp Cap (vph)					1697		645				981		
v/s Ratio Prot											0.01		
v/s Ratio Perm					0.04		c0.29						
v/c Ratio					0.12		0.53				0.01		
Uniform Delay, d1					23.2		15.4				11.0		
Progression Factor					0.77		0.84				1.00		
Incremental Delay, d2					0.1		2.7				0.0		
Delay (s)					18.0		15.7				11.0		
Level of Service					B		B				B		
Approach Delay (s)		0.0			18.0			15.7			11.0		
Approach LOS		A			B			B			B		
Intersection Summary													
HCM 2000 Control Delay			16.5		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.37										
Actuated Cycle Length (s)			106.0		Sum of lost time (s)						10.8		
Intersection Capacity Utilization			63.2%		ICU Level of Service						B		
Analysis Period (min)			15										

c Critical Lane Group

Queues

42: Cameron St & Market St

07/16/2023



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	168	334	277	62	296	955	172	1164
v/c Ratio	0.93	0.65	0.81	0.15	0.88	0.62	0.54	0.90
Control Delay	73.1	24.0	58.3	0.7	55.6	24.8	17.5	40.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.1	24.0	58.3	0.7	55.6	24.8	17.5	40.3
Queue Length 50th (ft)	72	178	179	0	147	252	48	388
Queue Length 95th (ft)	#190	282	266	0	#329	357	87	#535
Internal Link Dist (ft)		305	673			623		536
Turn Bay Length (ft)					250		220	
Base Capacity (vph)	181	574	404	477	336	1540	366	1299
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.58	0.69	0.13	0.88	0.62	0.47	0.90

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

42: Cameron St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	206	111	20	243	59	281	821	86	163	860	246
Future Volume (vph)	160	206	111	20	243	59	281	821	86	163	860	246
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	11	12	10	11	12	10	11	12
Grade (%)		3%			-2%			2%				4%
Total Lost time (s)	5.6	6.3			6.3	6.3	4.8	5.5		4.8	5.5	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.95			1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	1738			1812	1599	1635	3339		1619	3241	
Flt Permitted	0.26	1.00			0.95	1.00	0.09	1.00		0.23	1.00	
Satd. Flow (perm)	484	1738			1725	1599	148	3339		391	3241	
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)	168	217	117	21	256	62	296	864	91	172	905	259
RTOR Reduction (vph)	0	19	0	0	0	50	0	6	0	0	24	0
Lane Group Flow (vph)	168	315	0	0	277	12	296	949	0	172	1140	0
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)	30.1	30.1			21.1	21.1	64.1	48.7		52.4	41.8	
Effective Green, g (s)	30.1	30.1			21.1	21.1	64.1	48.7		52.4	41.8	
Actuated g/C Ratio	0.28	0.28			0.20	0.20	0.60	0.46		0.49	0.39	
Clearance Time (s)	5.6	6.3			6.3	6.3	4.8	5.5		4.8	5.5	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	177	493			343	318	334	1534		316	1278	
v/s Ratio Prot	0.03	c0.18					c0.15	0.28		0.05	0.35	
v/s Ratio Perm	c0.24				0.16	0.01	c0.39			0.21		
v/c Ratio	0.95	0.64			0.81	0.04	0.89	0.62		0.54	0.89	
Uniform Delay, d1	39.2	33.2			40.5	34.3	30.6	21.6		15.8	30.0	
Progression Factor	0.66	0.60			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	49.7	2.5			13.0	0.1	23.3	1.9		1.9	9.7	
Delay (s)	75.6	22.5			53.5	34.3	53.9	23.5		17.8	39.7	
Level of Service	E	C			D	C	D	C		B	D	
Approach Delay (s)		40.3			50.0			30.7			36.9	
Approach LOS		D			D			C			D	

Intersection Summary

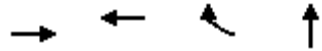
HCM 2000 Control Delay	36.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	22.2
Intersection Capacity Utilization	97.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues

44: 2nd St & Chestnut St

07/16/2023



Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	133	131	40	1326
v/c Ratio	0.29	0.35	0.12	0.53
Control Delay	26.4	22.7	18.3	17.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	26.4	22.7	18.3	17.7
Queue Length 50th (ft)	44	85	25	208
Queue Length 95th (ft)	m55	136	45	250
Internal Link Dist (ft)	425	433		446
Turn Bay Length (ft)				
Base Capacity (vph)	451	375	346	2490
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	46
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.29	0.35	0.12	0.54

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

44: 2nd St & Chestnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↑	↗		↖↗↘				
Traffic Volume (vph)	69	60	0	0	127	39	237	922	127	0	0	0
Future Volume (vph)	69	60	0	0	127	39	237	922	127	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	16	12	12	12	12	12	12
Grade (%)		0%			0%			1%			0%	
Total Lost time (s)		6.1			6.1	6.1		5.5				
Lane Util. Factor		1.00			1.00	1.00		0.91				
Frt		1.00			1.00	0.85		0.99				
Flt Protected		0.97			1.00	1.00		0.99				
Satd. Flow (prot)		1516			1739	1606		4767				
Flt Permitted		0.72			1.00	1.00		0.99				
Satd. Flow (perm)		1126			1739	1606		4767				
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)	71	62	0	0	131	40	244	951	131	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	133	0	0	131	40	0	1326	0	0	0	0
Parking (#/hr)		1				1	1	1	1			
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)		39.0			22.9	22.9		55.4				
Effective Green, g (s)		39.0			22.9	22.9		55.4				
Actuated g/C Ratio		0.37			0.22	0.22		0.52				
Clearance Time (s)		6.1			6.1	6.1		5.5				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		451			375	346		2491				
v/s Ratio Prot		c0.03			c0.08							
v/s Ratio Perm		0.08				0.02		0.28				
v/c Ratio		0.29			0.35	0.12		0.53				
Uniform Delay, d1		23.8			35.2	33.4		16.7				
Progression Factor		1.08			0.56	0.52		1.00				
Incremental Delay, d2		0.8			2.5	0.7		0.8				
Delay (s)		26.5			22.3	18.1		17.6				
Level of Service		C			C	B		B				
Approach Delay (s)		26.5			21.3			17.6			0.0	
Approach LOS		C			C			B			A	

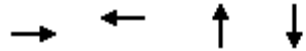
Intersection Summary

HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	21.7
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

45: 3rd St & Chestnut St

07/16/2023















Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	187	138	70	176
v/c Ratio	0.31	0.11	0.11	0.33
Control Delay	23.4	22.3	20.0	12.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	23.4	22.3	20.0	12.8
Queue Length 50th (ft)	97	39	29	41
Queue Length 95th (ft)	154	36	58	62
Internal Link Dist (ft)	433	412	443	437
Turn Bay Length (ft)				
Base Capacity (vph)	604	1210	658	526
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.31	0.11	0.11	0.33

Intersection Summary

HCM Signalized Intersection Capacity Analysis

45: 3rd St & Chestnut St

07/16/2023

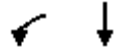
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑↑			↕			↕	
Traffic Volume (vph)	0	181	0	0	134	0	2	0	66	164	0	7
Future Volume (vph)	0	181	0	0	134	0	2	0	66	164	0	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	16	16	16	16	16	16
Grade (%)		1%			2%			3%			0%	
Total Lost time (s)		5.6			5.6			5.6			5.6	
Lane Util. Factor		1.00			0.95			1.00			1.00	
Frt		1.00			1.00			0.87			0.99	
Flt Protected		1.00			1.00			1.00			0.95	
Satd. Flow (prot)		1548			3099			1615			1793	
Flt Permitted		1.00			1.00			1.00			0.68	
Satd. Flow (perm)		1548			3099			1609			1285	
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	187	0	0	138	0	2	0	68	169	0	7
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	187	0	0	138	0	0	70	0	0	176	0
Parking (#/hr)		1			1		1	1	1	1	1	1
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)		41.4			41.4			43.4			43.4	
Effective Green, g (s)		41.4			41.4			43.4			43.4	
Actuated g/C Ratio		0.39			0.39			0.41			0.41	
Clearance Time (s)		5.6			5.6			5.6			5.6	
Lane Grp Cap (vph)		604			1210			658			526	
v/s Ratio Prot		c0.12			0.04							
v/s Ratio Perm								0.04			c0.14	
v/c Ratio		0.31			0.11			0.11			0.33	
Uniform Delay, d1		22.4			20.6			19.3			21.4	
Progression Factor		0.97			1.06			1.00			0.51	
Incremental Delay, d2		1.2			0.2			0.3			1.6	
Delay (s)		22.9			22.1			19.7			12.5	
Level of Service		C			C			B			B	
Approach Delay (s)		22.9			22.1			19.7			12.5	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			19.1									B
HCM 2000 Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			106.0							17.2		
Intersection Capacity Utilization			35.0%									A
Analysis Period (min)			15									

c Critical Lane Group

Queues

46: N.Front St & Chestnut St

07/16/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	449	2338
v/c Ratio	0.79	0.88
Control Delay	34.6	7.9
Queue Delay	0.0	0.5
Total Delay	34.6	8.4
Queue Length 50th (ft)	293	112
Queue Length 95th (ft)	#434	m121
Internal Link Dist (ft)	425	455
Turn Bay Length (ft)		
Base Capacity (vph)	570	2667
Starvation Cap Reductn	0	79
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.79	0.90

