

**To:** City Council  
Mayor Donald Villere  
Department Heads  
**From:** Louissette L. Scott   
Director, Dept. Planning & Development  
**Subject:** Ord. 15-17, Port Marigny  
Recommendation of the Planning &  
Zoning Commission  
**Date:** May 13, 2016

## MEMORANDUM

City of Mandeville  
Department of Planning

The Planning & Zoning Commissions, at their meeting held on Wednesday, May 4, 2016, adopted Resolution 16-01, which includes their recommendations for approval of Ord. 15-17, with amendments regarding the Port Marigny Development. The attached documents reflect the recommended amendments to the original application.

Please find attached the following:

1. Resolution 16-01 (Planning & Zoning Commission recommendation, w attachments including Traffic Study and Addendum)
2. Memo from David Cressy, Special Counsel, entitled Proposed Amendments, dated May 12, 2016
3. Ord. 15-17- redline showing amendments corresponding to D. Cressy memo.
4. Addendum A: Port Marigny Review Procedure
5. Development Agreement

5.5.2016

**THE FOLLOWING RESOLUTION WAS INTRODUCED BY COMMISSION MEMBER QUILLIN;  
AND SECONDED FOR ADOPTION BY COMMISSION MEMBER BUSH**

**RESOLUTION NO. 16-01**

**A RESOLUTION OF THE PLANNING & ZONING COMMISSIONS OF THE CITY OF MANDEVILLE RECOMMENDING TO THE CITY COUNCIL OF THE CITY OF MANDEVILLE THE FOLLOWING FINDINGS AND RECOMMENDATIONS ON THE DEVELOPMENT KNOWN AS "PORT MARIGNY" INCLUDING REVISIONS AND AMENDMENTS TO ORDINANCE 15-17:**

**WHEREAS**, the City of Mandeville has a Comprehensive Land Use Plan which guides the future growth and development in the community; and

**WHEREAS**, the City of Mandeville has a Comprehensive Land Use Regulations Ordinance (CLURO) which regulates and controls the zoning, subdivision and use of land and buildings in the City to promote the public safety, health, and general welfare of the citizens; and

**WHEREAS**, the owners of Port Marigny submitted an application on July 1, 2015, for approval of a Planned Combined Use District Zoning and Conditional Use Permit Application by the City Council; and

**WHEREAS**, the Planning & Zoning Commissions are tasked with reviewing such applications for compliance and consistency with both the City's Comprehensive Land Use Plan and the CLURO in order to make recommendations to the City Council; and

**WHEREAS**, the Planning and Zoning Commissions have held twelve (12) public hearings, between July 2015 and March 2016, to gain public input from citizens, consultants and experts who specialize in the relevant areas; and

**WHEREAS**, the Comprehensive Land Use Plan adopted by the Planning Commission on January 4, 2007, identifies the Pre-Stressed Concrete Site area and establishes Goal 12 with 9 policies for development of this particular site and; and

**WHEREAS**, the CLURO under Section 8.5 entitled "Traditional Neighborhood Development (TND)", codifies new urbanism design standards as referenced in the policy considerations for achieving Goal 12 mentioned above; and

**WHEREAS**, following this input the Planning and Zoning Commissions make the following findings:

**General:**

1. The former Pre-Stressed concrete site still has remnants of its prior uses in the form of derelict structures and other potentially dangerous conditions that have been a source of concern for the people

and government of the City of Mandeville as a threat to the health, safety and welfare of the public, and the site for the last 30 plus years has been an eyesore in one of the main gateway entrances to Old Mandeville.

2. On July 1, 2015 Pittman Assets, as the owners of the PreStressed site for the last 30 plus years, has for the first time, submitted an application to the City of Mandeville for a comprehensive redevelopment to put this site back into commerce.

3. The application, including the conceptual Master Plan submitted by the Owner, which regulates the development of the PreStressed Concrete Site, includes new urbanism design principles which are in substantial accord with the requirements of the Traditional Neighborhood Development (TND) and the Special Marina Use Criteria of the CLURO.

4. The redevelopment of this former site of a heavy industrial concrete fabrication operation as responsibly and reasonably as possible is in the best interests of the City and its citizens from economic, aesthetic and other health, welfare and safety considerations.

5. Testimony at public hearings by the owner was given that the marketing study prepared in May 2015, accompanying the "Port Marigny" development, showed an unmet current area demand for the numbers and types of proposed residential and commercial units. This was particularly true with respect to a new hotel, where there are none currently below I-12, and for marina slips for larger boats.

6. The residential component of the proposed development is compatible with existing nearby subdivisions and neighborhoods, the closest of which are Mariners Village, New Golden Shores, Hermitage, the Baudot Tract, and the Massena/Hutchinson area. Housing currently available in these areas range from apartments and condos, to affordable/workforce units, to medium to very high priced single family residential dwellings.

7. According to testimony from a city-retained consultant, Mr. David Bailey, the development concept under consideration as Port Marigny is generally consistent with policy consideration set out under Goal 12 of the Comprehensive Land Use Plan, which requires the development of the area to comply with new urbanist design standards and local architectural elements. The Master Plan and Guiding Principles document submitted with the application contains architectural standards that are within the context of the traditional architecture of Mandeville.

#### Master Plan and Guiding Principles:

1. The proposed Master Plan and Guiding Principles document includes the following in the Table of Contents: A. General B. Design Vision C. Urban Regulating Standards D. Thoroughfare Standards. This document sets forth the conceptual plan for the development proposed as "Port Marigny". During the public hearing process, the plans have been modified in response to concerns expressed by the Planning & Zoning Commissions, City planning staff, consultants and the general public.

2. The CLURO, in Section 8.5 includes mandatory design elements for such things as Land Use Diversity, Residential Density, Housing Diversity, Open Space, Common open space, Connectivity, Setbacks, Parking Design and Location, Open Space and Natural Areas, Lot and Block Standards, Circulation, Parking Requirements, and Architectural Elements. The latest modification dated March 9, 2016, conceptually meets or exceeds the site development criteria required by the City's CLURO for TND development.

3. Densities under CLURO Section 8.5 Traditional Neighborhood Development allow the following residential densities:

- a. Detached, single family residential development shall not exceed eight (8) units per acre
  - Propose density of 5.2 units per acre with 162 units
- b. Attached residential development shall not exceed twenty-four (24) dwellings per acre
  - Density proposed is 19 dwelling units per acre with 190 units.
- c. Mixed use buildings shall not exceed sixteen (16) dwellings per acre.
  - 4.4 acres of Mixed Use development indicating 70 units and 15.9 units per acre.

The maximum density proposed for this development site is under by a considerable margin, where 422 residential units proposed are 136 units below the maximum density allowed. However, the Comprehensive Plan requires that the maximum density be mitigated to recognize the lower density of the surrounding neighborhoods.

4. The Master Plan and Guiding Principles document includes a sheet entitled "Density Plan", that proposes upwards of 130 apartments (attached residential) proposed as rental units. Much of the public input received indicated that fee simple attached dwellings, such as condominium, are more desirable. Condominium is a form of ownership, not use; both condos and apartments are classified as attached residential and can be rented to non-owners. However, requiring them to meet the stricter condominium construction requirements should result in higher quality units and encourage individual resident ownership.

5. The Master Plan and Guiding Principles document includes a sheet entitled "On Street Parking" that proposes parking in the Massena Street right-of-way. Additionally, this document contains a sheet entitled "Urban Regulating/Open Space/Green Space" that proposes a substantial greenbelt between Massena St. and properties facing Massena St. Discussion at public hearings questioned whether or not parking should be provided within the Massena St. ROW leaving the greenbelt intact or removing the greenbelt and providing parking on the private property.

6. The Master Plan and Guiding Principles document includes sheets entitled "On Street Parking, Vehicular Network and Street Types" and "Street Sections". Discussion at public hearings questioned whether or not some streets should be increased in width in order to provide for parking on one side of street, outside of travel lanes. As proposed, the on-street parking is designated as "informal" with vehicles allowed to park "informally" on either side of the street. A wider street would provide for designated, clearly defined parking on one side. The wider street with designated parking may help

facilitate ease of access and travel for large and emergency vehicles and provide additional residential visitor parking without compromising the principles of new urbanism and traffic calming.

7. The Master Plan and Guiding Principles document includes sheets entitled "Land Use Diversity" that identifies the area of Civic Uses as 3.3 acres. The primary area proposed for the Civic space is located between the proposed Mixed Use Components of the Master Plan.

8. The Master Plan and Guiding Principles document includes a sheet entitled "Urban Regulating/Open Space/Green Space" that includes the development of the state owned/city lease park space that is proposed to be improved by the Port Marigny Development and that the improvement of this park will provide public open space on Lake Pontchartrain that will be an asset not only to the Port Marigny Development but to all of the residents of the City of Mandeville.

9. The Master Plan and Guiding Principles document includes sheets entitled "Urban Regulating/Open Space/Green Space Required" and "Urban Regulating/Common Open Space Required" and the CLURO under Section 8.5 TND Design Standards requires that at least 20% of the gross area of the TND shall be designated as open space and that at least 75% percent of the open space must be common open space, which may be used for passive or active parks, trails or other purposes. The plans meet the requirements of these standards, but an additional small park near the northern end of the development will provide additional common open space better meeting the intent of the provision.

10. The Master Plan and Guiding Principles document includes sheets entitled "Street Sections" and as proposed, streets and alleys provide adequate access for emergency vehicles as stated by Fire District #4 as per his letter dated March 17, 2016.

#### **Traffic:**

1. In April 2015, the owners held a charrette for the community conducted by Architects Southwest, and comments at this charrette, and at the many public meetings held thereafter, were generally supportive of the New Urbanism/TND nature of the proposal, but indicated great concern for the traffic impact the Port Marigny development might have on Monroe Street and other nearby areas.

2. Port Marigny Development submitted a Traffic Impact Analysis (TIA) prepared by Hall Planning and Engineering, Inc. dated June 16, 2015, revised through October 6, 2015 and also an addendum prepared by Hall Planning and Engineering, Inc. dated November 5, 2015, revised through December 16, 2015.

3. In accordance with the collective findings and conclusions reported in the Traffic Impact Analysis (TIA), including a 0%-5% capture rate in lieu of the 30% capture rate initially proposed, the project is estimated to generate traffic during AM and PM peak traffic times at rates shown in the TIA, based on the *Trip Generation Rates and Equations*. The AM Net New Trips are the trips that will likely cause a decline in the level of service (LOS) at the Monroe Street/East Causeway Approach intersection, thereby necessitating implementation of improvements to the street infrastructure. The TIA indicates the total number of AM Net New Trips generated by all Land Uses permitted by the Ordinance is 407

external vehicle trips, composed of 144 entering trips and 263 exiting trips (“Total AM Net New Trips”). The Development Agreement establishes a formula whereby the Developer may not increase the number of Units within the Port Marigny Development beyond the total number of Units quantified within the formula. Additionally, a milestone limit has been established and the present total AM net new trips shall not exceed the Milestone Limit until agreed upon infrastructure improvements have been completed. The Milestone Limit applicable to the development of the Port Marigny Development is one hundred and two (102) Present Total Net New AM Trips.

4. Developer acknowledges and agrees that it will pay its fair share of the costs, fees and expenses for the described improvements, and said improvements shall be engineered, designed and constructed within two years from the date that the Developer records in the public record a final subdivision plat for the first Phase of the Port Marigny Development.

5. During the public hearing process, concerns were expressed regarding safeguards that should be in place, should the trips generated from the Port Marigny Development be greater than those estimated in the TIA using the industry standard outlined in the *Trip Generation Rates and Equations*. The Development Agreement includes safeguard provisions stating if trips generated exceeds 407, the City may withhold approval of further development until an agreement on a plan to accommodate additional trips generated is reached between the City and the developer.

6. The City’s Consulting Traffic Engineer, Digital Engineering, Inc. reviewed the submitted TIA and Addendum and offered many comments and proposed revisions to the Planning & Zoning Commissions and staff, which were incorporated into final TIA dated December 17, 2015 and the Addendum dated December 16, 2015 and determined that it is in compliance with the CLURO Section 8.4 Traffic Impact Analysis Provisions.

7. The City is also conducting a separate ongoing traffic study of a wider local area that is scheduled to be completed in the next few months and should assure that an optimum long-range solution to the existing and future problems at the Monroe Street/East Causeway intersection is developed in conjunction with improvements made with the Port Marigny development.

8. Actions that would encourage access to the development by north-south streets should not be considered because of concerns about expropriation for right-of-way acquisition in the case of Lambert Street, school traffic in the case of Massena Street, and resident concern and opposition in the case of these and other streets in the area with stable, developed neighborhoods where significantly increased traffic would change their character. The final traffic study report addressed this concern in that the proposed improvements were located at the Monroe and East Causeway Approach intersection.

9. The Mariners Village connection, as stated in the Comprehensive Plan, was considered by the Traffic Engineers, and it was determined that the proposed improvements at the intersection of Monroe and East Causeway were a better option to relieve traffic congestion. However, the connection between Mariners Village and Port Marigny should still be considered for connectivity during the subdivision process for Port Marigny. To facilitate this in the future, Ord. 15-17 contains a provision for a

non-exclusive servitude for passage and for the construction of utilities being granted to Owner over and across the drainage canal for vehicular, bicycle and pedestrian traffic, and utilities.

10. The Public hearing process demonstrated that existing and potential traffic is a concern for everyone. The intersection of East Causeway and Monroe Street is currently a problem. The development may increase traffic, however, through the Development Agreement, the owner or developer will be required to pay for its pro rata share of improvements needed to address additional traffic, as determined by the developers and city's traffic engineers. The specific method of fixing the existing traffic problem has not been fully determined, but generally deals with the intersection of Monroe and East Causeway.

**Grading Plan (cut and fill):**

1. The plan labeled "The Grading Plan (cut and fill)" prepared by Kelly McHugh and Assoc. for Pittman Assets, LLC dated 9/25/15 rev. 02/15/16 is a conceptual cut and fill plan, not a final grading plan.

2. Concerns were expressed about the amount of fill and terrain alteration in this plan, possible biotic and hydrologic effects, runoff filtration impact, and the environmental considerations in light of the site's history of industrial use. Regarding the last, the owners of the site stated that three Environmental Impact Assessments (EIA) have been performed in the past, but those documents and findings have not been presented to the Commission for discussion, information or consideration. Another EIA at a level and area extents to be determined according to best available science at the time will be required prior to any development of the site, and in accordance with CLURO subdivision regulations.

3. The Drainage Impact Analysis prepared by GEC dated September 28, 2015, submitted in conjunction with the Grading Plan (Cut and Fill), which generally demonstrates water flowing southward from Monroe Street and away from existing streets and adjacent developments, seems logical and achievable based on input from the city engineer and public works department. Additionally, the plans in much more detail will be examined again as project phases go through the subdivision process, which will ensure there is no adverse impact on the development or adjacent properties.

**Other:**

1. Port Marigny has proposed a Cooperative Endeavor Agreement to facilitate the construction of a park on a parcel of land identified "Park Area" (State Leased property) consisting of 1.575 acres, in accordance with the Master Plan and Guiding Principles document. Proposed development of this Park Area by Port Marigny and made available to the public is consistent with the City's Comprehensive Plan for the development of the Pre-Stressed Concrete area and consistent with the current State lease with the City that this site should be used as a park and will serve as a public purpose.

2. Mr. Muller, attorney for Port Marigny, stated at the Planning Commission meeting held on April 20, 2016, that financial projections for the Port Marigny Development included an overall estimated assessed value of \$97,264,290. Additionally, the total estimated assessed values for both the residential and commercial is \$10,261,340, with estimated annual revenue to the City of \$113,185 and \$1,457,036 to the Parish for a total revenue of \$1,570,221.

**Development Agreement:**

1. The purpose of the proposed Development Agreement between the City, Pittman Assets and Port Marigny is to assure the orderly development of Port Marigny and to assure that the City's infrastructure is adequate to accommodate the uses in Port Marigny set forth in the approved Master Plans and documents, as such uses are planned in accordance with the City's Special Use Permit and Subdivision procedures and constructed in accordance with the City's permitting process.

**BE IT RESOLVED** that the Planning & Zoning Commissions recommend to the City Council adoption of Ordinance 15-17 based on the above findings and the following recommendations and the attached memo from David Cressy, Special Counsel entitled Proposed Amendments dated 5/4/2016:

1. The Master Plan and Guiding Principles document includes a sheet entitled "On Street Parking" that proposed parking in the Massena Street right-of-way. Additionally, this document contains a sheet entitled "Urban Regulating/Open Space/Green Space" that proposes a substantial greenbelt between Massena St. and properties facing Massena St. An alternate plan discussed at public meetings, as depicted on "Port Marigny / Massena Street Options" dated 3.30.16, proposed removing the greenbelt and providing parking on the private property. The Commission recommends that parking in the Massena Street right-of-way should not be abandoned, as this would lead to property owners creating parking on their own lots and the partial elimination of a large green belt setback in front of private property currently proposed. However, additional paving of Massena Street within the right-of-way, outside of existing travel lanes should be provided wherever possible to accommodate parking.

2. The Commission recommends that the attached residential (apartments) be constructed in accordance with the construction requirements for Condominiums.

3. Regarding the sheets entitled "On Street Parking, Vehicular Network and Street Types" and "Street Sections", the Commission recommends that the alternate plan discussed at public meetings, as depicted on "Port Marigny Parking Plan" dated April 2016, to increase the street widths within Port Marigny to eliminate the "informal parking" which will provide for "clearly defined" on at least one side of the street in order to provide additional residential visitor parking and to ensure passage of emergency vehicles be approved.

4. To help offset density towards the northern end of the project, as per the Comprehensive Plan, and to increase public park space and create a more attractive, useable amenity for both residents and non-residents of Port Marigny, the Commission recommends that the sheets entitled "Urban Regulating/Open Space/Green Space Required" and "Urban Regulating/Common Open Space Required"

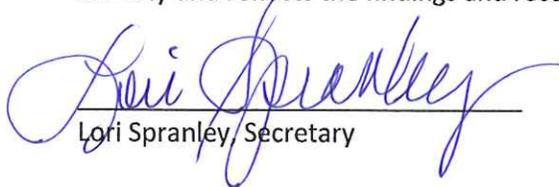
be amended to add an additional small park near the northern end of the development to provide more public space near the town center as per the sheet entitled "Port Marigny- P&Z Alternate 1, site sketch" dated April 2016.

5. In regard to the sheets entitled "Land Use Diversity" and the proposed Civic Space, an expanded Civic Use area would enhance the proposed development and the Commission recommends that the Master Plan be amended to incorporate the plan presented at the public hearing on March 30, 2016, referenced as "Port Marigny- P&Z Alternate 1, site sketch" dated April 2016, to provide an expanded area of Civic Space.

6. The Grading Plan (cut and fill) prepared by Kelly McHugh and Assoc. for Pittman Assets, LLC dated 9/25/15 rev. 02/15/16 proposes the conceptual volumes and general placement of cut and fill as well as the removal of existing water bodies and vegetation proposed for the site. The Commission recommends that prior to any modification of the site an Environment Impact Assessment be prepared and submitted to the City of Mandeville in accordance with the application requirements for subdivision, and that a final grading plan be submitted for approval by the City Engineer prior to any modification of the site.

7. The Commission recommends that the proposed Cooperative Endeavor Agreement for the development of the Park Area by Port Marigny be approved provided that the park be improved and public access provided in conjunction with the first phase of the subdivision of Port Marigny. Should it not be possible to provide access as part of the first phase, other public amenities be provided.

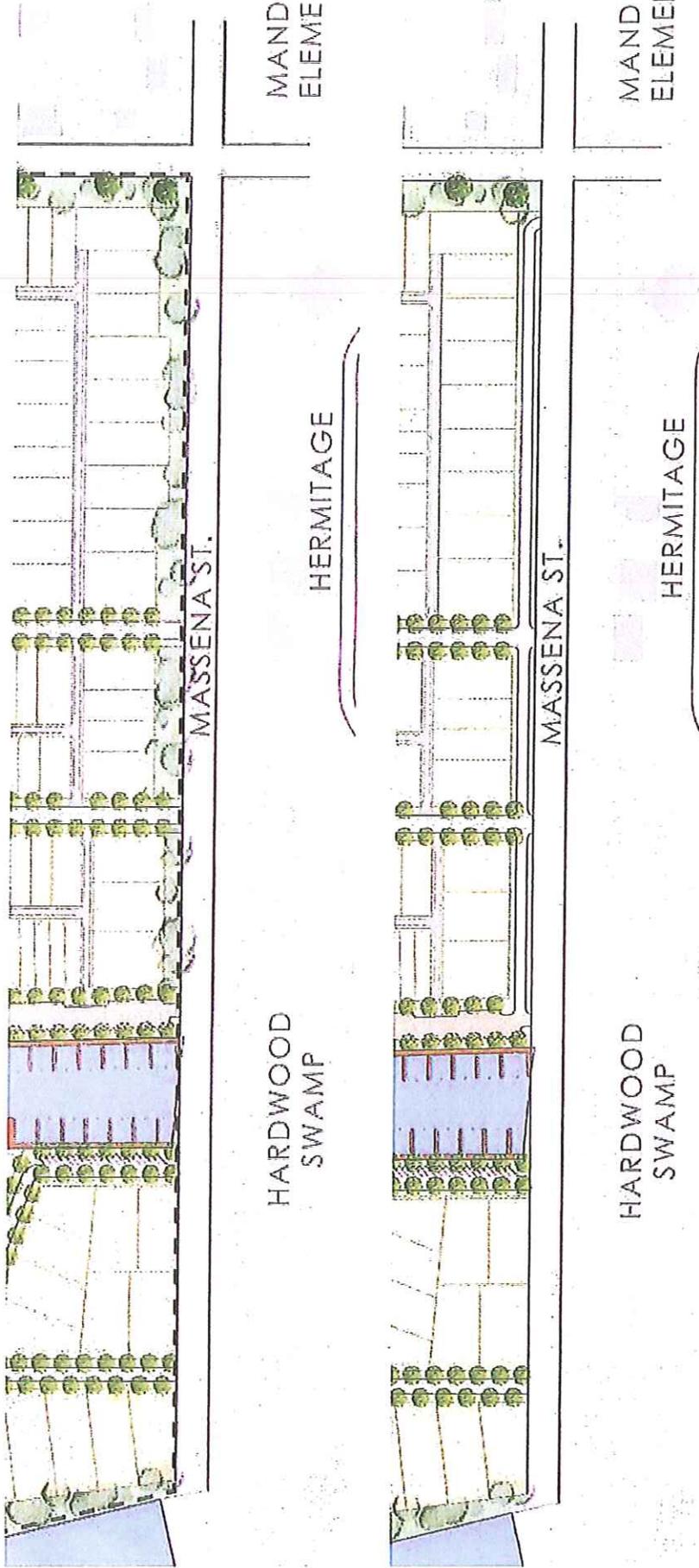
8. The Commission recommends approval of the Development Agreement based on the recommendation of Special Counsel that it adequately addresses obligations between the applicant and the City and reflects the findings and recommendations of the Planning & Zoning Commissions.

  
Lori Spranley, Secretary

  
Dennis Thomas, Chairman, Planning Commission

  
Nixon Adams, Chairman, Zoning Commission

Res 16-01 #1 (REV)



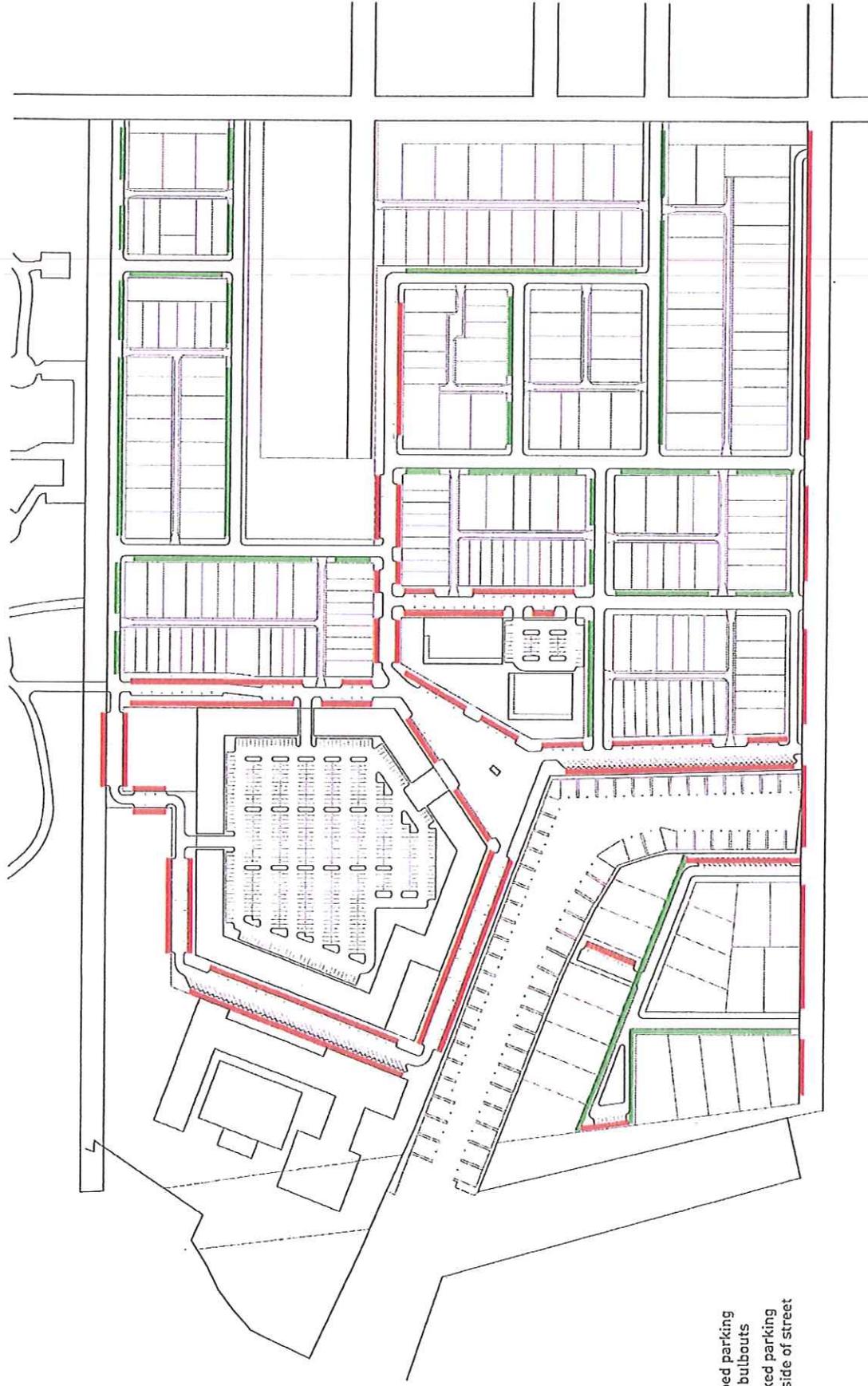
# Port Marigny / Massena Street Options

03.30.16

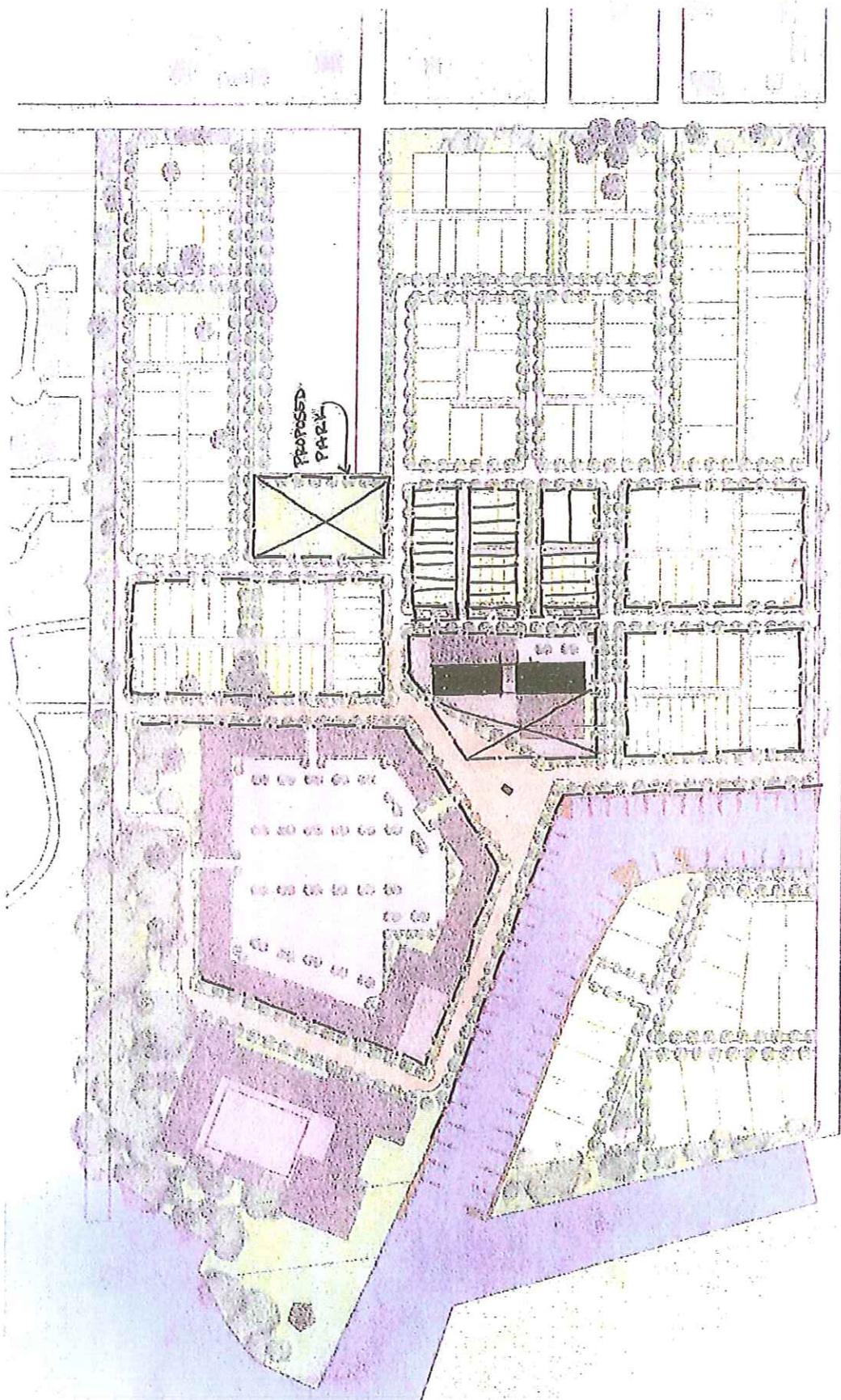


ON STREET PARKINGS  
Alt. #1

Res 16-01 #3 (rec)



- Striped parking with bulbouts
- Marked parking one side of street



PORT MARGINY - P&Z ALTERNATE I  
SITE SKETCH 1"=200'  
APR 11, 2011  
© COPYRIGHT ARCHITECTS SOUTHWEST

(Res. 16-01. Pt2 Rec #'s 4,5)





## **Addendum to Traffic Impact Analysis**

**for**

### **Port Marigny Site Mandeville, LA**

(St. Tammany Parish  
Mandeville, LA)

**Prepared For**

**The Pittman Companies  
Michael N Pittman, MD  
328 East Boston St  
Covington, LA 70433**

**by**

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322 Beard Street  
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(850) 222-2277**

**December 16, 2015**

## PURPOSE

This addendum addresses the viability of staging the development of Port Marigny based on the fraction of generated trips that the existing street system will presently accommodate. Analysis is based on the CLURO requirements applied to the following scenarios:

1. No Monroe/E. Causeway Approach intersection improvements – this scenario identifies the trip generation threshold for no intersection improvements with and without, the Mariners Blvd. connection.
2. With Improvements to the Monroe/E. Causeway Approach intersection - this scenario identifies the trip generation threshold without the Mariners Blvd. connection and with the following recommended improvements:
  - A. The addition of a right and/or left turn lane on the East Causeway southbound approach; or
  - B. The addition of a left turn lane on the Monroe Street westbound approach.

In making this analysis, the trip distribution pattern without the Mariners Blvd. connection necessitates that all the 'West' entering and exiting trips accessing the Port Marigny site do so via Monroe Street. All other trip distributions should remain the same. Under these assumptions, potential impacts to the affected 2-way stop controlled intersections on Monroe Street have been assessed, with particular emphasis on the ICU (Intersection Capacity Utilization) results.

## TRIP DISTRIBUTION

The following maps, **Figures 1A and 1B**, show the entering and exiting trip distribution patterns **with** the Mariners Blvd. connection. These patterns were used for the TIA Report dated 12/9/2015. The maps shown in **Figures 2A and 2B** are the entering and exiting trip distribution patterns **without** the Mariners Blvd. connection.