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

46: N.Front St & Chestnut St

07/16/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰					↰↰↰
Traffic Volume (vph)	418	0	0	0	120	2054
Future Volume (vph)	418	0	0	0	120	2054
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11
Grade (%)	-1%		0%			-1%
Total Lost time (s)	5.2					5.6
Lane Util. Factor	1.00					0.91
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1601					4927
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1601					4927
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	449	0	0	0	129	2209
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	449	0	0	0	0	2338
Parking (#/hr)	0					
Turn Type	Prot				Perm	NA
Protected Phases	8					6
Permitted Phases					6	
Actuated Green, G (s)	37.8					57.4
Effective Green, g (s)	37.8					57.4
Actuated g/C Ratio	0.36					0.54
Clearance Time (s)	5.2					5.6
Lane Grp Cap (vph)	570					2668
v/s Ratio Prot	c0.28					
v/s Ratio Perm						0.47
v/c Ratio	0.79					0.88
Uniform Delay, d1	30.5					21.2
Progression Factor	0.77					0.26
Incremental Delay, d2	9.9					2.2
Delay (s)	33.6					7.7
Level of Service	C					A
Approach Delay (s)	33.6		0.0			7.7
Approach LOS	C		A			A

Intersection Summary

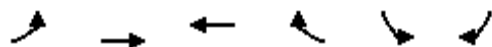
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

5: Market St & City Island Ramp

07/16/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Volume (veh/h)	0	503	704	66	0	42
Future Volume (Veh/h)	0	503	704	66	0	42
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	553	774	73	0	46
Pedestrians		10				
Lane Width (ft)		12.0				
Walking Speed (ft/s)		3.5				
Percent Blockage		1				
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	847				1364	820
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	847				1364	820
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	88
cM capacity (veh/h)	790				163	371
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	553	847	46			
Volume Left	0	0	0			
Volume Right	0	73	46			
cSH	1700	1700	371			
Volume to Capacity	0.33	0.50	0.12			
Queue Length 95th (ft)	0	0	11			
Control Delay (s)	0.0	0.0	16.1			
Lane LOS			C			
Approach Delay (s)	0.0	0.0	16.1			
Approach LOS			C			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			54.1%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

7: City Island Ramp & Market St

07/16/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑		↗
Traffic Volume (veh/h)	485	18	0	770	0	88
Future Volume (Veh/h)	485	18	0	770	0	88
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	533	20	0	846	0	97
Pedestrians				2		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				3.5		
Percent Blockage				0		
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			553		1389	278
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			553		1389	278
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	86
cM capacity (veh/h)			1013		134	717
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	355	198	846	97		
Volume Left	0	0	0	0		
Volume Right	0	20	0	97		
cSH	1700	1700	1700	717		
Volume to Capacity	0.21	0.12	0.50	0.14		
Queue Length 95th (ft)	0	0	0	12		
Control Delay (s)	0.0	0.0	0.0	10.8		
Lane LOS				B		
Approach Delay (s)	0.0		0.0	10.8		
Approach LOS				B		
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			51.2%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

28: Aberdeen St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↔			↔			↔	
Traffic Volume (veh/h)	0	508	0	43	440	0	0	0	0	165	3	61
Future Volume (Veh/h)	0	508	0	43	440	0	0	0	0	165	3	61
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	577	0	49	500	0	0	0	0	188	3	69
Pedestrians					63			64				
Lane Width (ft)					12.0			12.0				
Walking Speed (ft/s)					3.5			3.5				
Percent Blockage					6			6				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		244			245							
pX, platoon unblocked	0.74			0.93			0.78	0.78	0.93	0.78	0.78	0.74
vC, conflicting volume	500			641			1310	1239	416	950	1239	500
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	155			465			921	830	223	458	830	155
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			100	100	100	42	99	89
cM capacity (veh/h)	1058			955			133	211	641	326	211	642
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1							
Volume Total	385	192	549	0	260							
Volume Left	0	0	49	0	188							
Volume Right	0	0	0	0	69							
cSH	1700	1700	955	1700	372							
Volume to Capacity	0.23	0.11	0.05	0.00	0.70							
Queue Length 95th (ft)	0	0	4	0	128							
Control Delay (s)	0.0	0.0	1.4	0.0	34.3							
Lane LOS			A	A	D							
Approach Delay (s)	0.0		1.4	0.0	34.3							
Approach LOS			A	A	D							
Intersection Summary												
Average Delay			7.0									
Intersection Capacity Utilization			68.7%		ICU Level of Service				C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

52: 10th St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Volume (veh/h)	3	443	3	14	761	12	21	0	47	15	0	15
Future Volume (Veh/h)	3	443	3	14	761	12	21	0	47	15	0	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	3	487	3	15	836	13	23	0	52	16	0	16
Pedestrians												2
Lane Width (ft)												12.0
Walking Speed (ft/s)												3.5
Percent Blockage												0
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		906			385							
pX, platoon unblocked												
vC, conflicting volume	851			490			958	1376	245	1176	1370	426
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	851			490			958	1376	245	1176	1370	426
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			89	100	93	88	100	97
cM capacity (veh/h)	782			1070			203	141	755	134	142	575
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	246	246	433	431	75	32						
Volume Left	3	0	15	0	23	16						
Volume Right	0	3	0	13	52	16						
cSH	782	1700	1070	1700	411	218						
Volume to Capacity	0.00	0.14	0.01	0.25	0.18	0.15						
Queue Length 95th (ft)	0	0	1	0	16	13						
Control Delay (s)	0.2	0.0	0.4	0.0	15.7	24.4						
Lane LOS	A		A		C	C						
Approach Delay (s)	0.1		0.2		15.7	24.4						
Approach LOS					C	C						
Intersection Summary												
Average Delay			1.5									
Intersection Capacity Utilization			42.5%		ICU Level of Service				A			
Analysis Period (min)			15									



Appendix J
Travel Time Analysis –
Alternative 2

Arterial Level of Service: EB Market St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
S. Front St	1	3.6	21.1	0.1	21
City Island Ramp	5	2.8	34.8	0.3	35
City Island Ramp	7	0.2	1.9	0.0	35
N.Front St	4	19.9	54.5	0.4	26
2nd St	16	11.6	24.6	0.1	13
	12	0.7	4.5	0.0	22
3rd St	21	15.0	25.6	0.1	11
4th St	26	21.3	34.2	0.1	10
Aberdeen St	28	4.0	10.4	0.0	16
Greyhound Driveway	9	4.5	10.6	0.0	16
10th St	52	1.1	25.0	0.2	25
Cameron St	42	20.8	30.6	0.1	9
Total		105.4	278.1	1.5	19

Arterial Level of Service: WB Market St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Cameron St	42	40.1	59.3	0.1	9
10th St	52	1.7	12.6	0.1	21
5th St	9	10.4	32.9	0.2	19
Aberdeen St	28	5.6	12.4	0.0	13
4th St	26	22.5	28.8	0.0	6
3rd St	21	9.9	22.4	0.1	15
	12	5.8	16.6	0.1	17
2nd St	16	18.8	22.4	0.0	5
N.Front St	4	16.9	31.2	0.1	10
City Island Ramp	7	4.1	40.4	0.4	35
City Island Ramp	5	0.4	2.1	0.0	31
S. Front St	1	25.9	55.8	0.3	22
Total		162.0	337.0	1.5	16

Arterial Level of Service: EB Market St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
S. Front St	1	5.3	22.5	0.1	19
City Island Ramp	5	2.5	33.7	0.3	37
City Island Ramp	7	0.3	2.0	0.0	33
N.Front St	4	19.1	53.7	0.4	27
2nd St	16	32.1	45.4	0.1	7
	12	1.2	5.1	0.0	20
3rd St	21	4.0	15.0	0.1	18
4th St	26	24.1	34.2	0.1	10
Aberdeen St	28	2.2	8.9	0.0	19
Greyhound Driveway	9	5.2	11.7	0.0	14
10th St	52	1.4	25.4	0.2	24
Cameron St	42	17.3	26.9	0.1	10
Total		114.8	284.3	1.5	19