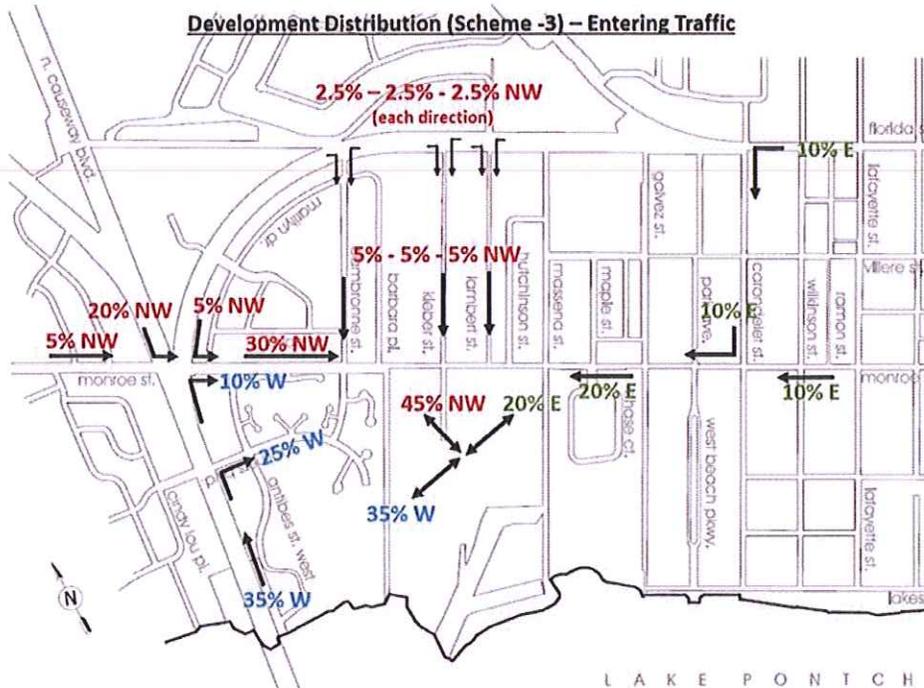


Figure 1A. Trip Distribution Patterns with Mariners Blvd. Connection

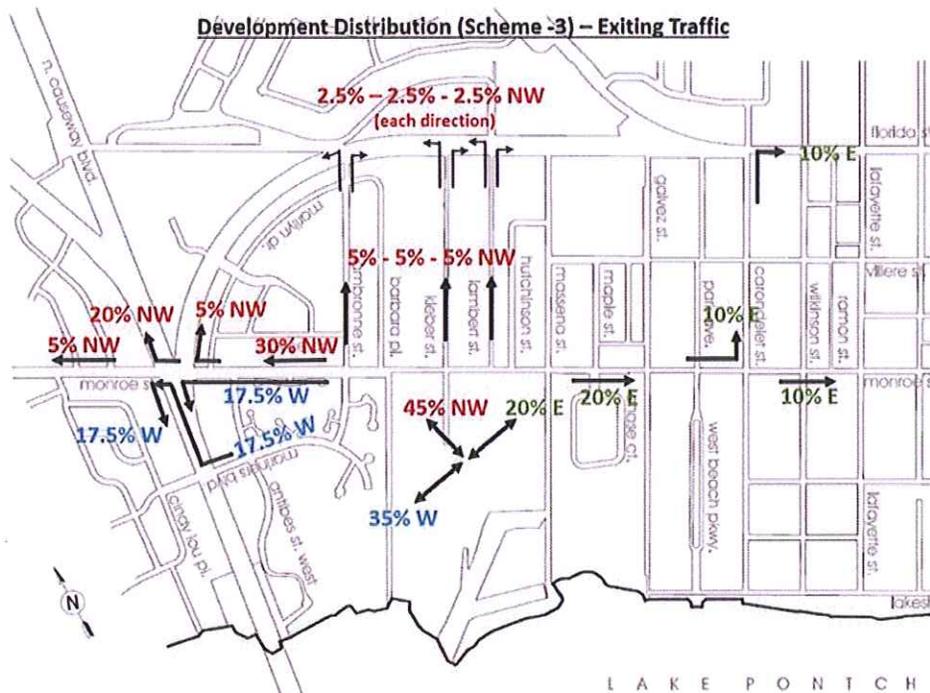
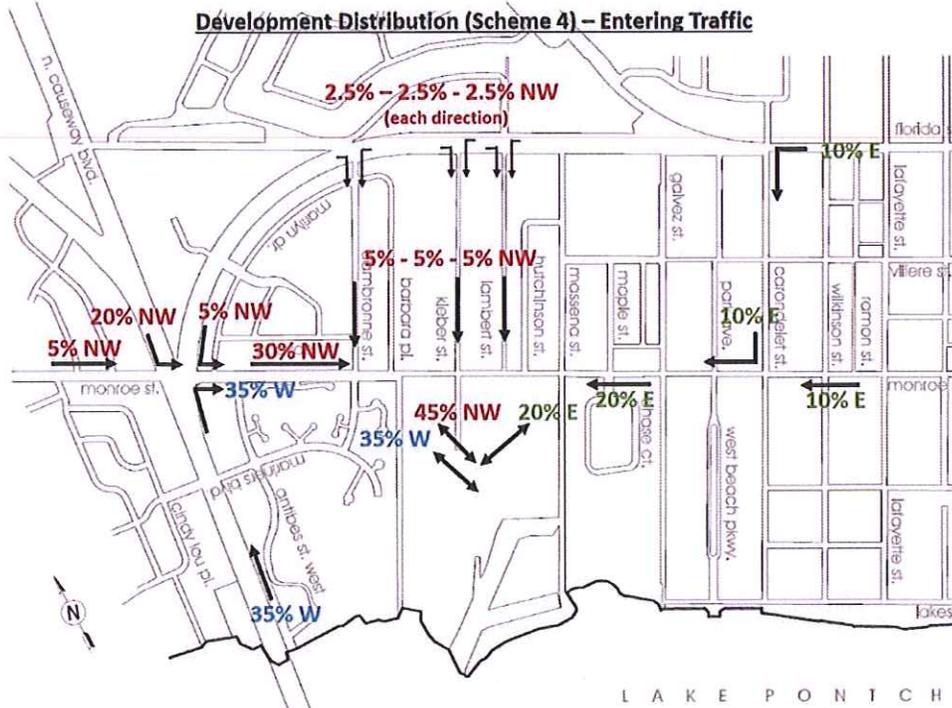
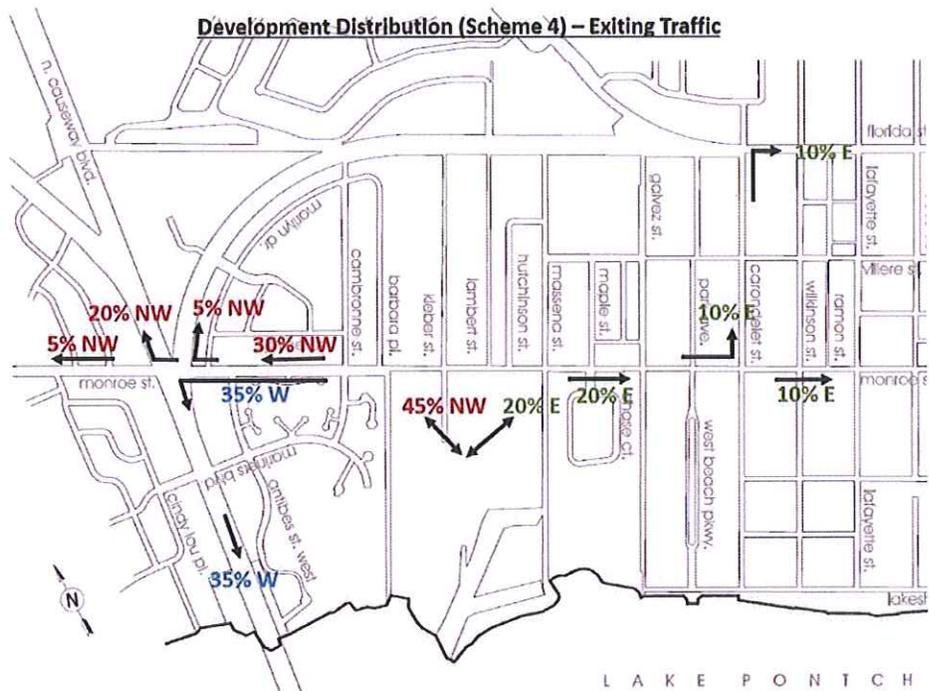


Figure 1B. Trip Distribution Patterns with Mariners Blvd. Connection





**Figure 2A. Trip Distribution Patterns without Mariners Blvd. Connection**



**Figure 2B. Trip Distribution Patterns without Mariners Blvd. Connection**



## Methodology

To test the thresholds, external trips are loaded onto surrounding street networks using a percentage of the entering and exiting trips for the two distribution schemes above. Beginning with the 50% threshold, each scenario was tested and incrementally adjusted, adding 5% increments, until the Monroe Street – East Causeway Approach signalized intersection failed to meet the required Level of Service (LOS) 'D' for any lane group. In addition other study area intersections are evaluated at the 50% and higher levels to assess potential impacts beyond the levels documented in the TIA Report. Emphasis is placed on the resulting ICU values.

## Results

### 1. Assuming No intersection improvements

- A. With the Mariners Blvd. connection and no improvements to the Monroe Street – East Causeway Approach intersection, the intersection performs adequately up to **30%** build out of Port Marigny. Above 30% buildout, the southbound (SB) left turn movement drops to LOS 'E'.
- B. Without the Mariners Blvd. connection and no improvements to the Monroe Street – East Causeway Approach intersection, the intersection performs adequately up to **25%** build out. Above 25% build out, the SB left turn drops to LOS 'E'.

In each of the scenarios above, the LOS drop occurs because SB right and left turns are shared with the through lanes, thereby causing excessive delay for the SB approach and requiring more green time from the signal. The SB right lane group currently operates at LOS 'E' and is an existing condition. That is to say, Port Marigny development does not cause the LOS for the right turn from Southbound East Causeway to slip to "E" – it is already at that LOS.

Unlike the northbound approach that has exclusive left and right turn lanes, the SB approach was not designed to accommodate today's current traffic and patterns. Thus, even though the SB left turn movement is independent of the Mariner Blvd. connection, adding just a few additional vehicles results in LOS 'E' with 35% and 30% build out, respectively.

### 2. Assuming Construction of Recommended Intersection Improvements without the Mariners Blvd. Connection

- A. Assuming the SB right turn lane is added to accommodate East Causeway southbound traffic and there is no Mariner's Boulevard connection, the intersection will perform adequately up to **30%** build out, a 5% additional benefit compared to the 'no-improvement' scenario.



The addition of a SB left turn lane only allows the intersection to perform adequately up to **25% build out**, providing no additional benefit compared to the 'no-improvement' scenario.

The addition of both the SB left turn lane and the SB right turn lane allows the intersection to perform adequately up to **100% build out**. In this case, the green time is lowered because more lanes can carry the same vehicles in less time.

- B. The addition of a WB left turn lane lowers the WB green time needed, thus allowing the intersection to perform adequately up to **100% build out**. Both A & B perform well because the traffic signal green time is reallocated according to the additional intersection lanes constructed.

Figure 3 below depicts the results in chart form:

NO-MARINERS CONNECTION										
Percent Build Out	25%	30%	35%	40%	50%	60%	70%	80%	90%	100%
NO IMPROVEMENTS	OK	NG								
SBRTL	OK	OK	NG							
SBLTL	OK	NG								
SBRTL+SBLTL	OK									
WBLTL	OK									

**Figure 3. Staging Results without Mariners Blvd. Connection**

In summary, the addition of the recommended improvements (see TIA Report dated 12-9-2015) to the signalized intersection will accommodate 100% of the development trips, with or without the Mariners Blvd. connection. Additionally, the intersections with Monroe Street at Cambronne, Kleber, Lambert and Massena were evaluated at the 100% level without the Mariners Blvd. connection to assess potential impacts beyond the levels documented in the TIA Report. In each case, these Monroe Street intersections will operate at about 50% intersection capacity utilization or better, a high quality of service equivalent to a LOS of 'A' for Monroe Street vehicular movement, consistent with the TIA report findings (see Appendix C, TIA Report dated 12/9/2015).



**APPENDIX**

**SUPPORTING OPERATIONAL ANALYSIS REPORTS (SYNCHRO)**

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔			↔		↘	↗	↗		↔		
Traffic Volume (veh/h)	93	260	3	153	366	12	55	83	13	15	717	223	
Future Volume (veh/h)	93	260	3	153	366	12	55	83	13	15	717	223	
Number	7	4	14	3	8	18	5	2	12	1	6	16	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1863	1900	1863	1900	
Adj Flow Rate, veh/h	116	325	4	187	446	15	63	95	15	17	824	256	
Adj No. of Lanes	0	2	0	0	2	0	1	2	1	0	2	0	
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	146	436	6	221	561	19	201	1625	725	42	861	265	
Arrive On Green	0.16	0.16	0.16	0.22	0.22	0.22	0.07	0.46	0.46	0.33	0.33	0.33	
Sat Flow, veh/h	911	2727	35	1007	2563	89	1774	3539	1578	25	2586	795	
Grp Volume(v), veh/h	231	0	214	337	0	311	63	95	15	596	0	501	
Grp Sat Flow(s),veh/h/ln	1817	0	1856	1812	0	1846	1774	1770	1578	1851	0	1555	
Q Serve(g_s), s	13.6	0.0	12.1	19.8	0.0	17.6	2.4	1.7	0.6	16.0	0.0	35.2	
Cycle Q Clear(g_c), s	13.6	0.0	12.1	19.8	0.0	17.6	2.4	1.7	0.6	35.2	0.0	35.2	
Prop In Lane	0.50		0.02	0.56		0.05	1.00		1.00	0.03		0.51	
Lane Grp Cap(c), veh/h	290	0	297	397	0	404	201	1625	725	650	0	518	
V/C Ratio(X)	0.80	0.00	0.72	0.85	0.00	0.77	0.31	0.06	0.02	0.92	0.00	0.97	
Avail Cap(c_a), veh/h	442	0	451	473	0	482	201	1625	725	650	0	518	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	44.9	0.0	44.3	41.6	0.0	40.7	25.9	16.7	16.4	36.4	0.0	36.4	
Incr Delay (d2), s/veh	5.8	0.0	3.3	11.8	0.0	6.3	0.9	0.0	0.0	18.0	0.0	31.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	7.3	0.0	6.5	11.2	0.0	9.7	1.2	0.8	0.3	21.1	0.0	19.5	
LnGrp Delay(d),s/veh	50.7	0.0	47.6	53.4	0.0	47.0	26.8	16.7	16.4	54.4	0.0	67.6	
LnGrp LOS	D		D	D		D	C	B	B	D		E	
Approach Vol, veh/h		445			648			173				1097	
Approach Delay, s/veh		49.2			50.3			20.3				60.4	
Approach LOS		D			D			C				E	
Timer	1	2	3	4	5	6	7	8					
Assigned Phs		2		4	5	6		8					
Phs Duration (G+Y+Rc), s		57.0		23.8	14.0	43.0		30.3					
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0					
Max Green Setting (Gmax), s		51.0		27.0	8.0	37.0		29.0					
Max Q Clear Time (g_c+I1), s		3.7		15.6	4.4	37.2		21.8					
Green Ext Time (p_c), s		9.3		1.4	0.0	0.0		2.3					
<b>Intersection Summary</b>													
HCM 2010 Ctrl Delay				52.6									
HCM 2010 LOS				D									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↘	↕	↗		↔	
Traffic Volume (veh/h)	93	262	3	155	369	13	57	83	14	16	717	223
Future Volume (veh/h)	93	262	3	155	369	13	57	83	14	16	717	223
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	116	328	4	189	450	16	66	95	16	18	824	256
Adj No. of Lanes	0	2	0	0	2	0	1	2	1	0	2	0
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	439	6	222	564	21	199	1620	722	42	858	264
Arrive On Green	0.16	0.16	0.16	0.22	0.22	0.22	0.07	0.46	0.46	0.33	0.33	0.33
Sat Flow, veh/h	905	2734	35	1007	2557	94	1774	3539	1578	27	2584	794
Grp Volume(v), veh/h	233	0	215	340	0	315	66	95	16	597	0	501
Grp Sat Flow(s),veh/h/ln	1817	0	1856	1812	0	1845	1774	1770	1578	1850	0	1555
Q Serve(g_s), s	13.8	0.0	12.3	20.1	0.0	17.9	2.5	1.7	0.6	16.7	0.0	35.4
Cycle Q Clear(g_c), s	13.8	0.0	12.3	20.1	0.0	17.9	2.5	1.7	0.6	35.4	0.0	35.4
Prop In Lane	0.50		0.02	0.56		0.05	1.00		1.00	0.03		0.51
Lane Grp Cap(c), veh/h	292	0	298	399	0	407	199	1620	722	647	0	516
V/C Ratio(X)	0.80	0.00	0.72	0.85	0.00	0.77	0.33	0.06	0.02	0.92	0.00	0.97
Avail Cap(c_a), veh/h	440	0	450	472	0	480	199	1620	722	647	0	516
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.0	0.0	44.4	41.7	0.0	40.8	26.1	16.8	16.6	36.6	0.0	36.7
Incr Delay (d2), s/veh	6.0	0.0	3.3	12.3	0.0	6.5	1.0	0.0	0.0	18.7	0.0	32.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	0.0	6.5	11.4	0.0	9.8	1.2	0.8	0.3	21.4	0.0	19.8
LnGrp Delay(d),s/veh	51.0	0.0	47.7	54.0	0.0	47.4	27.1	16.9	16.6	55.4	0.0	68.9
LnGrp LOS	D		D	D		D	C	B	B	E		E
Approach Vol, veh/h		448			655			177			1098	
Approach Delay, s/veh		49.5			50.8			20.6			61.5	
Approach LOS		D			D			C			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		57.0		23.9	14.0	43.0		30.6				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		51.0		27.0	8.0	37.0		29.0				
Max Q Clear Time (g_c+l1), s		3.7		15.8	4.5	37.4		22.1				
Green Ext Time (p_c), s		9.3		1.4	0.0	0.0		2.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			53.3									
HCM 2010 LOS			D									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↗	↕↕	↗		↕↕	
Traffic Volume (veh/h)	93	258	3	162	362	11	41	83	22	15	717	223
Future Volume (veh/h)	93	258	3	162	362	11	41	83	22	15	717	223
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	116	322	4	198	441	13	47	95	25	17	824	256
Adj No. of Lanes	0	2	0	0	2	0	1	2	1	0	2	0
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	433	6	233	555	17	201	1625	724	42	861	265
Arrive On Green	0.16	0.16	0.16	0.22	0.22	0.22	0.07	0.46	0.46	0.33	0.33	0.33
Sat Flow, veh/h	917	2721	35	1059	2522	77	1774	3539	1578	25	2586	795
Grp Volume(v), veh/h	230	0	212	338	0	314	47	95	25	596	0	501
Grp Sat Flow(s),veh/h/ln	1817	0	1856	1810	0	1849	1774	1770	1578	1851	0	1555
Q Serve(g_s), s	13.5	0.0	12.1	19.9	0.0	17.7	1.7	1.7	1.0	16.0	0.0	35.2
Cycle Q Clear(g_c), s	13.5	0.0	12.1	19.9	0.0	17.7	1.7	1.7	1.0	35.2	0.0	35.2
Prop In Lane	0.50		0.02	0.59		0.04	1.00		1.00	0.03		0.51
Lane Grp Cap(c), veh/h	289	0	295	398	0	407	201	1625	724	650	0	518
V/C Ratio(X)	0.80	0.00	0.72	0.85	0.00	0.77	0.23	0.06	0.03	0.92	0.00	0.97
Avail Cap(c_a), veh/h	442	0	451	472	0	483	201	1625	724	650	0	518
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.0	0.0	44.4	41.6	0.0	40.7	25.7	16.7	16.5	36.4	0.0	36.5
Incr Delay (d2), s/veh	5.7	0.0	3.3	12.0	0.0	6.4	0.6	0.0	0.0	18.1	0.0	31.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.0	6.5	11.3	0.0	9.8	0.9	0.8	0.4	21.2	0.0	19.5
LnGrp Delay(d),s/veh	50.6	0.0	47.7	53.6	0.0	47.1	26.3	16.7	16.5	54.5	0.0	67.7
LnGrp LOS	D		D	D		D	C	B	B	D		E
Approach Vol, veh/h		442			652			167			1097	
Approach Delay, s/veh		49.2			50.5			19.4			60.5	
Approach LOS		D			D			B			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		57.0		23.7	14.0	43.0		30.4				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		51.0		27.0	8.0	37.0		29.0				
Max Q Clear Time (g_c+I1), s		3.7		15.5	3.7	37.2		21.9				
Green Ext Time (p_c), s		9.4		1.4	0.0	0.0		2.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				52.7								
HCM 2010 LOS				D								

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	260	3	167	366	12	41	83	24	15	717	223
Future Volume (veh/h)	93	260	3	167	366	12	41	83	24	15	717	223
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	116	325	4	204	446	15	47	95	28	17	824	256
Adj No. of Lanes	0	2	0	0	2	0	1	2	1	0	2	0
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	435	6	238	557	19	199	1616	721	42	856	263
Arrive On Green	0.16	0.16	0.16	0.22	0.22	0.22	0.07	0.46	0.46	0.33	0.33	0.33
Sat Flow, veh/h	911	2727	35	1070	2500	87	1774	3539	1578	25	2585	795
Grp Volume(v), veh/h	231	0	214	345	0	320	47	95	28	596	0	501
Grp Sat Flow(s),veh/h/ln	1817	0	1856	1809	0	1847	1774	1770	1578	1851	0	1555
Q Serve(g_s), s	13.7	0.0	12.2	20.5	0.0	18.2	1.8	1.7	1.1	16.3	0.0	35.5
Cycle Q Clear(g_c), s	13.7	0.0	12.2	20.5	0.0	18.2	1.8	1.7	1.1	35.5	0.0	35.5
Prop In Lane	0.50		0.02	0.59		0.05	1.00		1.00	0.03		0.51
Lane Grp Cap(c), veh/h	290	0	296	403	0	411	199	1616	721	646	0	515
V/C Ratio(X)	0.80	0.00	0.72	0.86	0.00	0.78	0.24	0.06	0.04	0.92	0.00	0.97
Avail Cap(c_a), veh/h	439	0	449	470	0	480	199	1616	721	646	0	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.2	0.0	44.6	41.7	0.0	40.8	25.9	16.9	16.8	36.8	0.0	36.8
Incr Delay (d2), s/veh	5.9	0.0	3.3	13.0	0.0	6.9	0.6	0.0	0.0	18.9	0.0	32.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	0.0	6.5	11.7	0.0	10.0	0.9	0.8	0.5	21.4	0.0	19.8
LnGrp Delay(d),s/veh	51.1	0.0	47.9	54.7	0.0	47.7	26.5	17.0	16.8	55.7	0.0	69.3
LnGrp LOS	D		D	D		D	C	B	B	E		E
Approach Vol, veh/h		445			665			170			1097	
Approach Delay, s/veh		49.6			51.3			19.6			61.9	
Approach LOS		D			D			B			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		57.0		23.8	14.0	43.0		30.9				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		51.0		27.0	8.0	37.0		29.0				
Max Q Clear Time (g_c+I1), s		3.7		15.7	3.8	37.5		22.5				
Green Ext Time (p_c), s		9.4		1.4	0.0	0.0		2.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				53.6								
HCM 2010 LOS				D								

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↗	↕↕	↗	↗	↕↕	↗
Traffic Volume (veh/h)	93	285	3	231	412	21	41	83	59	20	717	223
Future Volume (veh/h)	93	285	3	231	412	21	41	83	59	20	717	223
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	116	356	4	282	502	26	47	95	68	23	824	256
Adj No. of Lanes	0	2	0	0	2	0	1	2	1	1	2	1
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	478	6	316	604	32	224	1389	619	381	908	406
Arrive On Green	0.17	0.17	0.17	0.26	0.26	0.26	0.08	0.39	0.39	0.26	0.26	0.26
Sat Flow, veh/h	853	2791	32	1210	2310	123	1774	3539	1577	1212	3539	1583
Grp Volume(v), veh/h	247	0	229	420	0	390	47	95	68	23	824	256
Grp Sat Flow(s),veh/h/ln	1820	0	1857	1802	0	1840	1774	1770	1577	1212	1770	1583
Q Serve(g_s), s	13.4	0.0	12.0	23.1	0.0	20.5	1.8	1.7	2.8	1.5	23.2	14.8
Cycle Q Clear(g_c), s	13.4	0.0	12.0	23.1	0.0	20.5	1.8	1.7	2.8	1.5	23.2	14.8
Prop In Lane	0.47		0.02	0.67		0.07	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	312	0	318	471	0	481	224	1389	619	381	908	406
V/C Ratio(X)	0.79	0.00	0.72	0.89	0.00	0.81	0.21	0.07	0.11	0.06	0.91	0.63
Avail Cap(c_a), veh/h	477	0	487	507	0	518	224	1408	628	388	927	415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	0.0	40.3	36.6	0.0	35.7	25.5	19.5	19.9	29.0	37.1	34.0
Incr Delay (d2), s/veh	5.2	0.0	3.0	17.0	0.0	8.9	0.5	0.0	0.1	0.1	12.3	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.0	6.4	13.7	0.0	11.6	0.9	0.8	1.2	0.5	12.9	6.8
LnGrp Delay(d),s/veh	46.1	0.0	43.4	53.6	0.0	44.5	26.0	19.6	19.9	29.1	49.4	36.9
LnGrp LOS	D		D	D		D	C	B	B	C	D	D
Approach Vol, veh/h		476			810			210			1103	
Approach Delay, s/veh		44.8			49.2			21.1			46.1	
Approach LOS		D			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		46.4		23.7	14.0	32.4		32.9				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		41.0		27.0	8.0	27.0		29.0				
Max Q Clear Time (g_c+1), s		4.8		15.4	3.8	25.2		25.1				
Green Ext Time (p_c), s		8.3		1.5	0.0	1.2		1.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			44.8									
HCM 2010 LOS			D									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	285	3	231	412	21	41	83	59	20	717	223
Future Volume (veh/h)	93	285	3	231	412	21	41	83	59	20	717	223
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	116	356	4	282	502	26	47	95	68	23	824	256
Adj No. of Lanes	0	2	0	1	2	0	1	2	1	0	2	0
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	471	5	357	688	36	206	1648	735	47	868	267
Arrive On Green	0.17	0.17	0.17	0.20	0.20	0.20	0.07	0.47	0.47	0.34	0.34	0.34
Sat Flow, veh/h	853	2791	32	1774	3423	177	1774	3539	1578	38	2570	789
Grp Volume(v), veh/h	247	0	229	282	259	269	47	95	68	598	0	505
Grp Sat Flow(s),veh/h/ln	1820	0	1857	1774	1770	1830	1774	1770	1578	1842	0	1556
Q Serve(g_s), s	14.3	0.0	12.8	16.5	15.0	15.1	1.7	1.6	2.6	18.1	0.0	34.8
Cycle Q Clear(g_c), s	14.3	0.0	12.8	16.5	15.0	15.1	1.7	1.6	2.6	34.8	0.0	34.8
Prop In Lane	0.47		0.02	1.00		0.10	1.00		1.00	0.04		0.51
Lane Grp Cap(c), veh/h	307	0	313	357	356	368	206	1648	735	656	0	526
V/C Ratio(X)	0.81	0.00	0.73	0.79	0.73	0.73	0.23	0.06	0.09	0.91	0.00	0.96
Avail Cap(c_a), veh/h	449	0	458	470	469	485	206	1650	736	657	0	526
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.7	0.0	43.1	41.5	40.9	40.9	25.0	16.0	16.3	35.4	0.0	35.5
Incr Delay (d2), s/veh	6.7	0.0	3.3	6.6	3.9	3.9	0.6	0.0	0.1	17.0	0.0	29.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.0	6.8	8.7	7.7	8.0	0.9	0.8	1.2	20.7	0.0	19.2
LnGrp Delay(d),s/veh	50.4	0.0	46.4	48.1	44.8	44.8	25.6	16.1	16.4	52.4	0.0	64.9
LnGrp LOS	D		D	D	D	D	C	B	B	D		E
Approach Vol, veh/h		476			810			210			1103	
Approach Delay, s/veh		48.5			46.0			18.3			58.1	
Approach LOS		D			D			B			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		56.9		24.4	14.0	42.9		28.0				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		51.0		27.0	8.0	37.0		29.0				
Max Q Clear Time (g_c+I1), s		4.6		16.3	3.7	36.8		18.5				
Green Ext Time (p_c), s		9.7		1.5	0.0	0.1		3.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			49.4									
HCM 2010 LOS			D									



## **Traffic Impact Analysis**

**for**

### **Port Marigny Site Mandeville, LA**

(St. Tammany Parish  
Mandeville, LA)

**Prepared For**

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**December 17, 2015**

## I. INTRODUCTION

### A. Study Purpose and Scope

The purpose of this study is to identify traffic generated by the Port Marigny Site in Mandeville, Louisiana. Traffic impacts are determined and, if necessary, mitigation identified for site related travel.

The traffic impact analysis (TIA) scope includes the following information:

- a) Project Description
- b) Traffic Study Procedures
- c) Traffic Impacts
- d) Recommendations
- e) Summary

## II. PROJECT DESCRIPTION

The Prestress Site is located on Lake Pontchartrain just east of the Causeway (See **Figure 1**, Map on following page). The Port Marigny Site is currently vacant after serving as the location for prefabrication of components used to build the 24 mile Causeway. Conventional suburban development exists to the east, west and north. The TIA study uses the planned development program in determining the average AM and PM peak hour trip generation. The proposed mix of uses includes residential, commercial, hotel and marina, yielding the following development program:

### *Development Program*

<u>Land Use</u>	<u>Units</u>
Marina	153 berths
Single Family Detached	157 units
Apartments	192 units
Condos	28 units
Townhouse	52 units
Hotel	120 rooms
High Turnover Restaurant	4,000 sf
Quality Restaurant	7,000 sf
Other Retail/Commercial	60,000 sf

Prime arterial and collector access is via Monroe Street. Entering and exiting trips are distributed to the Mandeville grid street system along Monroe and north toward activity in Mandeville and the Covington/Interstate 12 areas. The traffic analysis assumes additional access occurs via Mariners Boulevard to the west of the site, providing a route to the Causeway and to points north.



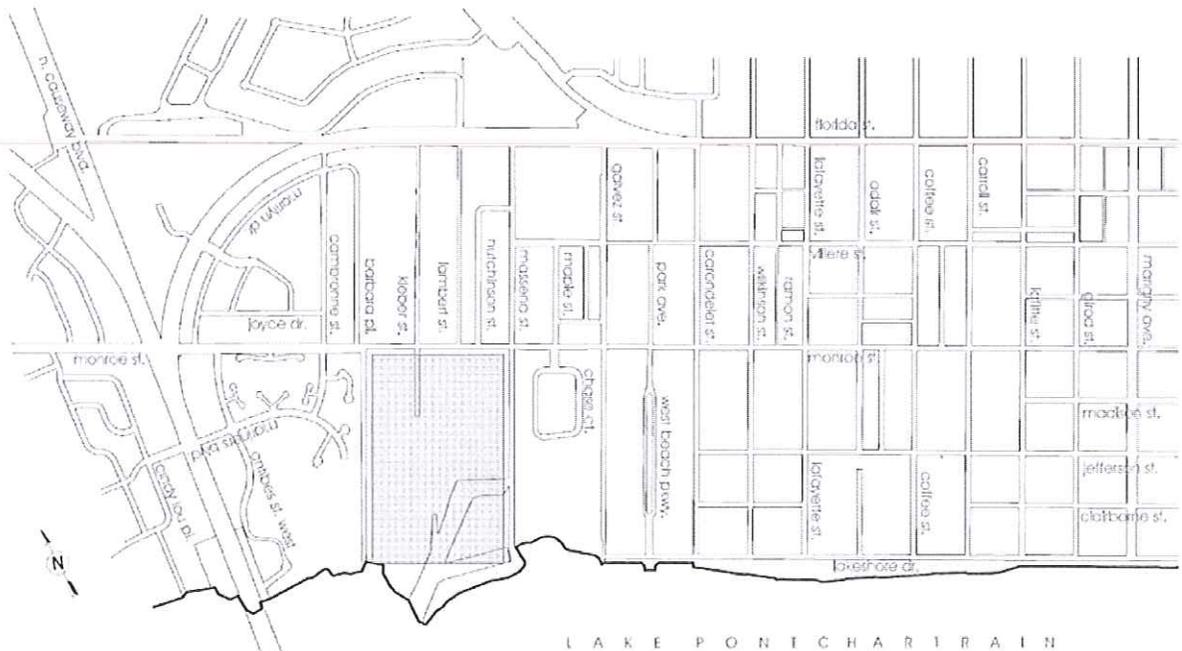


Figure 1 - Location Map

## TRAFFIC STUDY PROCEDURES

### A. Transportation Study Methods

This transportation report estimates impacts of the Port Marigny Site on the local transportation system. To estimate impacts, existing conditions are studied and future transportation conditions in the area are analyzed.

Analysis procedures are in conformance with the guiding document, the Mandeville, LA Code of Ordinances, known as the CLURO (Comprehensive Land Use Regulating Ordinance), Section 8.4 - Traffic Impact Analysis Provisions. Section 8.4.2 defines the analysis as follows:

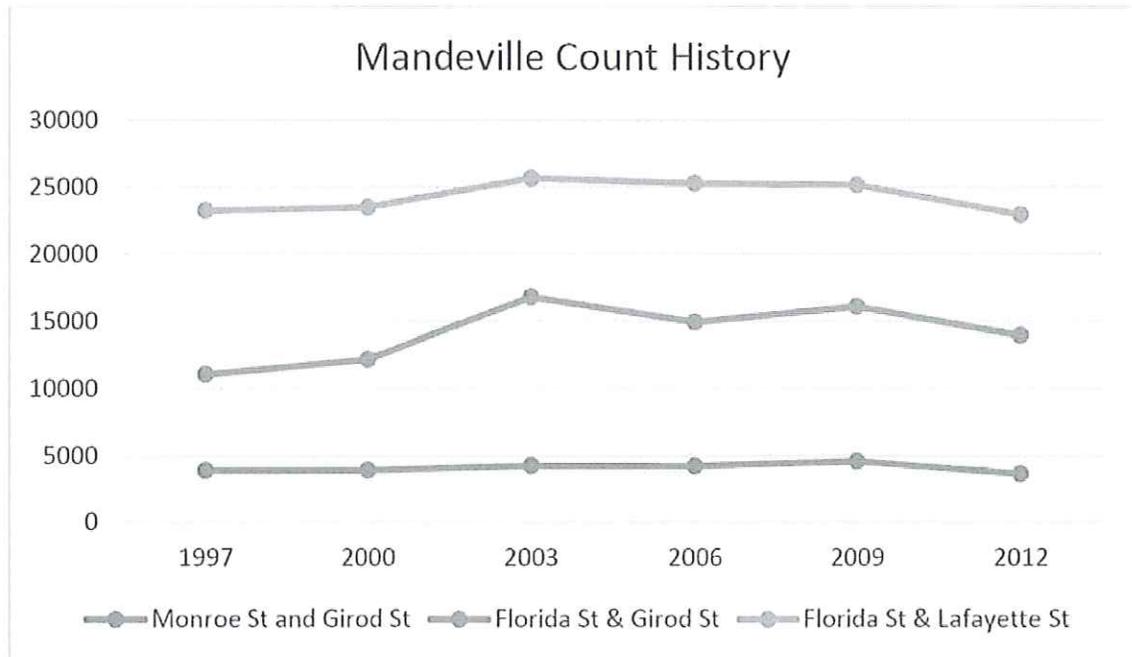
A traffic impact analysis (TIA) is a study that provides information on the projected traffic likely to be generated by a proposed development and assesses its impact on the roadways in the immediate proximity of a proposed development. The TIA shall be designed to identify any potential traffic operational problems or concerns and recommend appropriate actions to address such problems or concerns.

The TIA has two distinct parts, **generate trips** and **measure impacts**. Site trips are developed by trip generation and distribution procedures, and subsequently added to the study area background traffic. The study area consists of streets within ¼ mile of the development or streets where the new development adds more than 20% to the existing peak hour volumes. Future travel for the horizon year 2025 is established as background traffic to which is added the Port Marigny Site's estimated travel.



## Traffic Growth

Traffic growth through time is always reviewed to insure TIA accuracy. In Mandeville's case, counts taken by the Louisiana Department of Transportation and Development (LADOTD) show the growth rate of daily city traffic has been steady or declining for the period 1997 to 2012, a 15 year trend line. The chart shows steady to slightly reducing growth. The LADOTD counts range from 5,000 to 25,000 vehicles per day. The steady volume levels are consistent with recent national data.



Source: <http://www.wapps.dotd.la.gov/engineering/tatv/>

Figure 2. Traffic Growth History

As a result, traffic counts taken recently, over the past fifteen years, accurately depict both existing conditions and future background traffic as well. The next 10 years of growth in west/central Mandeville, along the Monroe Street corridor, will generally come from the Port Marigny Site generated traffic. The sum of Background trips and Site trips yield Total Trips for the horizon year 2025. These Total Trips, estimated for the surrounding streets, are analyzed relative to their operational performance to determine **Traffic Impacts** to the network.

## Existing Counts

Peak hour turning movement counts were collected during the week of September 7, 2015 at fourteen intersections in the study area. Peak hour volumes were determined from the turning movement counts. A map of the study area depicting existing peak hour volumes is shown below in **Figure 3**. The red circles represent  $\frac{1}{4}$  mile radius circles, the impact range required in the CLURO/TIA regulations. The turning movement counts for the 14 intersections are included in **Appendix A**.

The AM peak hour was established between 7:00 – 8:00 AM for every intersection except the intersection of Mariners Blvd. and the East Causeway Approach. The PM peak hour counts were collected between 4:30 – 6:00 PM.