Arterial Level of Service: WB Market St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Cameron St	42	46.7	66.1	0.1	8
10th St	52	1.4	12.1	0.1	22
5th St	9	11.9	35.8	0.2	17
Aberdeen St	28	6.3	13.4	0.0	13
4th St	26	14.0	19.1	0.0	9
3rd St	21	3.8	17.0	0.1	20
	12	3.3	14.1	0.1	20
2nd St	16	9.8	17.6	0.0	8
N.Front St	4	21.7	35.3	0.1	9
City Island Ramp	7	6.5	43.2	0.4	33
City Island Ramp	5	1.0	2.7	0.0	24
S. Front St	1	34.1	64.0	0.3	19
Total		160.6	340.4	1.5	16

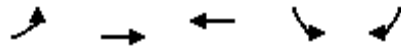


Appendix K
Capacity and Queue
Analysis – Alternative 3

Queues

1: Market St & S. Front St

07/16/2023



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	730	388	313	64	393
v/c Ratio	0.73	0.25	0.53	0.26	0.35
Control Delay	18.9	4.1	19.7	28.0	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.9	4.1	19.7	28.0	3.9
Queue Length 50th (ft)	223	49	37	24	34
Queue Length 95th (ft)	#384	93	75	55	61
Internal Link Dist (ft)		522	1732	480	
Turn Bay Length (ft)	400			340	
Base Capacity (vph)	1156	1542	590	571	1235
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.63	0.25	0.53	0.11	0.32

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

1: Market St & S. Front St

07/16/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑	↑↑		↙	↗
Traffic Volume (vph)	650	345	168	110	57	350
Future Volume (vph)	650	345	168	110	57	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	16	13	11	12	11	14
Grade (%)		-2%	-4%		-1%	
Total Lost time (s)	5.5	6.4	6.4		6.2	5.5
Lane Util. Factor	1.00	1.00	0.95		1.00	1.00
Frt	1.00	1.00	0.94		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	2026	1944	3282		1719	1697
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	2026	1944	3282		1719	1697
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	730	388	189	124	64	393
RTOR Reduction (vph)	0	0	106	0	0	46
Lane Group Flow (vph)	730	388	207	0	64	347
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	2	1 2	1		4	2
Permitted Phases						4
Actuated Green, G (s)	28.0	41.9	8.4		4.8	32.8
Effective Green, g (s)	28.0	36.4	8.4		4.8	32.8
Actuated g/C Ratio	0.47	0.61	0.14		0.08	0.55
Clearance Time (s)	5.5		6.4		6.2	5.5
Vehicle Extension (s)	4.0		4.0		3.0	4.0
Lane Grp Cap (vph)	956	1193	464		139	938
v/s Ratio Prot	c0.36	0.20	c0.06		c0.04	0.17
v/s Ratio Perm						0.03
v/c Ratio	0.76	0.33	0.45		0.46	0.37
Uniform Delay, d1	12.9	5.5	23.3		26.0	7.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.9	0.2	0.9		2.4	0.3
Delay (s)	16.8	5.7	24.2		28.4	7.8
Level of Service	B	A	C		C	A
Approach Delay (s)		13.0	24.2		10.7	
Approach LOS		B	C		B	

Intersection Summary

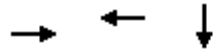
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	59.3	Sum of lost time (s)	18.1
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

4: N.Front St & Market St

07/16/2023















Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	736	307	1540
v/c Ratio	0.60	0.44	0.63
Control Delay	25.5	23.7	11.8
Queue Delay	0.0	0.0	0.0
Total Delay	25.5	23.7	11.9
Queue Length 50th (ft)	186	114	262
Queue Length 95th (ft)	248	166	314
Internal Link Dist (ft)	2011	397	440
Turn Bay Length (ft)			
Base Capacity (vph)	1221	699	2428
Starvation Cap Reductn	0	0	42
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.60	0.44	0.65
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

4: N.Front St & Market St

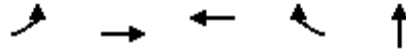
07/16/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑						↑↑↑	
Traffic Volume (vph)	0	252	410	0	276	0	0	0	0	79	1277	30
Future Volume (vph)	0	252	410	0	276	0	0	0	0	79	1277	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	12	10	12	12	12	12	13	12	13
Grade (%)		-1%			0%			0%			0%	
Total Lost time (s)		5.8			5.8						6.0	
Lane Util. Factor		0.95			1.00						0.91	
Frt		0.91			1.00						1.00	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		3011			1739						5055	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		3011			1739						5055	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	280	456	0	307	0	0	0	0	88	1419	33
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	725	0	0	307	0	0	0	0	0	1538	0
Turn Type		NA			NA					Perm	NA	
Protected Phases		2			2						1	
Permitted Phases										1		
Actuated Green, G (s)		40.2			40.2						48.0	
Effective Green, g (s)		40.2			40.2						48.0	
Actuated g/C Ratio		0.40			0.40						0.48	
Clearance Time (s)		5.8			5.8						6.0	
Lane Grp Cap (vph)		1210			699						2426	
v/s Ratio Prot		0.24			0.18							
v/s Ratio Perm											0.30	
v/c Ratio		0.60			0.44						0.63	
Uniform Delay, d1		23.5			21.7						19.4	
Progression Factor		1.00			0.98						0.55	
Incremental Delay, d2		2.2			2.0						1.2	
Delay (s)		25.7			23.2						11.8	
Level of Service		C			C						B	
Approach Delay (s)		25.7			23.2			0.0			11.8	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			17.1									B
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			100.0							11.8		
Intersection Capacity Utilization			68.2%									C
Analysis Period (min)			15									
c Critical Lane Group												

Queues

9: Greyhound Driveway/5th St & Market St

07/16/2023



Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	282	212	397	345	4
v/c Ratio	0.91	0.18	0.61	0.45	0.04
Control Delay	62.9	3.3	30.6	4.9	46.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	62.9	3.3	30.6	4.9	46.2
Queue Length 50th (ft)	187	9	196	0	2
Queue Length 95th (ft)	m#327	m60	#408	69	14
Internal Link Dist (ft)		165	826		109
Turn Bay Length (ft)	100				
Base Capacity (vph)	309	1199	652	773	94
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.91	0.18	0.61	0.45	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

9: Greyhound Driveway/5th St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	195	0	0	317	365	0	3	1	0	0	0
Future Volume (vph)	259	195	0	0	317	365	0	3	1	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	12	12	12	12	12	12	12	12	12
Grade (%)		-6%			6%			-10%				0%
Total Lost time (s)	7.0	7.0			7.0	7.0		7.5				
Lane Util. Factor	1.00	1.00			0.95	0.95		1.00				
Frt	1.00	1.00			0.98	0.85		0.97				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1823	1919			1683	1459		1890				
Flt Permitted	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (perm)	1823	1919			1683	1459		1890				
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)	282	212	0	0	345	397	0	3	1	0	0	0
RTOR Reduction (vph)	0	0	0	0	5	233	0	0	0	0	0	0
Lane Group Flow (vph)	282	212	0	0	392	112	0	4	0	0	0	0
Turn Type	Prot	NA			NA	Prot		NA				
Protected Phases	1	6			2	2	3	3				
Permitted Phases												
Actuated Green, G (s)	17.0	56.5			32.5	32.5		1.0				
Effective Green, g (s)	17.0	56.5			32.5	32.5		1.0				
Actuated g/C Ratio	0.17	0.56			0.32	0.32		0.01				
Clearance Time (s)	7.0	7.0			7.0	7.0		7.5				
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)	309	1084			546	474		18				
v/s Ratio Prot	c0.15	0.11			c0.23	0.08		c0.00				
v/s Ratio Perm												
v/c Ratio	0.91	0.20			0.72	0.24		0.22				
Uniform Delay, d1	40.8	10.6			29.7	24.7		49.1				
Progression Factor	0.74	0.34			1.00	1.00		1.00				
Incremental Delay, d2	30.0	0.4			7.9	1.2		6.2				
Delay (s)	60.4	3.9			37.6	25.9		55.3				
Level of Service	E	A			D	C		E				
Approach Delay (s)		36.2			32.1			55.3			0.0	
Approach LOS		D			C			E			A	

Intersection Summary

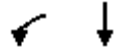
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

10: N.Front St & Walnut St

07/16/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	82	1490
v/c Ratio	0.09	0.47
Control Delay	4.0	10.6
Queue Delay	0.0	0.0
Total Delay	4.0	10.6
Queue Length 50th (ft)	5	169
Queue Length 95th (ft)	m10	195
Internal Link Dist (ft)	439	727
Turn Bay Length (ft)		
Base Capacity (vph)	873	3189
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.09	0.47