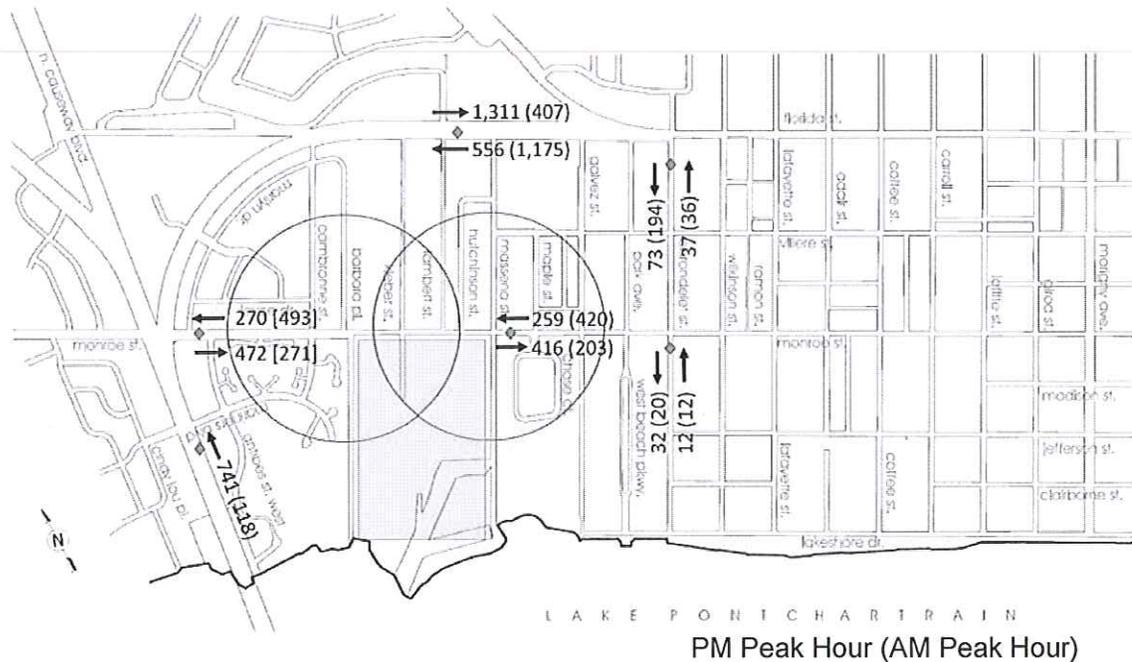


Figure 3. Existing Traffic Volumes

**Impact Analysis**

Impact analysis is based on the comparison of the operational performance of the streets in the study area for base 2015 and future 2025 years. Volumes are analyzed during the AM and PM peak hours for the middle weekdays [Tuesday to Thursday]. The Highway Capacity Manual (HCM) presents the analytical methods for establishing the quality of service for selected roadway types by applying a level of service (LOS) analysis. The LOS is a measure of delay and describes the quality of the operational conditions of the roadway facility, in this case, intersections. It is important to note that LOS is a measure of vehicle delay for the Peak 15-minute Period of a middle week day. The LOS standards set by the Mandeville Comprehensive Plan are 'D' for arterials and collectors, and 'C' for local streets. The traffic analysis is conducted using the SYNCHRO-9 software which faithfully implements the 2000 and 2010 HCM procedures for unsignalized and signalized intersections, respectively.

In addition to LOS analysis, Section 8.4.8, Traffic Level of Service Standards of the CLURO states "a volume to capacity (v/c) ratio of 0.90 shall not be consistently exceeded on any arterial or collector..." To measure this ratio, SYNCHRO reports intersection capacity utilization (ICU). ICU is a measure of volume-to-capacity rather than delay. The ICU method is intended to be used in planning applications, such as site impact studies, and in conjunction with delay-based methods, such as those in the Highway Capacity Manual, to give an overall picture of intersection performance.



The ICU directly applies to signalized intersections and tells how much reserve capacity is available or how much the intersection is overcapacity. For unsignalized intersections, the ICU is a measure of reserve capacity should the intersection be signalized. Signalization is a more restrictive control type than stop controlled intersections, and thus, is typically implemented only if justified by one or more signal warrants presented in the Manual on Uniform Traffic Control Devices, the national standard for signing, pavement markings and intersection control. Traffic signals typically reduce main street capacity and increase delay. For instance, introducing a signal(s) to Monroe Street would change the condition of Monroe Street from a 'free-flow' facility to one controlled by a signal(s), thus reducing the east/west capacity of the roadway and increasing that delay and travel time.

It is not uncommon for minor side street approaches under stop control to not meet LOS standards. In these cases an evaluation of the approach delay and queue length is appropriate as it is often the case that the 'wait' time is not unreasonable and queues are short. While a 2-way stop controlled intersection may have a minor approach that falls below the desirable LOS, the intersection may not warrant signalization, nor may signalization be desired. A more substantive measure is the actual delay time (seconds) for the vehicles at the stop controlled approaches and the reserve capacity for the intersection. Therefore, these measures are included in this analysis.

## **B. Trip Generation Analysis**

Given the development program, trip rates and equations from the Institute of Transportation Engineers report, Trip Generation, 9<sup>th</sup> Edition were applied. This report is the most widely used, national source for analyzing motor vehicle traffic associated with proposed land development projects.

The ITE data base covers land uses in suburban locations where ease of data collection for single use sites is greatest. This also results in the least cost for data collection. This single use data set requires designers of mixed use communities to perform internal capture, mode shift and other analysis to compensate for the suburban, motor vehicle bias in the ITE Trip Generation documents. These correction factors are necessary to achieve accurate results in a compact, walkable, mixed use context. Correction factor percentages are applied to assign the logical number of vehicle trips between the internal uses, and the remainder to the external streets. Other modes of travel such as walking and cycling must also be analyzed.

For the Port Marigny Site, the **AM Peak Hour** trip generation analysis includes the peak hour of adjacent street traffic for one hour between 7 and 9 AM. The **PM Peak Hour** trip generation analysis includes the peak hour of adjacent street traffic for one hour between 4 and 6 PM. HPE estimated trip generation is prepared using rates and equations from *Trip Generation* (Institute of Transportation Engineers, 9<sup>th</sup> edition) and applying appropriate correction factors to account for internal capture and mode use rates.

For many shorter, on-site and off-site trips, travelers use walking and cycling. In other words, many travelers use modes other than motor vehicles for travel. The significant internalization of site related travel is due to the careful attention to design of streets and building placement, scale and type. The designers accurately placed new buildings of a traditional style into a compact, low speed network to maximize walkability and pedestrian comfort.

### ITE Assumptions

There are specific Land Use Codes that approximate intended land uses in the Port Marigny Site. ITE trip generation rates and equations in **Table 1**, are used in this analysis. Peak Hour AM (within 7 to 9 AM) and Peak Hour PM (within 4 to 6 PM) rates and equations are shown with entering and exiting directional distribution percentages. Detailed sheets describing ITE generation are included in **Appendix B**. Trip distribution is performed on the vehicle trips having one end of the trip off site. Given the ITE trip generation analysis, the project will generate **406 new AM peak hour external vehicle trips**, composed of 144 entering trips and 263 exiting trips, and **655 new PM peak hour external trips**, composed of 379 entering trips and 276 exiting trips.

**Table 1. Trip Generation Rates and Equations**

(ITE Code) /Units	AM Peak Hour Trips		Enter %	Exit %	Daily Trips	
	Rate	Equation			Rate	Equation
Marina (420) 153 Berths	0.08 /berth	NA	33	67	2.96	$T=1.89x+410.80$
Hotel (310) 120 rooms	0.53 /room	NA	59	41	8.17	$T=8.95x-373.16$
Single Family(210) 157 units	0.75 /unit	$T=0.70x+9.74$	25	75	9.52	$\text{Ln}T=0.92\text{Ln}X+2.72$
Apartment(220) 192 units	0.51 /unit	$T=0.49x+3.73$	20	80	6.65	$T=6.06x+123.56$
Condo/Tnhouse (230) 80 units	0.44 /unit	$\text{Ln}T=0.80\text{Ln}X+0.26$	17	83	5.81	$\text{Ln}T=0.87\text{Ln}X+2.46$
Qual.Restaurant (931) 7k sqft	0.81 /1000 sqft	NA	NA	NA	89.95	NA
HiTurn Restaurant (932) 4k sqft	10.81 /1000 sqft	NA	55	45	127.15	NA
Shopping Center (820) 60k sqft	0.96 /1000 sqft	$\text{Ln}T=0.61\text{Ln}X+2.24$	62	38	42.70	$\text{Ln}T=0.65\text{Ln}X+5.83$

(ITE Code) /Units	PM Peak Hour Trips		Enter %	Exit %	Daily Trips	
	Rate	Equation			Rate	Equation
Marina (420) 153 Berths	0.19 /berth	NA	60	40	2.96	$T=1.89x+410.80$
Hotel (310) 120 rooms	0.60 /room	NA	51	49	8.17	$T=8.95x-373.16$
Single Family(210) 157 units	1.0 /unit	$\text{Ln}T=0.90\text{Ln}X+0.51$	63	37	9.52	$\text{Ln}T=0.92\text{Ln}X+2.72$
Apartment(220) 192 units	0.62 /unit	$T=0.55x+17.65$	65	35	6.65	$T=6.06x+123.56$
Condo/Tnhouse (230) 80 units	0.52 /unit	$\text{Ln}T=0.82\text{Ln}X+0.32$	67	33	5.81	$\text{Ln}T=0.87\text{Ln}X+2.46$
Qual.Restaurant (931) 7k sqft	7.49 /1000 sqft	NA	67	33	89.95	NA
HiTurn Restaurant (932) 4k sqft	9.85 /1000 sqft	NA	60	40	127.15	NA
Shopping Center (820) 60k sqft	3.71 /1000 sqft	$\text{Ln}T=0.67\text{Ln}X+3.31$	48	52	42.70	$\text{Ln}T=0.65\text{Ln}X+5.83$



### ***Correction Factors for Internal/Mode Use Capture***

After the raw vehicle trips are generated, correction factors to reflect capture and mode shift percentages are applied to estimate trips between appropriate on site land uses that should be assigned to streets entirely on site. Also a conservative, low estimate of non-auto mode usage is assumed. A general rate of 20% to 30% is normally applied to each raw auto trip calculation. Again, this compensates for the single use and auto dominant data collected for the ITE Trip Generation Manual.

This means, for example, for 10 peak hour visitors to a retail shop, 2 or 3 of them also visit other buildings within the site. Again, as an example, this includes the US Mail delivery and UPS drivers who move between multiple stops at each land use type before leaving the neighborhood. Interaction between site uses and by other modes is expected to reach 30% to 40% however, per request by the City of Mandeville, to analyze the greatest potential impact levels, a 5% percent level is applied for this TIA. Site designers have extensive experience with mixed use, walkable communities and their travel patterns. The remaining 95% of 'external' vehicle trips are assigned to surrounding streets for LOS analysis. This assumption is not the expected travel pattern, but is analyzed at 5% correction as requested by the City.

#### **Marina**

- 5% internal/mode capture is estimated. Marina guests and owners, already on site for other reasons, routinely visit the retail, restaurant and commercial businesses. Some sales relate directly to boat activity.

#### **Hotel**

- 5% internal/mode capture is estimated for this 120 room hotel since guests will routinely visit adjacent restaurants and commercial space. Even delivery, postal and trash pickup vehicles will stop multiple times on each site visit.

#### **Restaurants**

- 5% of the restaurant visitors and service vehicles will stop more than once during their PM peak hour visit. Strong interrelationships with the hotel and shops is intended as part of their placement and design within the plan. Many will walk, bike or drive from/to another site use.

#### **Commercial Space**

- 5% of the trips entering the commercial uses will be generated on the Port Marigny site, from the hotel, restaurants and other uses as noted above, or they will walk/bike to the commercial uses.

#### **Residential Multi-Family/Residential Single Family**

- The same 5% internal capture for mode use and on-site trips.

Many shopping patrons will walk or drive to the 60,000 square foot retail uses, before and after engaging in the other compelling, nearby activities. These spaces are located in close proximity. This retail has no highway signs. It is convenient, but not exclusive, for residents, boaters and restaurant/hotel customers. Therefore, retail visitors in the AM and PM peak hour would come from three main areas:

- The restaurants, before and after meals.
- The hotel
- The boating area when they buy supplies

Trip Generation results are shown in **Tables 2A (AM Peak Hour)** and **Table 2B (PM Peak Hour)**.

**Table 2A. Trip Generation AM Peak Hour**  
Port Marigny, Mandeville

Hall Planning & Engineering, Inc.

The proposed development generates	144	Entering Trips	East	West	Northwest	(Lambert St)	October 20, 2015
	283	Exiting Trips	20%	35%	45%	5%	Lambert St trips are part of the
	408	Total AM peak hr trips	29	50	65	7	NW trips (5145).
			53	92	118	13	

Trip Producers	Units	ITE Rate <sup>1</sup>	Fitted Curve Equation <sup>1</sup>	Calculated Trips by Rate	Calculated Trips by Equation	Trips Used in Analysis <sup>2</sup>	Base Trip Generation			Internal/ Modal Capture	Adj Trips	Net New Trips
							Entering	Exiting	Total			
Single-Family Detached DU ITE Code 210	157 dwelling units	0.75 /unit	T=0.70(X) + 9.74	118	120	120	Entering 25%	Exiting 75%	30	5%	28	28
Apartment ITE Code 220	192 dwelling units	0.51 /unit	T=0.49(X) + 3.73	98	98	98	Entering 20%	Exiting 80%	20	5%	19	19
Residential Condo/Townhouse ITE Code 230	80 units	0.44 /unit	Ln(T)=0.80 Ln(X) + 0.26	35	43	43	Entering 17%	Exiting 83%	7	5%	7	7
<b>Total Dwelling Units</b>	<b>429 d.u.'s</b>						Entering 67	Exiting 204		5%	64	64
							<b>Total 281</b>				<b>184</b>	<b>184</b>

Producers  
Internal Capture Summary  
Entering  
Exiting  
Captured

Trip Attractors	Units	ITE Rate <sup>1</sup>	Fitted Curve Equation <sup>1</sup>	Calculated Trips by Rate	Calculated Trips by Equation	Trips Used in Analysis <sup>2</sup>	Base Trip Generation			Internal/ Modal Capture	Adj Trips	Net New Trips
							Entering	Exiting	Total			
Specialty Retail Center <sup>3</sup> ITE Code 826 Town Center	60,000 ft <sup>2</sup>	0.7 /1000ft <sup>2</sup> GFA	N/A	42	N/A	42	Entering 62%	Exiting 38%	26	5%	25	25
Marina ITE Code 420	153 Berths	0.08 trips/berth	N/A	12	N/A	12	Entering 33%	Exiting 67%	4	5%	4	4
Hotel ITE Code 310	120 rooms	0.53 /room	N/A	64	N/A	64	Entering 59%	Exiting 41%	38	5%	36	36
Quality Restaurant ITE Code 931	7,000 ft <sup>2</sup>	0.81 /1000ft <sup>2</sup> GFA	N/A	6	N/A	6	Entering 50%	Exiting 50%	3	5%	3	3
High Turnover Restaurant ITE Code 932	4,000 ft <sup>2</sup>	10.81 /1000ft <sup>2</sup> GFA	N/A	43	N/A	43	Entering 55%	Exiting 45%	24	5%	23	23
<b>Total Floor Area</b>	<b>67,153 sf</b>						Entering 84	Exiting 73		5%	80	80
							<b>Total 157</b>				<b>168</b>	<b>168</b>

Notes:  
\*N/A\* means ITE has "not given" an equation for this land use  
Apparent discrepancies (e.g. ± 1 trip), if any, are due to rounding.

<sup>1</sup> Rates and equations are from Trip Generation (ITE, 9th Edition, 2012), peak hour of adjacent street traffic, one hour between 7 and 9 a.m.  
<sup>2</sup> Use of rate or equation determined by utilizing Section 3.4, Recommended Procedure for Estimating Trip Generation (ITE; Trip Generation: A Recommended Practice; March, 2001)  
<sup>3</sup> Since ITE documents have no AM Rate, the trip rate for AM Peak Hour of the Adjacent Street for Specialty Retail ITE Code 826 is prorated from Shopping Center ITE Code 820 using the following formula: 0.56/3.71 = x/2.71. Solving for x, the AM Specialty Rate Center equals 0.70. Entering and Exiting percentages are assumed to be the same as Shopping Center Land Use ITE Code 820.



**Table 2B. Trip Generation PM Peak Hour**  
**Port Marigny, Mandeville**

Hall Planning & Engineering, Inc.

The proposed development generates **379** Entering Trips  
**278** Exiting Trips  
**866** Total PM peak hr trips

East	West	Northwest
20%	35%	45%
76	133	170
55	97	124

(Lambert 8)

October 2, 2015

Lambert 8L trips are part of the  
 NW trips (545).

Trip Producers	Units	ITE Rate <sup>1</sup>	Fitted Curve Equation <sup>1</sup>	Calculated Trips by Rate	Calculated Trips by Equation	Trips Used in Analysis <sup>2</sup>	Base Trip Generation			Internal/ Modal Capture	Adj Trips	Net New Trips
							Entering	Exiting	Total			
Single-Family Detached DU ITE Code 210	157 dwelling units	1.00 /unit	$\ln(T)=0.90 \ln(X) + 0.51$	157	158	158	Entering 63%	Exiting 37%	99	5%	94	94
Apartment ITE Code 220	192 dwelling units	0.62 /unit	$T=0.55(X) + 17.65$	119	123	123	Entering 65%	Exiting 35%	80	5%	76	76
Residential Condo/Townhouse ITE Code 230	80 units	0.52 /unit	$\ln(T)=0.82 \ln(X) + 0.32$	42	50	50	Entering 67%	Exiting 33%	34	5%	32	32
<b>Total Dwelling Units</b>	<b>429 d.u.'s</b>						Entering 213	Exiting 118			202	202
							<b>Total 331</b>				<b>314</b>	<b>314</b>

Producers  
 Internal Capture Summary  
 Entering  
 Exiting  
 Captured

Trip Attractors	Units	ITE Rate <sup>1</sup>	Fitted Curve Equation <sup>1</sup>	Calculated Trips by Rate	Calculated Trips by Equation	Trips Used in Analysis <sup>2</sup>	Base Trip Generation			Internal/ Modal Capture	Adj Trips	Net New Trips
							Entering	Exiting	Total			
Specialty Retail Center ITE Code 826 Town Center	60,000 ft <sup>2</sup>	2.71 /1000ft <sup>2</sup> GFA	$T=2.40(X) + 21.48$	163	165	165	Entering 44%	Exiting 56%	73	5%	69	69
Marina ITE Code 420	153 Berths	0.19 trips/berth	N/A	29	N/A	29	Entering 60%	Exiting 40%	17	5%	17	17
Hotel ITE Code 310	120 rooms	0.60 /room	N/A	72	N/A	72	Entering 51%	Exiting 49%	37	5%	35	35
Quality Restaurant ITE Code 931	7,000 ft <sup>2</sup>	7.49 /1000ft <sup>2</sup> GFA	N/A	52	N/A	52	Entering 67%	Exiting 33%	35	5%	33	33
High Turnover Restaurant ITE Code 932	4,000 ft <sup>2</sup>	9.85 /1000ft <sup>2</sup> GFA	N/A	39	N/A	39	Entering 60%	Exiting 40%	24	5%	22	22
<b>Total Floor Area</b>	<b>67,153 sf</b>						Entering 188	Exiting 173			178	178
							<b>Total 368</b>				<b>340</b>	<b>340</b>

**Notes:**

\*N/A' means ITE has 'not given' an equation for this land use  
 Apparent discrepancies (e.g. ± 1 trip), if any, are due to rounding.