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

10: N.Front St & Walnut St

07/16/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶↶					↷↷↷
Traffic Volume (vph)	72	0	0	0	0	1311
Future Volume (vph)	72	0	0	0	0	1311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	12	12
Grade (%)	-1%		0%			-1%
Total Lost time (s)	5.4					5.6
Lane Util. Factor	0.97					0.91
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	3051					5111
Flt Permitted	0.95					1.00
Satd. Flow (perm)	3051					5111
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	82	0	0	0	0	1490
RTOR Reduction (vph)	60	0	0	0	0	0
Lane Group Flow (vph)	22	0	0	0	0	1490
Parking (#/hr)	1					
Turn Type	Prot					NA
Protected Phases	3					2
Permitted Phases						
Actuated Green, G (s)	26.6					62.4
Effective Green, g (s)	26.6					62.4
Actuated g/C Ratio	0.27					0.62
Clearance Time (s)	5.4					5.6
Lane Grp Cap (vph)	811					3189
v/s Ratio Prot	c0.01					c0.29
v/s Ratio Perm						
v/c Ratio	0.03					0.47
Uniform Delay, d1	27.1					10.0
Progression Factor	0.61					1.00
Incremental Delay, d2	0.1					0.5
Delay (s)	16.6					10.5
Level of Service	B					B
Approach Delay (s)	16.6		0.0			10.5
Approach LOS	B		A			B

Intersection Summary

HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues

15: 2nd St & Walnut St

07/16/2023















Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	72	42	1556
v/c Ratio	0.08	0.09	0.64
Control Delay	25.1	8.2	9.8
Queue Delay	0.0	0.0	0.0
Total Delay	25.1	8.2	9.8
Queue Length 50th (ft)	18	0	92
Queue Length 95th (ft)	35	22	104
Internal Link Dist (ft)	194		432
Turn Bay Length (ft)			
Base Capacity (vph)	929	455	2419
Starvation Cap Reductn	0	0	39
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.08	0.09	0.65
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

15: 2nd St & Walnut St

07/16/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑↑↑				
Traffic Volume (vph)	0	0	0	0	66	39	93	1339	0	0	0	0
Future Volume (vph)	0	0	0	0	66	39	93	1339	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	11	11	10	12	12	12
Grade (%)		0%			-1%			1%			0%	
Total Lost time (s)					5.4	5.4		5.0				
Lane Util. Factor					0.95	1.00		0.91				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		1.00				
Satd. Flow (prot)					3320	1485		4875				
Flt Permitted					1.00	1.00		1.00				
Satd. Flow (perm)					3320	1485		4875				
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	72	42	101	1455	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	30	0	31	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	72	12	0	1525	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					28.0	28.0		47.8				
Effective Green, g (s)					28.0	28.0		47.8				
Actuated g/C Ratio					0.28	0.28		0.48				
Clearance Time (s)					5.4	5.4		5.0				
Vehicle Extension (s)					3.0	3.0		3.0				
Lane Grp Cap (vph)					929	415		2330				
v/s Ratio Prot					c0.02							
v/s Ratio Perm						0.01		0.31				
v/c Ratio					0.08	0.03		0.65				
Uniform Delay, d1					26.5	26.1		19.8				
Progression Factor					0.93	1.46		0.42				
Incremental Delay, d2					0.2	0.1		1.3				
Delay (s)					24.9	38.3		9.7				
Level of Service					C	D		A				
Approach Delay (s)		0.0			29.8			9.7			0.0	
Approach LOS		A			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			11.0		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)					13.4		
Intersection Capacity Utilization			69.9%		ICU Level of Service					C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

16: 2nd St & Market St

07/16/2023



Lane Group	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	391	133	140	151	1416
v/c Ratio	0.91dl	0.50	0.62	0.13	0.44
Control Delay	40.7	45.4	51.9	2.2	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.7	45.4	51.9	2.2	2.6
Queue Length 50th (ft)	91	80	85	7	24
Queue Length 95th (ft)	113	130	139	m13	m91
Internal Link Dist (ft)	397	69			443
Turn Bay Length (ft)					
Base Capacity (vph)	838	545	463	1152	3247
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.47	0.24	0.30	0.13	0.44

Intersection Summary

- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.

HCM Signalized Intersection Capacity Analysis

16: 2nd St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↑	↗	↘	↑↑↑				
Traffic Volume (vph)	201	163	0	0	124	130	140	1146	171	0	0	0
Future Volume (vph)	201	163	0	0	124	130	140	1146	171	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			1%			0%	
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0				
Lane Util. Factor		0.95			1.00	1.00	1.00	0.91				
Frt		1.00			1.00	0.85	1.00	0.98				
Flt Protected		0.97			1.00	1.00	0.95	1.00				
Satd. Flow (prot)		3444			1881	1599	1761	4961				
Flt Permitted		0.68			1.00	1.00	0.95	1.00				
Satd. Flow (perm)		2389			1881	1599	1761	4961				
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)	216	175	0	0	133	140	151	1232	184	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	391	0	0	133	140	151	1416	0	0	0	0
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)		22.6			14.1	14.1	65.4	65.4				
Effective Green, g (s)		22.6			14.1	14.1	65.4	65.4				
Actuated g/C Ratio		0.23			0.14	0.14	0.65	0.65				
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0				
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)		597			265	225	1151	3244				
v/s Ratio Prot		c0.04			0.07			c0.29				
v/s Ratio Perm		c0.11				0.09	0.09					
v/c Ratio		0.91dl			0.50	0.62	0.13	0.44				
Uniform Delay, d1		35.2			39.7	40.4	6.5	8.4				
Progression Factor		1.02			1.00	1.00	0.28	0.27				
Incremental Delay, d2		2.1			1.5	5.3	0.1	0.2				
Delay (s)		37.8			41.2	45.7	2.0	2.5				
Level of Service		D			D	D	A	A				
Approach Delay (s)		37.8			43.5			2.4			0.0	
Approach LOS		D			D			A			A	

Intersection Summary

HCM 2000 Control Delay	13.7	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)	21.0
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Queues

21: 3rd St & Market St

07/16/2023



Lane Group	EBT	SBT
Lane Group Flow (vph)	317	260
v/c Ratio	0.36	0.36
Control Delay	12.7	13.8
Queue Delay	0.0	0.0
Total Delay	12.7	13.8
Queue Length 50th (ft)	58	123
Queue Length 95th (ft)	94	183
Internal Link Dist (ft)	324	433
Turn Bay Length (ft)		
Base Capacity (vph)	869	732
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.36	0.36
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

21: 3rd St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗		↖	↖						↗	
Traffic Volume (vph)	0	223	50	0	0	0	0	0	0	65	158	0
Future Volume (vph)	0	223	50	0	0	0	0	0	0	65	158	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	12	12	12	16	12
Grade (%)		-1%			0%			0%				0%
Total Lost time (s)		5.7									5.7	
Lane Util. Factor		1.00									1.00	
Frt		0.98									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		1765									1862	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		1765									1862	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	259	58	0	0	0	0	0	0	76	184	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	317	0	0	0	0	0	0	0	0	260	0
Parking (#/hr)												1
Turn Type		NA		Perm						Split		NA
Protected Phases		2			6					4		4
Permitted Phases				6								
Actuated Green, G (s)		49.3									39.3	
Effective Green, g (s)		49.3									39.3	
Actuated g/C Ratio		0.49									0.39	
Clearance Time (s)		5.7									5.7	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		870									731	
v/s Ratio Prot		c0.18									c0.14	
v/s Ratio Perm												
v/c Ratio		0.36									0.36	
Uniform Delay, d1		15.7									21.4	
Progression Factor		0.72									0.57	
Incremental Delay, d2		1.1									1.3	
Delay (s)		12.4									13.5	
Level of Service		B									B	
Approach Delay (s)		12.4			0.0			0.0			13.5	
Approach LOS		B			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			12.9		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)				17.4			
Intersection Capacity Utilization			36.2%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

22: 3rd St & Walnut St

07/16/2023



Lane Group	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	178	304	215	131
v/c Ratio	0.12	0.40	0.25	0.17
Control Delay	7.0	5.9	16.1	15.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	7.0	5.9	16.1	15.3
Queue Length 50th (ft)	2	0	77	45
Queue Length 95th (ft)	26	60	106	69
Internal Link Dist (ft)	408		564	
Turn Bay Length (ft)				
Base Capacity (vph)	1468	755	874	768
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.12	0.40	0.25	0.17

Intersection Summary

HCM Signalized Intersection Capacity Analysis

22: 3rd St & Walnut St

07/16/2023

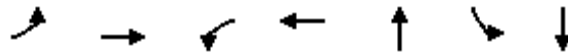


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↕↕	↗					↕	↗	
Traffic Volume (vph)	0	0	0	42	97	237	0	0	0	0	168	102	
Future Volume (vph)	0	0	0	42	97	237	0	0	0	0	168	102	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	12	12	12	12	11	12	
Grade (%)		0%			-1%			0%			-1%		
Total Lost time (s)					5.7	5.7					5.7	5.7	
Lane Util. Factor					0.95	1.00					1.00	1.00	
Frt					1.00	0.85					1.00	0.85	
Flt Protected					0.99	1.00					1.00	1.00	
Satd. Flow (prot)					3504	1424					1810	1591	
Flt Permitted					0.99	1.00					1.00	1.00	
Satd. Flow (perm)					3504	1424					1810	1591	
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	
Adj. Flow (vph)	0	0	0	54	124	304	0	0	0	0	215	131	
RTOR Reduction (vph)	0	0	0	0	57	181	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	121	123	0	0	0	0	215	131	
Parking (#/hr)				1		1							
Turn Type				Perm	NA	Perm					NA	Perm	
Protected Phases					4						2		
Permitted Phases				4		4						2	
Actuated Green, G (s)					40.3	40.3					48.3	48.3	
Effective Green, g (s)					40.3	40.3					48.3	48.3	
Actuated g/C Ratio					0.40	0.40					0.48	0.48	
Clearance Time (s)					5.7	5.7					5.7	5.7	
Vehicle Extension (s)					3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)					1412	573					874	768	
v/s Ratio Prot											c0.12		
v/s Ratio Perm					0.03	c0.09						0.08	
v/c Ratio					0.09	0.21					0.25	0.17	
Uniform Delay, d1					18.5	19.5					15.2	14.6	
Progression Factor					0.76	1.75					1.00	1.00	
Incremental Delay, d2					0.1	0.8					0.7	0.5	
Delay (s)					14.1	35.0					15.8	15.0	
Level of Service					B	D					B	B	
Approach Delay (s)		0.0			27.3			0.0			15.5		
Approach LOS		A			C			A			B		
Intersection Summary													
HCM 2000 Control Delay			22.4		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.25										
Actuated Cycle Length (s)			100.0		Sum of lost time (s)					17.4			
Intersection Capacity Utilization			51.2%		ICU Level of Service					A			
Analysis Period (min)			15										
c Critical Lane Group													

Queues

26: 4th St & Market St

07/16/2023



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	53	251	8	252	527	15	69
v/c Ratio	0.21	0.45	0.03	0.43	0.75	0.07	0.10
Control Delay	20.0	21.7	1.7	7.9	27.3	2.9	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.7	0.0	0.0
Total Delay	20.0	21.7	1.7	7.9	28.0	2.9	2.7
Queue Length 50th (ft)	15	71	2	130	256	0	2
Queue Length 95th (ft)	30	95	m0	5	394	1	3
Internal Link Dist (ft)		407		164	432		435
Turn Bay Length (ft)	100		100				
Base Capacity (vph)	251	564	291	583	707	228	683
Starvation Cap Reductn	0	0	0	0	37	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.45	0.03	0.43	0.79	0.07	0.10




















Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

26: 4th St & Market St

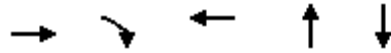
07/16/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	207	14	7	215	7	33	213	217	13	61	0
Future Volume (vph)	47	207	14	7	215	7	33	213	217	13	61	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	12	12	10	10	12
Grade (%)		0%			0%			-1%			1%	
Total Lost time (s)	5.5	5.5		5.5	5.5			5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00			0.94		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1531	1783		1770	1854			1747		1643	1730	
Flt Permitted	0.49	1.00		0.50	1.00			0.98		0.33	1.00	
Satd. Flow (perm)	797	1783		924	1854			1711		577	1730	
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)	53	235	16	8	244	8	38	242	247	15	69	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	31	0	0	0	0
Lane Group Flow (vph)	53	248	0	8	252	0	0	496	0	15	69	0
Parking (#/hr)	1											
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	31.5	31.5		31.5	31.5			39.5		39.5	39.5	
Effective Green, g (s)	31.5	31.5		31.5	31.5			39.5		39.5	39.5	
Actuated g/C Ratio	0.32	0.32		0.32	0.32			0.40		0.40	0.40	
Clearance Time (s)	5.5	5.5		5.5	5.5			5.5		5.5	5.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	251	561		291	584			675		227	683	
v/s Ratio Prot		c0.14			0.14						0.04	
v/s Ratio Perm	0.07			0.01				c0.29		0.03		
v/c Ratio	0.21	0.44		0.03	0.43			0.73		0.07	0.10	
Uniform Delay, d1	25.1	27.3		23.7	27.2			25.8		18.8	19.1	
Progression Factor	0.70	0.71		0.07	0.22			0.89		0.12	0.12	
Incremental Delay, d2	1.8	2.4		0.0	0.4			5.8		0.6	0.3	
Delay (s)	19.3	21.6		1.6	6.3			28.8		2.8	2.7	
Level of Service	B	C		A	A			C		A	A	
Approach Delay (s)		21.2			6.1			28.8			2.7	
Approach LOS		C			A			C			A	
Intersection Summary												
HCM 2000 Control Delay			20.0									B
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			100.0							13.0		
Intersection Capacity Utilization			81.2%									D
Analysis Period (min)			15									
c Critical Lane Group												

Queues

27: 4th St & Chestnut St/Amtrak Driveway

07/16/2023



Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	478	248	63	239	76
v/c Ratio	0.80	0.25	0.09	0.34	0.13
Control Delay	25.5	1.8	6.9	26.8	16.8
Queue Delay	0.3	0.0	0.0	0.0	0.0
Total Delay	25.8	1.8	6.9	26.8	16.8
Queue Length 50th (ft)	240	9	20	109	10
Queue Length 95th (ft)	288	28	m26	184	66
Internal Link Dist (ft)	412		305	245	432
Turn Bay Length (ft)					
Base Capacity (vph)	729	1174	851	699	583
Starvation Cap Reductn	39	0	0	0	0
Spillback Cap Reductn	29	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.69	0.21	0.07	0.34	0.13

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

27: 4th St & Chestnut St/Amtrak Driveway

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕	↗		↕			↕			↕		
Traffic Volume (vph)	364	32	206	27	21	4	60	130	8	4	41	18	
Future Volume (vph)	364	32	206	27	21	4	60	130	8	4	41	18	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	10	10	16	12	12	12	14	14	14	11	11	11	
Grade (%)		5%			-3%			-8%			4%		
Total Lost time (s)		5.5	5.5		5.5			5.5			5.5		
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00		
Frt		1.00	0.85		0.99			0.99			0.96		
Flt Protected		0.96	1.00		0.97			0.99			1.00		
Satd. Flow (prot)		1621	1750		1823			2024			1513		
Flt Permitted		0.70	1.00		0.74			0.89			0.98		
Satd. Flow (perm)		1183	1750		1378			1822			1491		
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	
Adj. Flow (vph)	439	39	248	33	25	5	72	157	10	5	49	22	
RTOR Reduction (vph)	0	0	122	0	2	0	0	1	0	0	12	0	
Lane Group Flow (vph)	0	478	126	0	61	0	0	238	0	0	64	0	
Parking (#/hr)										1	1	1	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4		4	8			2			6			
Actuated Green, G (s)		50.9	50.9		50.9			38.1			38.1		
Effective Green, g (s)		50.9	50.9		50.9			38.1			38.1		
Actuated g/C Ratio		0.51	0.51		0.51			0.38			0.38		
Clearance Time (s)		5.5	5.5		5.5			5.5			5.5		
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0		
Lane Grp Cap (vph)		602	890		701			694			568		
v/s Ratio Prot													
v/s Ratio Perm		c0.40	0.07		0.04			c0.13			0.04		
v/c Ratio		0.79	0.14		0.09			0.34			0.11		
Uniform Delay, d1		20.2	13.0		12.6			22.0			20.0		
Progression Factor		0.90	1.20		0.74			1.00			0.84		
Incremental Delay, d2		5.7	0.1		0.0			1.3			0.4		
Delay (s)		23.8	15.7		9.3			23.4			17.1		
Level of Service		C	B		A			C			B		
Approach Delay (s)		21.0			9.3			23.4			17.1		
Approach LOS		C			A			C			B		
Intersection Summary													
HCM 2000 Control Delay			20.6									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)	11.0
Intersection Capacity Utilization			55.0%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