<sup>1</sup> Rates and equations are from *Trip Generation* (ITE, 9th Edition, 2012), peak hour of adjacent street traffic, one hour between 4 and 6 p.m.

<sup>2</sup> Use of rate or equation determined by utilizing Section 3.4, Recommended Procedure for Estimating Trip Generation (ITE; *Trip Generation: A Recommended Practice*; March, 2001)



#### IV. TRAFFIC IMPACTS

##### *Trip Distribution*

External trips are loaded onto surrounding street networks based on logical production from, and attraction to developed land and transport facilities in the area. Trips to and from the Port Marigny site will interact with the Causeway access to New Orleans; the general northeasterly grid of downtown Mandeville and points northwest toward Interstate 12 and that related commercial activity. Regarding this distribution, 20% of the external trips are assumed to enter and leave the site to the northeast, along Monroe Street. The Northwest corner will handle 45% of trips in that direction, again on Monroe Street. Many, but not all of the trips accessing the Causeway will use Mariners Boulevard and the access ramps convenient for those movements.

The following maps, **Figures 4A and 4B**, show trip distribution patterns for each street near the site. Three trip distribution patterns were considered, with Scheme 3 being selected as the most probable distribution.

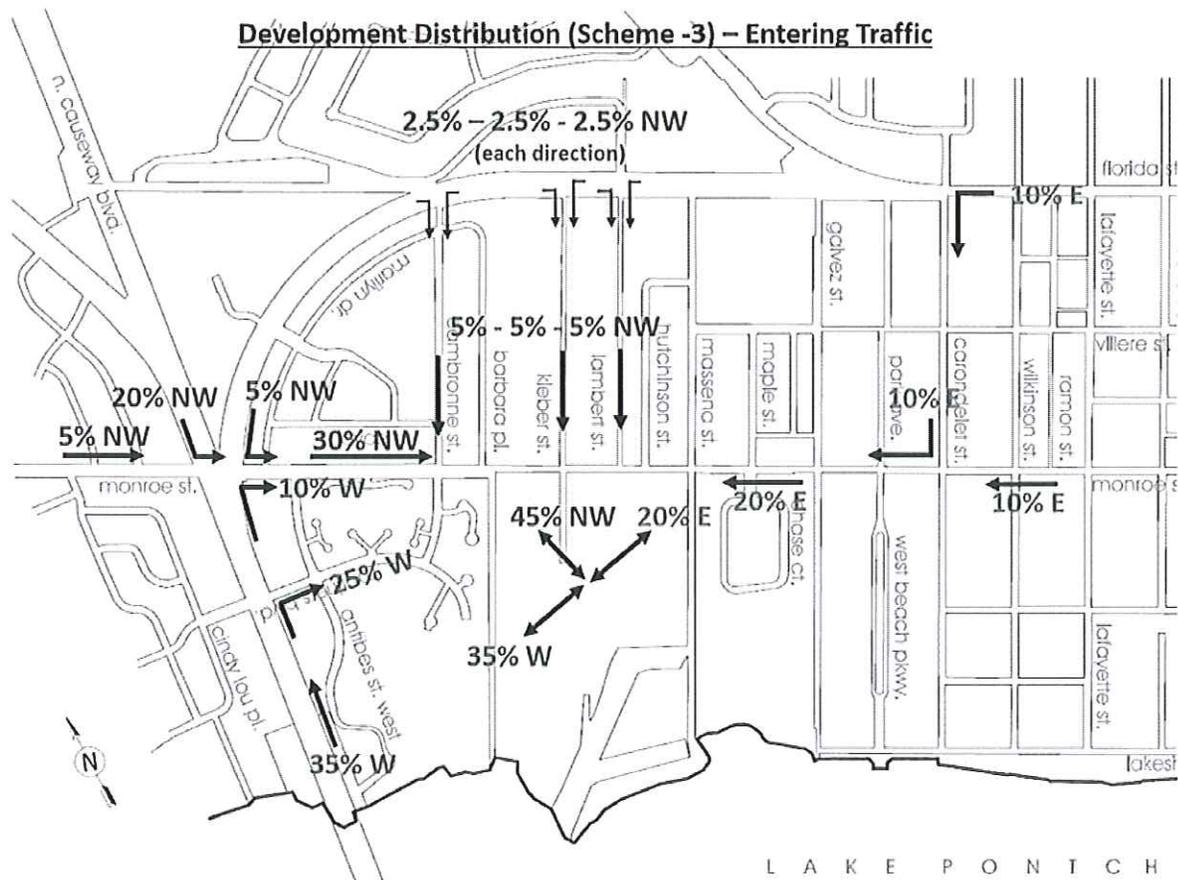


Figure 4A. Trip Distribution Patterns, Port Marigny Site





1. Monroe Street at East Causeway Approach (AM Peak Hour) – because the southbound approach does not have any auxiliary or exclusive turn lanes, the first lane group to fail is the southbound left turns. The southbound right turns are currently at LOS 'E' and fall to LOS 'F'. In 2025, the eastbound and westbound left turn lanes also fall to LOS 'E'.
2. Monroe Street at Kleber Street (AM Peak Hour) – both minor approaches (northbound and southbound) fall below LOS 'D' in 2025. However, it should be noted that the base traffic volumes for this intersection were taken on a Tuesday after a holiday, while the other stop controlled intersections on Monroe Street were counted on Wednesday and Thursday and have about a 25% to 30% lower volume on Monroe Street. The volumes at Kleber are more indicative of a Monday (the day after a weekend) and thus, are skewed and do not represent weekday conditions. With that said, the projected increased delay on the southbound approach is minor and the ICU is below 50%, indicating a low volume/capacity ratio and plenty of excess capacity.
3. Monroe Street at Corondelet Street (AM Peak Hour) – the northbound approach falls from a LOS 'E', an existing condition, to LOS 'F' in 2025. The approach delay increases from 36 sec. to 54 sec. and the projected ICU is 52%. The delay for the northbound approach is similar to that of a signalized intersection with a short to medium cycle length and the intersection has plenty of excess capacity.
4. East Causeway Approach at Lambert (AM & PM Peak Hours) – should this intersection be improved to 'open the median' and allow full turning movements, the 2025 LOS analysis shows that the minor approaches would fall to LOS 'E'. The projected approach delay at the northbound and southbound approaches is 47sec. and 38 sec., respectively, and the ICU is below 50% indicating a low volume/capacity ratio. As with the Kleber Street and Massena Street intersections with the East Causeway Approach, the HCM analysis does not take into account the wide median storage that allows a two-stage left turn and through movements. The two stage left turn movements are documented in AASHTO and detailed in many DOT standards for medians wider than 22' as they are sufficient for storage. Therefore, the actual delay for the minor movements is typically much lower and can be determined through field studies.
5. East Causeway Approach at Massena Street (PM Peak Hour) – no development traffic is assigned to this intersection. The current LOS is 'E' and remains an 'E' in 2025.
6. Florida Street (US190) at Corondelet Street (PM Peak Hour) – both the northbound and southbound approaches is LOS 'F' in 2025. The 2015 northbound approach is currently LOS 'F'. The projected delay is 70 sec. and 53 sec., respectively, and the projected ICU is 67%.

## V. RECOMMENDATIONS

1. Monroe Street at East Causeway Approach – this intersection can be improved to meet the LOS standard of 'D' or better at all impacted approaches/ lane groups by implementing any of the following options:
  - a. Add a southbound left turn lane and a southbound right turn lane – this improvement would provide LOS 'D' or better at all approaches including the currently deficient southbound right turn. The overall intersection delay is optimized at 43 sec., a 6 sec.



reduction over current conditions. In addition, these improvements would provide an added safety benefit by balancing the intersection geometry with the northbound approach, allowing for a concurrent protected left turn phase. Adding left turn lanes with a protected phase is a proven safety counter measure that significantly reduces high speed angle crashes.

- b. Add a westbound left turn lane – this improvement would provide LOS 'D' or better at all approaches impacted by the development trips. It would not correct the current deficiency at the southbound approach (right turns). Because the westbound and eastbound approaches operate on split phases and, therefore, do not conflict, there would be little or no safety benefits.
  - c. Both (a) and (b) – this improvement would provide LOS 'D' or better at all intersection approaches, as well as the safety benefits and the lowest delay (35 sec.).
2. East Causeway Approach at Lambert - Construct a median opening allowing for full access. This improvement will allow full turning movements at this intersection and make it a viable route for motorists to enter and leave the development via Lambert Street.

Improvements to the two-way stop controlled intersection on Monroe Street and East Causeway Approach are not recommended at this time. None of the intersections meet the traffic volume warrants for signalization in the **MUTCD**. The intersection at US190 and Corondelet Street should be periodically monitored. The remaining intersections fall far below the minor approach volume criteria. All intersections should be reviewed periodically for signalization based on pedestrian activity and safety.

The operational analysis reports are included in **Appendix E**.

## VI. SUMMARY

Given the traffic distribution and analysis sheet above, it is clear that the trips generated by the proposed Port Marigny development plan can be accommodated by the existing transportation system in western Mandeville. Volumes generated by the site were traced along adjacent streets and have little impact on the level of service and no impact on the 20% significance test specified in the city's TIA regulations.

HPE's analysis found the Following:

- The proposed program will generate **406 AM peak hour trips**, 144 Entering and 263 Exiting
- The proposed program will generate **655 PM peak hour trips**, 379 Entering and 276 Exiting
- Improvement to the Monroe St. – East Causeway Approach intersection is recommended
- Providing full access at the intersection of Lambert Street with the East Causeway Approach is recommended

- The Proposed program for the Port Marigny Site will generate a reasonable number of trips and congestion should not become adverse, based on the capacity of current networks
- The TIA showed there is sufficient capacity available in the Mandeville street grid and surrounding streets, through the horizon year



**APPENDIX A**

**2015 AM & PM PEAK HOUR COUNTS**

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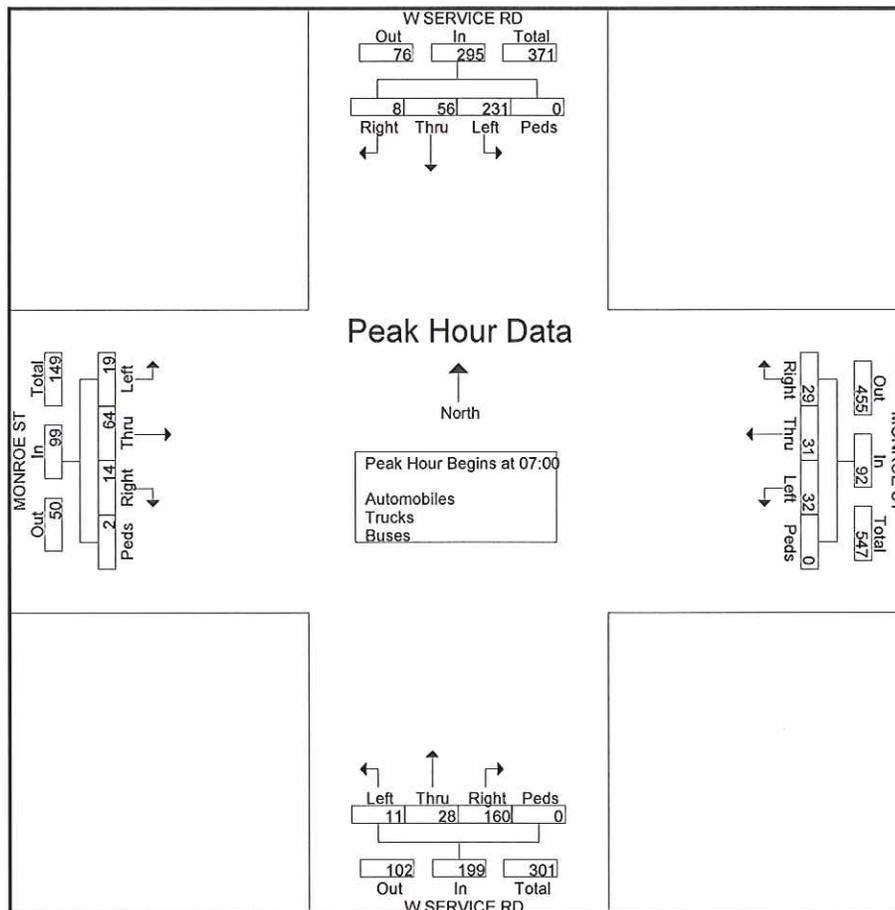
2911 Westfield Rd  
Gulf Breeze, Florida, 32563

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MONROE ST @ W SERVICE RD  
Mandeville, LA

File Name : 15064-13 MONROE ST @ W SERVICE RD  
Site Code : 15064-13  
Start Date : 9/9/2015  
Page No : 3

Start Time	W SERVICE RD Southbound					MONROE ST Westbound					W SERVICE RD Northbound					MONROE ST Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	70	14	5	0	89	10	8	4	0	22	2	5	50	0	57	1	11	3	0	15	183
07:15	78	13	1	0	92	9	8	3	0	20	3	7	39	0	49	2	21	7	0	30	191
07:30	37	19	2	0	58	5	9	19	0	33	5	9	30	0	44	14	11	3	2	30	165
07:45	46	10	0	0	56	8	6	3	0	17	1	7	41	0	49	2	21	1	0	24	146
Total Volume	231	56	8	0	295	32	31	29	0	92	11	28	160	0	199	19	64	14	2	99	685
% App. Total	78.3	19	2.7	0		34.8	33.7	31.5	0		5.5	14.1	80.4	0		19.2	64.6	14.1	2		
PHF	.740	.737	.400	.000	.802	.800	.861	.382	.000	.697	.550	.778	.800	.000	.873	.339	.762	.500	.250	.825	.897



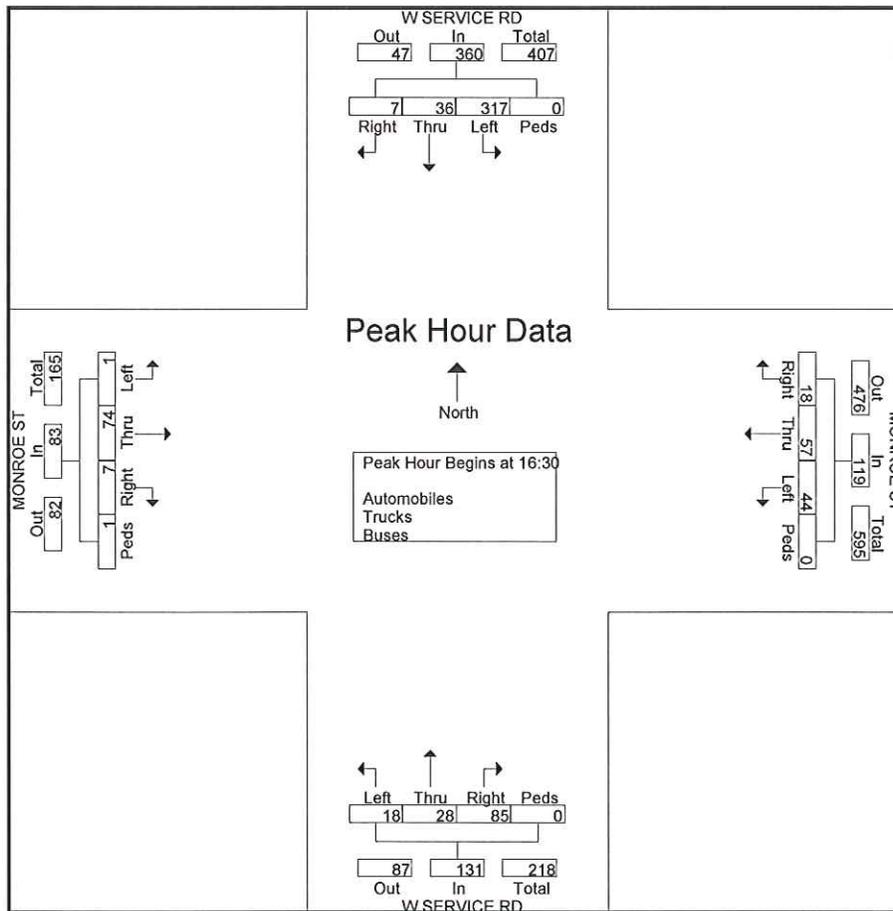
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MONROE ST @ W SERVICE RD  
Mandeville, LA

File Name : 15064-13 MONROE ST @ W SERVICE RD  
Site Code : 15064-13  
Start Date : 9/9/2015  
Page No : 4

Start Time	W SERVICE RD Southbound					MONROE ST Westbound					W SERVICE RD Northbound					MONROE ST Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	68	7	2	0	77	8	19	4	0	31	5	6	23	0	34	0	19	1	0	20	162
16:45	66	9	0	0	75	8	8	7	0	23	3	7	19	0	29	1	20	2	1	24	151
17:00	91	12	2	0	105	10	13	3	0	26	3	8	19	0	30	0	21	4	0	25	186
17:15	92	8	3	0	103	18	17	4	0	39	7	7	24	0	38	0	14	0	0	14	194
Total Volume	317	36	7	0	360	44	57	18	0	119	18	28	85	0	131	1	74	7	1	83	693
% App. Total	88.1	10	1.9	0		37	47.9	15.1	0		13.7	21.4	64.9	0		1.2	89.2	8.4	1.2		
PHF	.861	.750	.583	.000	.857	.611	.750	.643	.000	.763	.643	.875	.885	.000	.862	.250	.881	.438	.250	.830	.893