30: 5th St/Forum Driveway & Walnut St

07/16/2023



Lane Group	WBT	NBL	NBR	SBL	SBR
Lane Group Flow (vph)	328	249	251	7	2
v/c Ratio	0.25	0.14	0.35	0.07	0.01
Control Delay	21.1	0.2	5.5	45.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	0.2	5.5	45.4	0.0
Queue Length 50th (ft)	72	0	29	4	0
Queue Length 95th (ft)	107	m0	m81	18	0
Internal Link Dist (ft)	349				
Turn Bay Length (ft)			150		
Base Capacity (vph)	1290	1800	724	134	195
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.14	0.35	0.05	0.01

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 30: 5th St/Forum Driveway & Walnut St

07/16/2023

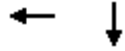


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑		↗↘		↗	↘		↗
Traffic Volume (vph)	0	0	0	0	308	0	234	0	236	7	0	2
Future Volume (vph)	0	0	0	0	308	0	234	0	236	7	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	16	11	12	11	12	12	12
Grade (%)		0%			-1%			7%			0%	
Total Lost time (s)					5.0		5.4		5.4	5.4		5.4
Lane Util. Factor					0.95		0.97		1.00	1.00		1.00
Frt					1.00		1.00		0.85	1.00		0.85
Flt Protected					1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)					3258		3202		1477	1770		1583
Flt Permitted					1.00		0.95		1.00	0.95		1.00
Satd. Flow (perm)					3258		3202		1477	1770		1583
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	0	328	0	249	0	251	7	0	2
RTOR Reduction (vph)	0	0	0	0	0	0	153	0	154	0	0	2
Lane Group Flow (vph)	0	0	0	0	328	0	96	0	97	7	0	0
Parking (#/hr)					1							
Turn Type					NA		Prot		Prot	Prot		Perm
Protected Phases					2		3		3	4		
Permitted Phases												4
Actuated Green, G (s)					39.6		38.6		38.6	6.0		6.0
Effective Green, g (s)					39.6		38.6		38.6	6.0		6.0
Actuated g/C Ratio					0.40		0.39		0.39	0.06		0.06
Clearance Time (s)					5.0		5.4		5.4	5.4		5.4
Vehicle Extension (s)					3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)					1290		1235		570	106		94
v/s Ratio Prot					c0.10		0.03		c0.07	c0.00		
v/s Ratio Perm												0.00
v/c Ratio					0.25		0.08		0.17	0.07		0.00
Uniform Delay, d1					20.3		19.4		20.2	44.4		44.2
Progression Factor					1.00		1.00		1.60	1.00		1.00
Incremental Delay, d2					0.5		0.1		0.5	0.3		0.0
Delay (s)					20.8		19.5		32.7	44.6		44.2
Level of Service					C		B		C	D		D
Approach Delay (s)		0.0			20.8			26.2			44.5	
Approach LOS		A			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			24.2		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.20									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)				15.8			
Intersection Capacity Utilization			42.8%		ICU Level of Service			A				
Analysis Period (min)			15									
c Critical Lane Group												

Queues

31: Aberdeen St & Walnut St

07/16/2023



Lane Group	WBT	SBT
Lane Group Flow (vph)	584	191
v/c Ratio	0.25	0.24
Control Delay	0.6	15.1
Queue Delay	0.2	0.0
Total Delay	0.8	15.1
Queue Length 50th (ft)	0	57
Queue Length 95th (ft)	0	105
Internal Link Dist (ft)	172	900
Turn Bay Length (ft)		
Base Capacity (vph)	2380	782
Starvation Cap Reductn	1031	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.43	0.24
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

31: Aberdeen St & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑						↑	
Traffic Volume (vph)	0	0	0	57	182	287	0	0	0	0	99	73
Future Volume (vph)	0	0	0	57	182	287	0	0	0	0	99	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	16	12
Grade (%)		0%			-1%			0%				-3%
Total Lost time (s)					5.6							5.2
Lane Util. Factor					0.91							1.00
Frt					0.92							0.94
Flt Protected					0.99							1.00
Satd. Flow (prot)					4667							1808
Flt Permitted					0.99							1.00
Satd. Flow (perm)					4667							1808
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	63	202	319	0	0	0	0	110	81
RTOR Reduction (vph)	0	0	0	0	168	0	0	0	0	0	27	0
Lane Group Flow (vph)	0	0	0	0	416	0	0	0	0	0	164	0
Parking (#/hr)				1		1					1	
Turn Type				Split	NA							NA
Protected Phases				2	2							4
Permitted Phases												
Actuated Green, G (s)					47.4							41.8
Effective Green, g (s)					47.4							41.8
Actuated g/C Ratio					0.47							0.42
Clearance Time (s)					5.6							5.2
Vehicle Extension (s)					3.0							3.0
Lane Grp Cap (vph)					2212							755
v/s Ratio Prot					c0.09							c0.09
v/s Ratio Perm												
v/c Ratio					0.19							0.22
Uniform Delay, d1					15.2							18.6
Progression Factor					0.05							1.00
Incremental Delay, d2					0.2							0.7
Delay (s)					1.0							19.3
Level of Service					A							B
Approach Delay (s)		0.0			1.0			0.0				19.3
Approach LOS		A			A			A				B
Intersection Summary												
HCM 2000 Control Delay			5.5		HCM 2000 Level of Service						A	
HCM 2000 Volume to Capacity ratio			0.20									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)						10.8	
Intersection Capacity Utilization			62.3%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

Queues

32: 4th St/Captial Parking Driveway & Walnut St

07/16/2023



Lane Group	WBT	NBL	SBT
Lane Group Flow (vph)	334	247	8
v/c Ratio	0.19	0.39	0.01
Control Delay	17.5	7.4	10.0
Queue Delay	0.7	0.0	0.0
Total Delay	18.2	7.4	10.0
Queue Length 50th (ft)	48	66	2
Queue Length 95th (ft)	68	m77	8
Internal Link Dist (ft)	145		257
Turn Bay Length (ft)			
Base Capacity (vph)	1761	627	950
Starvation Cap Reductn	1077	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.49	0.39	0.01

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 32: 4th St/Captial Parking Driveway & Walnut St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑↑		↑				↑		
Traffic Volume (vph)	0	0	0	109	178	0	212	0	0	0	5	2	
Future Volume (vph)	0	0	0	109	178	0	212	0	0	0	5	2	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	10	10	10	12	12	12	
Grade (%)		0%			-1%			-3%			0%		
Total Lost time (s)					5.6		5.2				5.2		
Lane Util. Factor					0.91		1.00				1.00		
Frt					1.00		1.00				0.97		
Flt Protected					0.98		0.95				1.00		
Satd. Flow (prot)					4840		1500				1800		
Flt Permitted					0.98		0.75				1.00		
Satd. Flow (perm)					4840		1188				1800		
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Adj. Flow (vph)	0	0	0	127	207	0	247	0	0	0	6	2	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	1	0	
Lane Group Flow (vph)	0	0	0	0	334	0	247	0	0	0	7	0	
Parking (#/hr)				1	1		1						
Turn Type				Perm	NA		D.Pm				NA		
Protected Phases					2						3		
Permitted Phases				2			3						
Actuated Green, G (s)					36.4		52.8				52.8		
Effective Green, g (s)					36.4		52.8				52.8		
Actuated g/C Ratio					0.36		0.53				0.53		
Clearance Time (s)					5.6		5.2				5.2		
Lane Grp Cap (vph)					1761		627				950		
v/s Ratio Prot											0.00		
v/s Ratio Perm					0.07		c0.21						
v/c Ratio					0.19		0.39				0.01		
Uniform Delay, d1					21.7		14.1				11.2		
Progression Factor					0.79		0.41				1.00		
Incremental Delay, d2					0.2		1.4				0.0		
Delay (s)					17.4		7.2				11.2		
Level of Service					B		A				B		
Approach Delay (s)		0.0			17.4			7.2			11.2		
Approach LOS		A			B			A			B		
Intersection Summary													
HCM 2000 Control Delay			13.0		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.31										
Actuated Cycle Length (s)			100.0		Sum of lost time (s)						10.8		
Intersection Capacity Utilization			59.0%		ICU Level of Service						B		
Analysis Period (min)			15										

c Critical Lane Group

Queues

42: Cameron St & Market St

07/16/2023



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	77	103	196	110	435	1000	97	812
v/c Ratio	0.32	0.21	0.64	0.23	0.99	0.61	0.38	0.75
Control Delay	25.8	19.9	43.0	1.1	64.5	21.1	16.6	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	19.9	43.0	1.1	64.5	21.1	16.6	28.4
Queue Length 50th (ft)	31	34	101	0	-182	221	22	175
Queue Length 95th (ft)	63	71	168	0	#434	344	54	#292
Internal Link Dist (ft)		305	673			879		803
Turn Bay Length (ft)					250		220	
Base Capacity (vph)	242	720	486	631	438	1627	256	1077
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.14	0.40	0.17	0.99	0.61	0.38	0.75























Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

42: Cameron St & Market St

07/16/2023

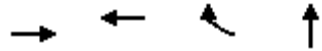
													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	70	71	23	28	150	100	396	887	23	88	453	286	
Future Volume (vph)	70	71	23	28	150	100	396	887	23	88	453	286	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	11	11	12	10	11	12	10	11	12	
Grade (%)		3%			-2%			2%			4%		
Total Lost time (s)	5.6	6.3			6.3	6.3	5.9	6.5		5.9	6.6		
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95		
Frt	1.00	0.96			1.00	0.85	1.00	1.00		1.00	0.94		
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1743	1768			1804	1599	1635	3374		1619	3158		
Flt Permitted	0.39	1.00			0.93	1.00	0.16	1.00		0.29	1.00		
Satd. Flow (perm)	711	1768			1688	1599	279	3374		488	3158		
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)	77	78	25	31	165	110	435	975	25	97	498	314	
RTOR Reduction (vph)	0	14	0	0	0	91	0	2	0	0	98	0	
Lane Group Flow (vph)	77	89	0	0	196	19	435	998	0	97	714	0	
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA		
Protected Phases	3	8			4		1	6		5	2		
Permitted Phases	8			4		4	6			2			
Actuated Green, G (s)	24.0	24.0			15.4	15.4	51.2	41.2		32.0	27.9		
Effective Green, g (s)	24.0	24.0			15.4	15.4	51.2	41.2		32.0	27.9		
Actuated g/C Ratio	0.27	0.27			0.18	0.18	0.58	0.47		0.36	0.32		
Clearance Time (s)	5.6	6.3			6.3	6.3	5.9	6.5		5.9	6.6		
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	229	482			295	279	428	1579		230	1001		
v/s Ratio Prot	c0.01	0.05					c0.20	0.30		0.02	0.23		
v/s Ratio Perm	0.08				c0.12	0.01	c0.39			0.13			
v/c Ratio	0.34	0.19			0.66	0.07	1.02	0.63		0.42	0.71		
Uniform Delay, d1	24.8	24.5			33.9	30.3	22.0	17.7		19.0	26.5		
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.9	0.2			5.5	0.1	47.7	1.9		1.2	4.3		
Delay (s)	25.6	24.7			39.4	30.4	69.6	19.6		20.2	30.9		
Level of Service	C	C			D	C	E	B		C	C		
Approach Delay (s)		25.1			36.2			34.8			29.7		
Approach LOS		C			D			C			C		
Intersection Summary													
HCM 2000 Control Delay			32.7									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.95										
Actuated Cycle Length (s)			88.0									Sum of lost time (s)	24.4
Intersection Capacity Utilization			79.1%									ICU Level of Service	D
Analysis Period (min)			15										

c Critical Lane Group

Queues

44: 2nd St & Chestnut St

07/16/2023



Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	424	45	52	2040
v/c Ratio	0.84	0.11	0.14	0.89
Control Delay	25.6	26.3	26.6	29.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	25.6	26.3	26.6	29.0
Queue Length 50th (ft)	141	15	18	412
Queue Length 95th (ft)	#413	m37	m41	489
Internal Link Dist (ft)	425	433		446
Turn Bay Length (ft)				
Base Capacity (vph)	506	403	372	2299
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.84	0.11	0.14	0.89

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.



















Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

44: 2nd St & Chestnut St

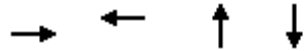
07/16/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	312	0	0	43	50	76	1368	515	0	0	0
Future Volume (vph)	95	312	0	0	43	50	76	1368	515	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	16	12	12	12	12	12	12
Grade (%)		0%			0%			1%			0%	
Total Lost time (s)		6.1			6.1	6.1		5.5				
Lane Util. Factor		1.00			1.00	1.00		0.91				
Frt		1.00			1.00	0.85		0.96				
Flt Protected		0.99			1.00	1.00		1.00				
Satd. Flow (prot)		1538			1739	1606		4681				
Flt Permitted		0.77			1.00	1.00		1.00				
Satd. Flow (perm)		1204			1739	1606		4681				
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)	99	325	0	0	45	52	79	1425	536	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	424	0	0	45	52	0	2040	0	0	0	0
Parking (#/hr)		1				1	1	1	1			
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	7	4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)		39.3			23.2	23.2		49.1				
Effective Green, g (s)		39.3			23.2	23.2		49.1				
Actuated g/C Ratio		0.39			0.23	0.23		0.49				
Clearance Time (s)		6.1			6.1	6.1		5.5				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		506			403	372		2298				
v/s Ratio Prot		c0.08			0.03							
v/s Ratio Perm		c0.25				0.03		0.44				
v/c Ratio		0.84			0.11	0.14		0.89				
Uniform Delay, d1		27.5			30.3	30.5		23.0				
Progression Factor		0.42			0.84	0.83		1.00				
Incremental Delay, d2		12.6			0.5	0.8		5.6				
Delay (s)		24.1			25.9	26.2		28.5				
Level of Service		C			C	C		C				
Approach Delay (s)		24.1			26.1			28.5			0.0	
Approach LOS		C			C			C			A	
Intersection Summary												
HCM 2000 Control Delay			27.7				HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)		21.7			
Intersection Capacity Utilization			79.2%				ICU Level of Service		D			
Analysis Period (min)			15									
c	Critical Lane Group											

Queues

45: 3rd St & Chestnut St

07/16/2023



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	565	69	55	287
v/c Ratio	0.67	0.04	0.10	0.61
Control Delay	15.5	3.0	23.1	22.0
Queue Delay	1.0	0.0	0.0	0.0
Total Delay	16.5	3.0	23.1	22.0
Queue Length 50th (ft)	170	1	24	77
Queue Length 95th (ft)	m227	3	49	106
Internal Link Dist (ft)	433	412	443	437
Turn Bay Length (ft)				
Base Capacity (vph)	842	1685	538	471
Starvation Cap Reductn	104	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.77	0.04	0.10	0.61













Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

45: 3rd St & Chestnut St

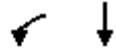
07/16/2023

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑			↑↑			↕			↕		
Traffic Volume (vph)	0	486	0	0	59	0	7	0	40	174	0	73	
Future Volume (vph)	0	486	0	0	59	0	7	0	40	174	0	73	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	10	10	10	10	10	10	16	16	16	16	16	16	
Grade (%)		1%			2%			3%			0%		
Total Lost time (s)		5.6			5.6			5.6			5.6		
Lane Util. Factor		1.00			0.95			1.00			1.00		
Frt		1.00			1.00			0.88			0.96		
Flt Protected		1.00			1.00			0.99			0.97		
Satd. Flow (prot)		1548			3099			1635			1752		
Flt Permitted		1.00			1.00			0.95			0.76		
Satd. Flow (perm)		1548			3099			1565			1371		
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Adj. Flow (vph)	0	565	0	0	69	0	8	0	47	202	0	85	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	565	0	0	69	0	0	55	0	0	287	0	
Parking (#/hr)		1			1		1	1	1	1	1	1	
Turn Type		NA			NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases							2			6			
Actuated Green, G (s)		54.4			54.4			34.4			34.4		
Effective Green, g (s)		54.4			54.4			34.4			34.4		
Actuated g/C Ratio		0.54			0.54			0.34			0.34		
Clearance Time (s)		5.6			5.6			5.6			5.6		
Vehicle Extension (s)		3.0			3.0			3.0			3.0		
Lane Grp Cap (vph)		842			1685			538			471		
v/s Ratio Prot		c0.36			0.02								
v/s Ratio Perm								0.04			c0.21		
v/c Ratio		0.67			0.04			0.10			0.61		
Uniform Delay, d1		16.4			10.6			22.3			27.2		
Progression Factor		0.79			0.28			1.00			0.59		
Incremental Delay, d2		2.0			0.0			0.4			5.6		
Delay (s)		14.9			3.0			22.7			21.5		
Level of Service		B			A			C			C		
Approach Delay (s)		14.9			3.0			22.7			21.5		
Approach LOS		B			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			16.5									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.69										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	17.2
Intersection Capacity Utilization			55.7%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

Queues

46: N.Front St & Chestnut St

07/16/2023



Lane Group	WBL	SBT
Lane Group Flow (vph)	160	1819
v/c Ratio	0.37	0.60
Control Delay	36.4	6.0
Queue Delay	0.0	0.0
Total Delay	36.4	6.0
Queue Length 50th (ft)	86	104
Queue Length 95th (ft)	m127	117
Internal Link Dist (ft)	425	455
Turn Bay Length (ft)		
Base Capacity (vph)	429	3039
Starvation Cap Reductn	0	80
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.37	0.61