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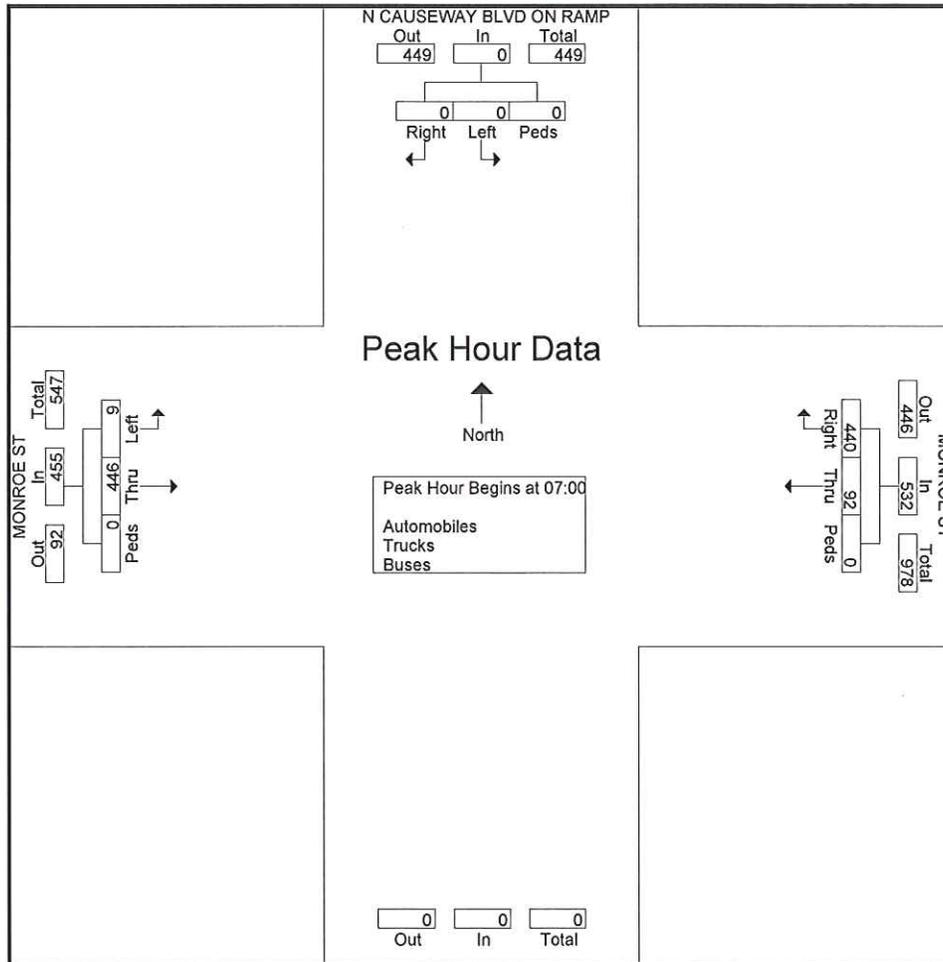
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MONROE ST @ N CAUSEWAY BLVD ON RAMP NB ON RAMP 15064-11 MONROE ST @ N CAUSEWAY BLVD NB ON RAMP  
MANDEVILLE, LOUISIANA Site Code : 15064-11

Start Date : 9/9/2015

Page No : 3

Start Time	N CAUSEWAY BLVD ON RAMP Southbound				MONROE ST Westbound				MONROE ST Eastbound				Int. Total
	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00													
07:00	0	0	0	0	22	129	0	151	3	128	0	131	282
07:15	0	0	0	0	20	129	0	149	1	137	0	138	287
07:30	0	0	0	0	33	91	0	124	1	77	0	78	202
07:45	0	0	0	0	17	91	0	108	4	104	0	108	216
Total Volume	0	0	0	0	92	440	0	532	9	446	0	455	987
% App. Total	0	0	0	0	17.3	82.7	0		2	98	0		
PHF	.000	.000	.000	.000	.697	.853	.000	.881	.563	.814	.000	.824	.860





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2911 Westfield Rd  
 Gulf Breeze, FL 32563

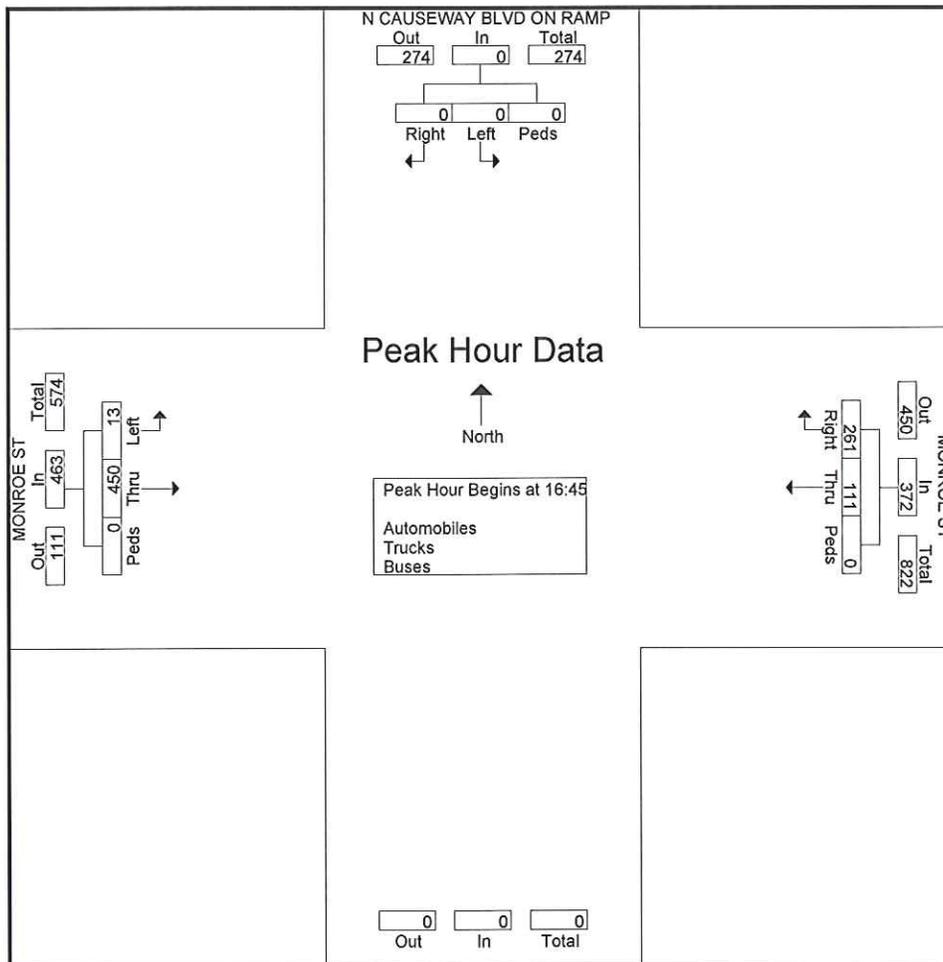
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MONROE ST @ N CAUSEWAY BLVD ON RAMP NB ON RAMP 15064-11 MONROE ST @ N CAUSEWAY BLVD NB ON RAMP  
 MANDEVILLE, LOUISIANA Site Code : 15064-11

Start Date : 9/9/2015

Page No : 4

Start Time	N CAUSEWAY BLVD ON RAMP Southbound				MONROE ST Westbound				MONROE ST Eastbound				Int. Total
	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 16:45													
16:45	0	0	0	0	23	63	0	86	7	98	0	105	191
17:00	0	0	0	0	26	60	0	86	2	129	0	131	217
17:15	0	0	0	0	39	71	0	110	1	129	0	130	240
17:30	0	0	0	0	23	67	0	90	3	94	0	97	187
Total Volume	0	0	0	0	111	261	0	372	13	450	0	463	835
% App. Total	0	0	0	0	29.8	70.2	0		2.8	97.2	0		
PHF	.000	.000	.000	.000	.712	.919	.000	.845	.464	.872	.000	.884	.870





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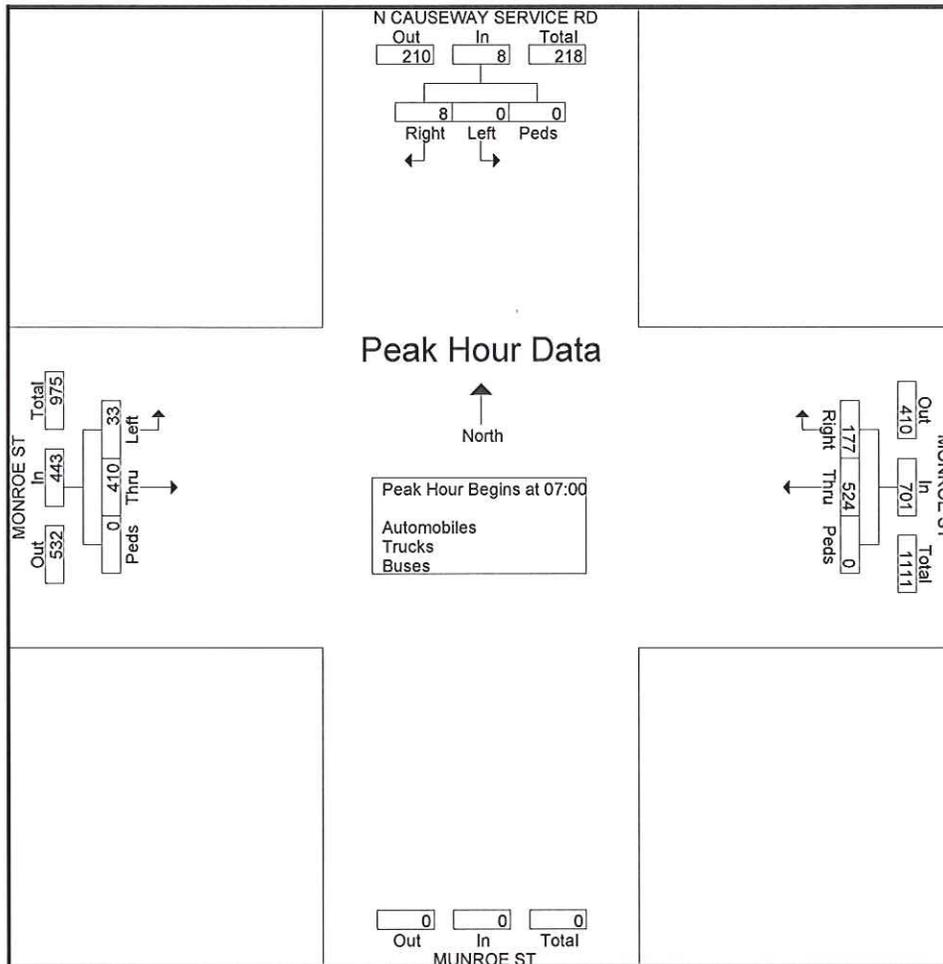
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MONROE ST @ N CAUSEWAY SERVICE RD Name : 15064-12 MONROE ST @ N CAUSEWAY SERVICE RD  
MANDEVILLE, LOUISIANA Site Code : 15064-12

Start Date : 9/9/2015

Page No : 3

Start Time	N CAUSEWAY SERVICE RD Southbound				MONROE ST Westbound				MONROE ST Eastbound				Int. Total
	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00													
07:00	0	3	0	3	148	37	0	185	16	110	0	126	314
07:15	0	0	0	0	149	45	0	194	7	130	0	137	331
07:30	0	2	0	2	122	46	0	168	2	74	0	76	246
07:45	0	3	0	3	105	49	0	154	8	96	0	104	261
Total Volume	0	8	0	8	524	177	0	701	33	410	0	443	1152
% App. Total	0	100	0		74.8	25.2	0		7.4	92.6	0		
PHF	.000	.667	.000	.667	.879	.903	.000	.903	.516	.788	.000	.808	.870





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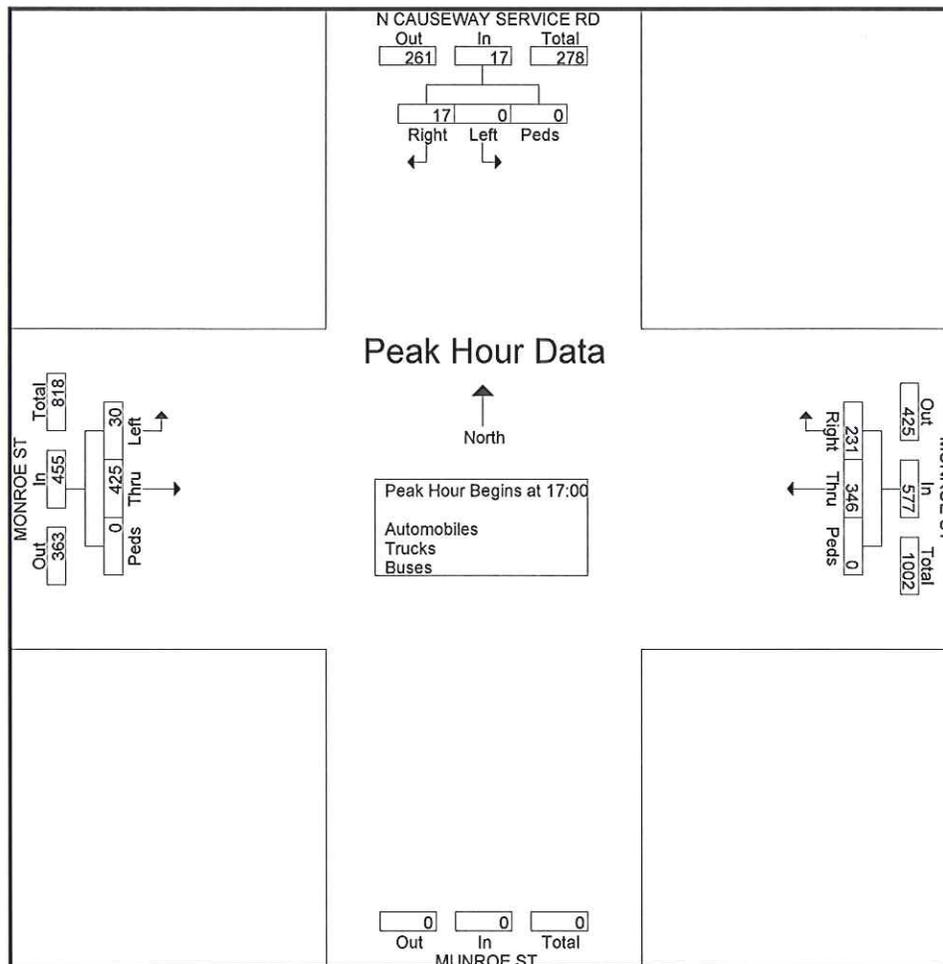
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MONROE ST @ N CAUSEWAY SERVICE RD Name : 15064-12 MONROE ST @ N CAUSEWAY SERVICE RD  
MANDEVILLE, LOUISIANA Site Code : 15064-12

Start Date : 9/9/2015

Page No : 4

Start Time	N CAUSEWAY SERVICE RD Southbound				MONROE ST Westbound				MONROE ST Eastbound				Int. Total
	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 17:00													
17:00	0	5	0	5	81	50	0	131	13	116	0	129	265
17:15	0	2	0	2	108	45	0	153	16	113	0	129	284
17:30	0	4	0	4	86	62	0	148	1	93	0	94	246
17:45	0	6	0	6	71	74	0	145	0	103	0	103	254
Total Volume	0	17	0	17	346	231	0	577	30	425	0	455	1049
% App. Total	0	100	0		60	40	0		6.6	93.4	0		
PHF	.000	.708	.000	.708	.801	.780	.000	.943	.469	.916	.000	.882	.923





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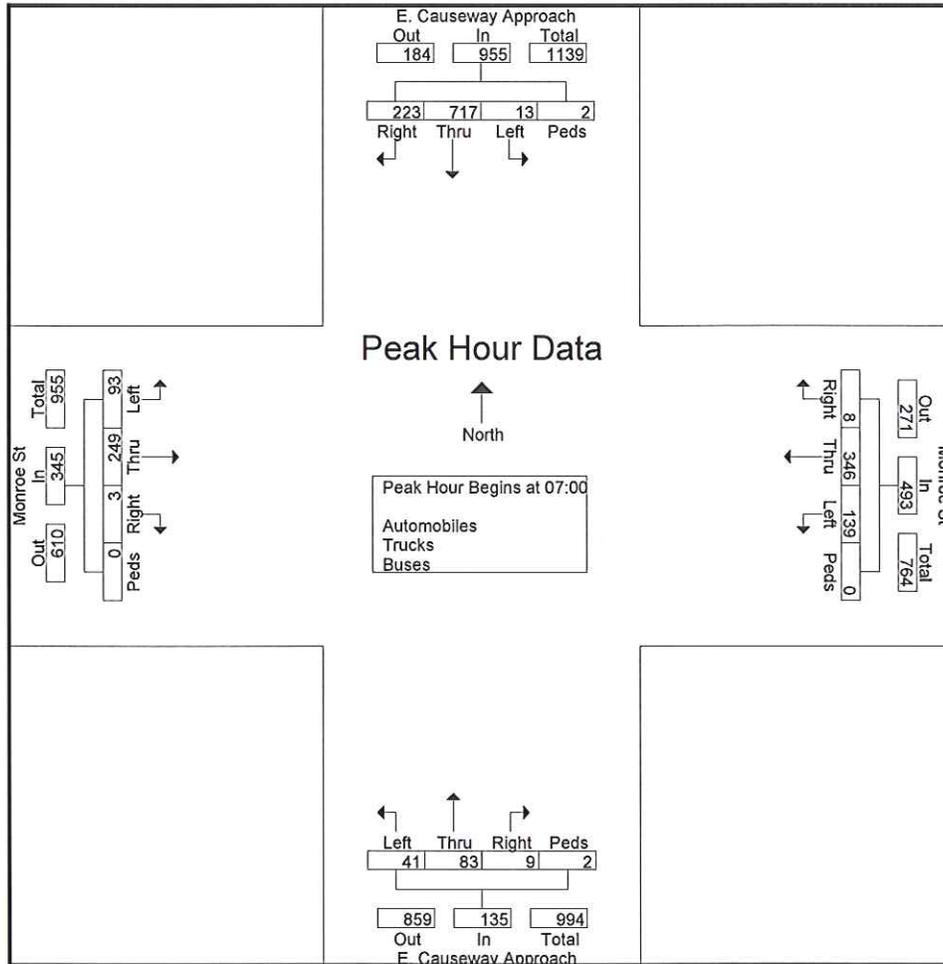
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E. Causeway Approach @ Monroe St File Name : 15064-10 MONROE ST @ E CAUSEWAY APPROACH.avi  
Mandeville, Louisiana Site Code : 15064-10