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

46: N.Front St & Chestnut St

07/16/2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰					↰↰↰
Traffic Volume (vph)	146	0	0	0	472	1183
Future Volume (vph)	146	0	0	0	472	1183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11
Grade (%)	-1%		0%			-1%
Total Lost time (s)	5.2					5.6
Lane Util. Factor	1.00					0.91
Frt	1.00					1.00
Flt Protected	0.95					0.99
Satd. Flow (prot)	1601					4871
Flt Permitted	0.95					0.99
Satd. Flow (perm)	1601					4871
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	160	0	0	0	519	1300
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	160	0	0	0	0	1819
Parking (#/hr)	0					
Turn Type	Prot				Perm	NA
Protected Phases	8					6
Permitted Phases					6	
Actuated Green, G (s)	26.8					62.4
Effective Green, g (s)	26.8					62.4
Actuated g/C Ratio	0.27					0.62
Clearance Time (s)	5.2					5.6
Lane Grp Cap (vph)	429					3039
v/s Ratio Prot	c0.10					
v/s Ratio Perm						0.37
v/c Ratio	0.37					0.60
Uniform Delay, d1	29.8					11.3
Progression Factor	1.13					0.47
Incremental Delay, d2	2.2					0.7
Delay (s)	35.7					5.9
Level of Service	D					A
Approach Delay (s)	35.7		0.0			5.9
Approach LOS	D		A			A

Intersection Summary

HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

5: Market St & City Island Ramp

07/16/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Volume (veh/h)	0	641	270	36	0	4
Future Volume (Veh/h)	0	641	270	36	0	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	712	300	40	0	4
Pedestrians		6				
Lane Width (ft)		12.0				
Walking Speed (ft/s)		3.5				
Percent Blockage		1				
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	340				1032	326
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	340				1032	326
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1219				258	711
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	712	340	4			
Volume Left	0	0	0			
Volume Right	0	40	4			
cSH	1700	1700	711			
Volume to Capacity	0.42	0.20	0.01			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	10.1			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.1			
Approach LOS			B			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			45.5%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

7: City Island Ramp & Market St

07/16/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑		↗
Traffic Volume (veh/h)	611	30	0	306	0	18
Future Volume (Veh/h)	611	30	0	306	0	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	679	33	0	340	0	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			712	1036	356	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			712	1036	356	
tC, single (s)			4.1	6.8	6.9	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			100	100	97	
cM capacity (veh/h)			884	227	640	
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	453	259	340	20		
Volume Left	0	0	0	0		
Volume Right	0	33	0	20		
cSH	1700	1700	1700	640		
Volume to Capacity	0.27	0.15	0.20	0.03		
Queue Length 95th (ft)	0	0	0	2		
Control Delay (s)	0.0	0.0	0.0	10.8		
Lane LOS				B		
Approach Delay (s)	0.0		0.0	10.8		
Approach LOS				B		
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			27.8%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

28: Aberdeen St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↻			↻			↻			↻	
Traffic Volume (veh/h)	0	470	1	41	239	0	0	0	0	44	1	4
Future Volume (Veh/h)	0	470	1	41	239	0	0	0	0	44	1	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	516	1	45	263	0	0	0	0	48	1	4
Pedestrians					89			37				
Lane Width (ft)					12.0			12.0				
Walking Speed (ft/s)					3.5			3.5				
Percent Blockage					8			4				
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage (veh)		2			2							
Upstream signal (ft)		244			245							
pX, platoon unblocked	0.82			0.89			0.87	0.87	0.89	0.87	0.87	0.82
vC, conflicting volume	263			554			911	906	642	958	907	263
vC1, stage 1 conf vol							554	554		353	353	
vC2, stage 2 conf vol							358	353		606	554	
vCu, unblocked vol	0			443			551	546	542	606	546	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			100	100	100	88	100	100
cM capacity (veh/h)	1327			965			480	466	427	393	434	887

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	517	308	0	53
Volume Left	0	45	0	48
Volume Right	1	0	0	4
cSH	1700	965	1700	411
Volume to Capacity	0.30	0.05	0.00	0.13
Queue Length 95th (ft)	0	4	0	11
Control Delay (s)	0.0	1.7	0.0	15.0
Lane LOS		A	A	C
Approach Delay (s)	0.0	1.7	0.0	15.0
Approach LOS			A	C

Intersection Summary			
Average Delay		1.5	
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

52: 10th St & Market St

07/16/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Volume (veh/h)	9	158	23	59	754	11	2	0	10	4	1	14
Future Volume (Veh/h)	9	158	23	59	754	11	2	0	10	4	1	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	10	182	26	68	867	13	2	0	11	5	1	16
Pedestrians					14						3	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						0	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		906			385							
pX, platoon unblocked												
vC, conflicting volume	883			208			801	1234	118	1148	1240	443
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	883			208			801	1234	118	1148	1240	443
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			99	100	99	96	99	97
cM capacity (veh/h)	760			1360			253	164	899	142	162	561
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	101	117	502	446	13	22						
Volume Left	10	0	68	0	2	5						
Volume Right	0	26	0	13	11	16						
cSH	760	1700	1360	1700	646	315						
Volume to Capacity	0.01	0.07	0.05	0.26	0.02	0.07						
Queue Length 95th (ft)	1	0	4	0	2	6						
Control Delay (s)	1.1	0.0	1.5	0.0	10.7	17.3						
Lane LOS	A		A		B	C						
Approach Delay (s)	0.5		0.8		10.7	17.3						
Approach LOS					B	C						
Intersection Summary												
Average Delay			1.2									
Intersection Capacity Utilization			45.3%		ICU Level of Service				A			
Analysis Period (min)			15									



Appendix L
Travel Time Analysis –
Alternative 3

Arterial Level of Service: EB Market St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
S. Front St	1	2.2	19.9	0.1	23
City Island Ramp	5	1.8	27.9	0.3	45
City Island Ramp	7	0.1	1.8	0.0	36
N. Front St	4	22.2	56.0	0.4	25
2nd St	16	44.1	59.8	0.1	6
	12	1.2	5.0	0.0	20
3rd St	21	11.3	21.4	0.1	13
4th St	26	30.4	43.4	0.1	8
Aberdeen St	28	11.0	17.9	0.0	10
Greyhound Driveway	9	12.8	18.1	0.0	9
10th St	52	1.3	26.1	0.2	24
Cameron St	42	18.6	28.4	0.1	9
Total		156.8	325.8	1.5	17

Arterial Level of Service: WB Market St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Cameron St	42	32.6	52.2	0.1	10
10th St	52	1.7	12.3	0.1	21
5th St	9	19.3	41.5	0.2	15
Aberdeen St	28	6.8	13.4	0.0	12
4th St	26	16.7	22.8	0.0	7
	12	-	-	0.1	-
2nd St	16	34.0	90.9	0.0	3
N. Front St	4	7.3	20.8	0.1	16
City Island Ramp	7	4.1	39.9	0.4	36
City Island Ramp	5	0.5	2.2	0.0	30
S. Front St	1	20.7	51.1	0.3	24
Total		143.6	347.2	1.4	18

Arterial Level of Service: EB Market St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
S. Front St	1	6.0	23.2	0.1	19
City Island Ramp	5	2.8	35.3	0.3	35
City Island Ramp	7	0.2	1.9	0.0	34
N. Front St	4	17.8	50.9	0.4	28
2nd St	16	21.1	33.3	0.1	10
	12	1.6	5.4	0.0	19
3rd St	21	7.7	17.9	0.1	15
4th St	26	6.8	16.4	0.1	20
Aberdeen St	28	1.6	8.1	0.0	21
Greyhound Driveway	9	3.3	8.9	0.0	19
10th St	52	0.8	22.2	0.2	28
Cameron St	42	32.0	41.4	0.1	6
Total		101.5	264.8	1.5	20

Arterial Level of Service: WB Market St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Cameron St	42	58.4	77.5	0.1	7
10th St	52	1.4	12.0	0.1	22
5th St	9	25.4	47.8	0.2	13
Aberdeen St	28	8.7	15.9	0.0	11
4th St	26	12.9	17.7	0.0	9
3rd St	21	5.5	18.1	0.1	19
	12	1.0	11.8	0.1	23
2nd St	16	6.2	9.7	0.0	11
N. Front St	4	25.1	40.1	0.1	8
City Island Ramp	7	6.9	42.9	0.4	33
City Island Ramp	5	0.9	2.6	0.0	26
S. Front St	1	24.9	55.1	0.3	22
Total		177.2	351.1	1.5	16