Start Date : 9/8/2015

Page No : 3

Start Time	E. Causeway Approach Southbound					Monroe St Westbound					E. Causeway Approach Northbound					Monroe St Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	3	181	58	0	242	45	103	3	0	151	4	15	4	0	23	18	85	2	0	105	521
07:15	3	209	62	0	274	33	94	4	0	131	13	25	1	0	39	31	77	0	0	108	552
07:30	1	188	50	2	241	40	91	0	0	131	13	19	3	2	37	24	40	1	0	65	474
07:45	6	139	53	0	198	21	58	1	0	80	11	24	1	0	36	20	47	0	0	67	381
Total Volume	13	717	223	2	955	139	346	8	0	493	41	83	9	2	135	93	249	3	0	345	1928
% App. Total	1.4	75.1	23.4	0.2		28.2	70.2	1.6	0		30.4	61.5	6.7	1.5		27	72.2	0.9	0		
PHF	.542	.858	.899	.250	.871	.772	.840	.500	.000	.816	.788	.830	.563	.250	.865	.750	.732	.375	.000	.799	.873





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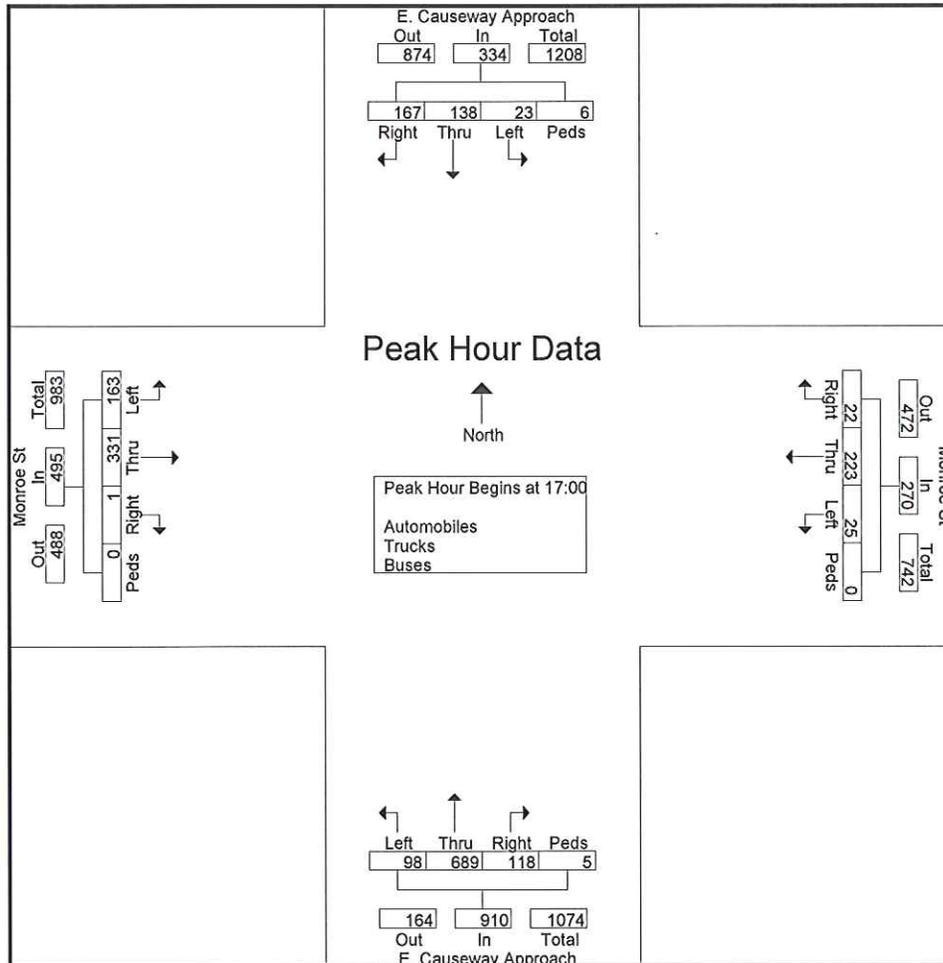
E. Causeway Approach @ Monroe St File Name : 15064-10 MONROE ST @ E CAUSEWAY APPROACH.avi  
Mandeville, Louisiana

Site Code : 15064-10

Start Date : 9/8/2015

Page No : 4

Start Time	E. Causeway Approach Southbound					Monroe St Westbound					E. Causeway Approach Northbound					Monroe St Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	6	36	44	2	88	7	40	6	0	53	26	156	21	2	205	52	100	1	0	153	499
17:15	7	39	37	0	83	12	62	5	0	79	21	180	38	1	240	42	79	0	0	121	523
17:30	3	26	43	3	75	5	67	7	0	79	28	170	21	1	220	41	94	0	0	135	509
17:45	7	37	43	1	88	1	54	4	0	59	23	183	38	1	245	28	58	0	0	86	478
Total Volume	23	138	167	6	334	25	223	22	0	270	98	689	118	5	910	163	331	1	0	495	2009
% App. Total	6.9	41.3	50	1.8		9.3	82.6	8.1	0		10.8	75.7	13	0.5		32.9	66.9	0.2	0		
PHF	.821	.885	.949	.500	.949	.521	.832	.786	.000	.854	.875	.941	.776	.625	.929	.784	.828	.250	.000	.809	.960





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MONROE ST @ CAMBRONNE ST  
MANDEVILLE, LOUISIANA

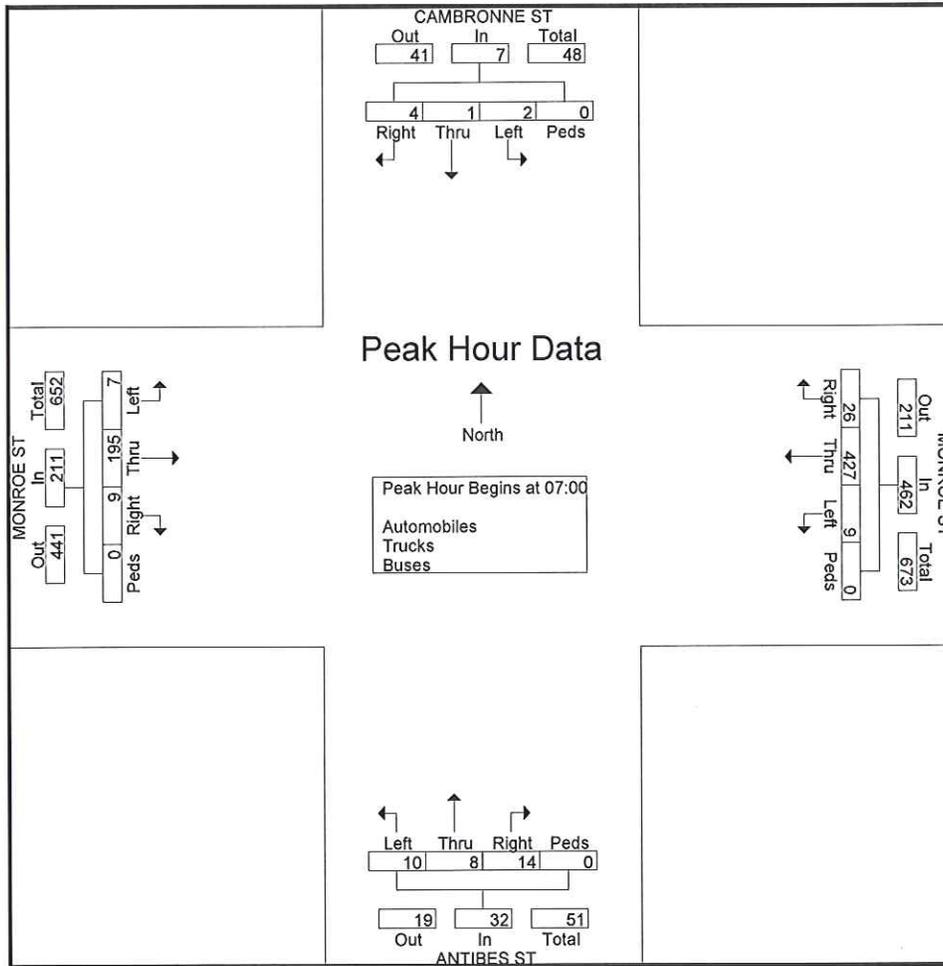
File Name : 15064-8 MONROE ST @ CAMBRONNE ST

Site Code : 00150648

Start Date : 9/9/2015

Page No : 3

Start Time	CAMBRONNE ST Southbound					MONROE ST Westbound					ANTIBES ST Northbound					MONROE ST Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	0	0	1	0	1	0	135	5	0	140	1	2	3	0	6	0	79	2	0	81	228
07:15	0	0	1	0	1	4	133	19	0	156	2	1	3	0	6	7	51	0	0	58	221
07:30	0	0	1	0	1	2	83	2	0	87	3	3	2	0	8	0	34	4	0	38	134
07:45	2	1	1	0	4	3	76	0	0	79	4	2	6	0	12	0	31	3	0	34	129
Total Volume	2	1	4	0	7	9	427	26	0	462	10	8	14	0	32	7	195	9	0	211	712
% App. Total	28.6	14.3	57.1	0		1.9	92.4	5.6	0		31.2	25	43.8	0		3.3	92.4	4.3	0		
PHF	.250	.250	1.00	.000	.438	.563	.791	.342	.000	.740	.625	.667	.583	.000	.667	.250	.617	.563	.000	.651	.781





# Southern Traffic Services, Inc.

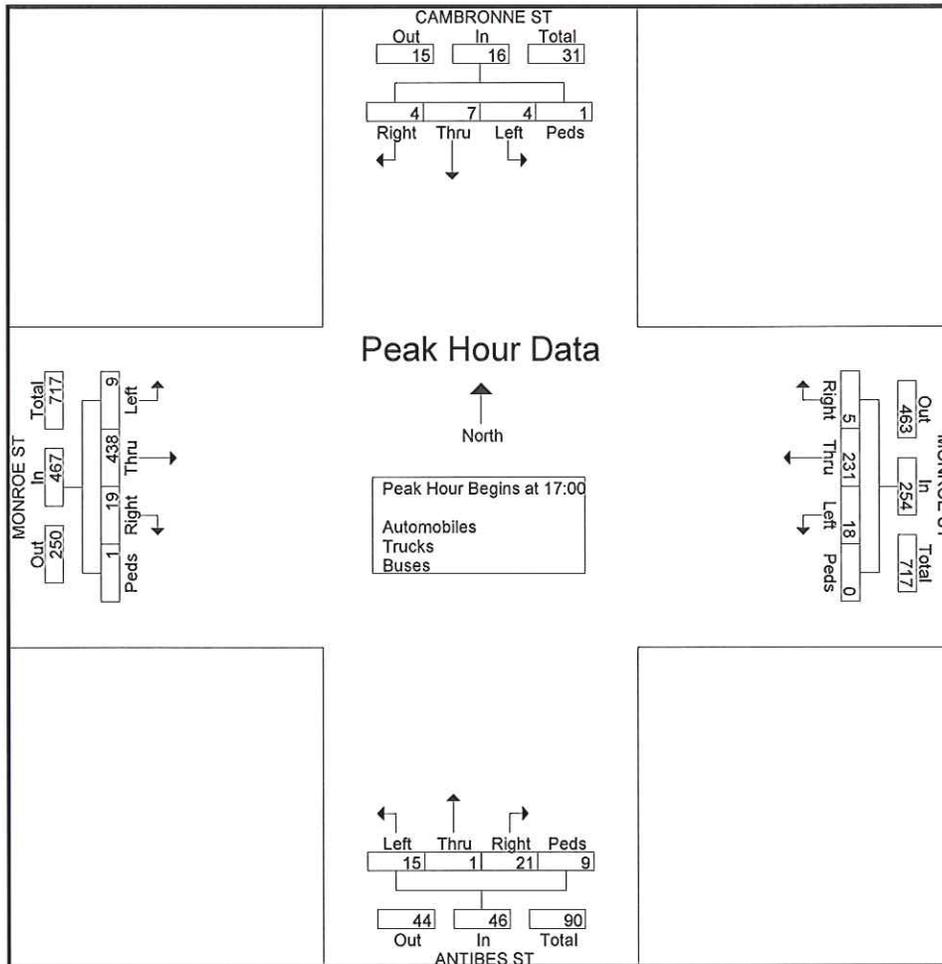
2911 Westfield Rd  
Gulf Breeze, FL 32563

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MONROE ST @ CAMBRONNE ST  
MANDEVILLE, LOUISIANA

File Name : 15064-8 MONROE ST @ CAMBRONNE ST  
Site Code : 00150648  
Start Date : 9/9/2015  
Page No : 4

Start Time	CAMBRONNE ST Southbound					MONROE ST Westbound					ANTIBES ST Northbound					MONROE ST Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	1	0	1	1	3	6	55	1	0	62	4	0	5	2	11	1	131	5	0	137	213
17:15	1	1	1	0	3	2	68	2	0	72	1	1	8	0	10	4	108	10	1	123	208
17:30	2	2	2	0	6	5	51	1	0	57	4	0	3	3	10	1	97	2	0	100	173
17:45	0	4	0	0	4	5	57	1	0	63	6	0	5	4	15	3	102	2	0	107	189
Total Volume	4	7	4	1	16	18	231	5	0	254	15	1	21	9	46	9	438	19	1	467	783
% App. Total	25	43.8	25	6.2		7.1	90.9	2	0		32.6	2.2	45.7	19.6		1.9	93.8	4.1	0.2		
PHF	.500	.438	.500	.250	.667	.750	.849	.625	.000	.882	.625	.250	.656	.563	.767	.563	.836	.475	.250	.852	.919





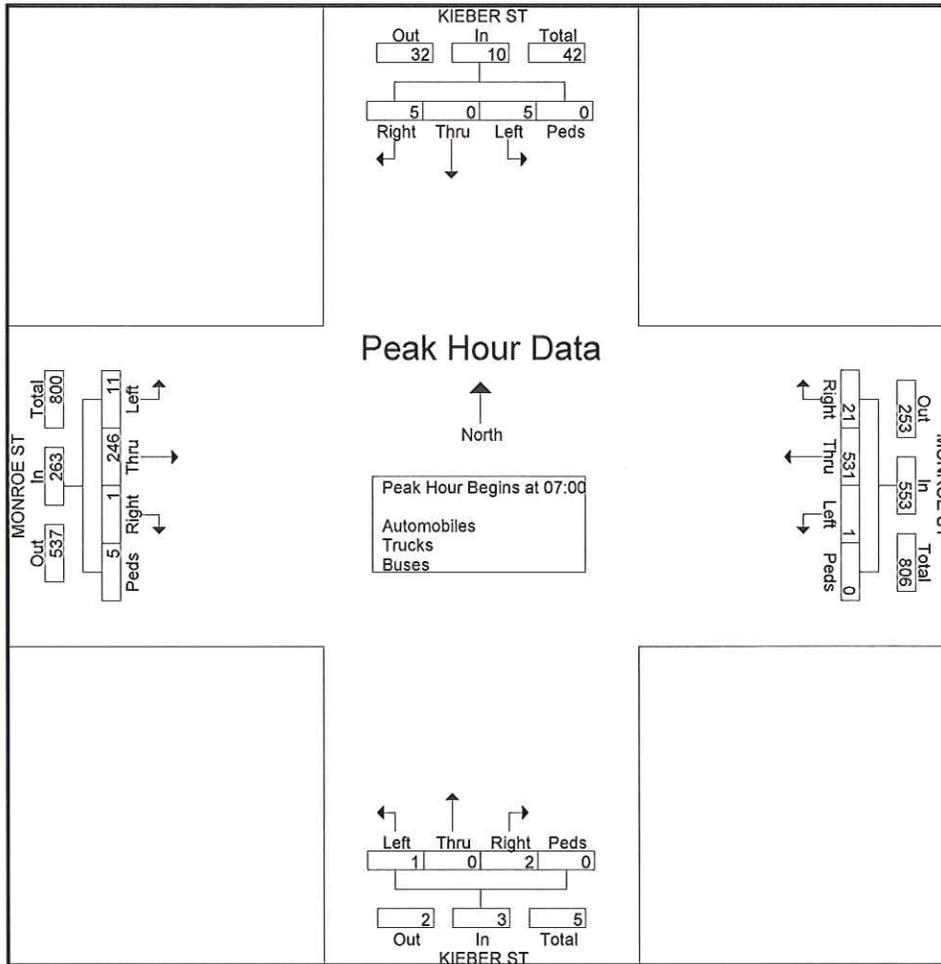
# Southern Traffic Services, Inc.

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KIEBER ST @ MONROE ST  
 MANDEVILLE, LA

File Name : TM 15064-6 KIEBER ST @ MONROE ST  
 Site Code : 00150646  
 Start Date : 9/8/2015  
 Page No : 3

Start Time	KIEBER ST Southbound					MONROE ST Westbound					KIEBER ST Northbound					MONROE ST Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	0	0	1	0	1	0	166	11	0	177	0	0	2	0	2	2	96	1	4	103	283
07:15	1	0	1	0	2	1	193	8	0	202	1	0	0	0	1	3	68	0	0	71	276
07:30	2	0	3	0	5	0	99	2	0	101	0	0	0	0	0	4	44	0	0	48	154
07:45	2	0	0	0	2	0	73	0	0	73	0	0	0	0	0	2	38	0	1	41	116
Total Volume	5	0	5	0	10	1	531	21	0	553	1	0	2	0	3	11	246	1	5	263	829
% App. Total	50	0	50	0		0.2	96	3.8	0		33.3	0	66.7	0		4.2	93.5	0.4	1.9		
PHF	.625	.000	.417	.000	.500	.250	.688	.477	.000	.684	.250	.000	.250	.000	.375	.688	.641	.250	.313	.638	.732





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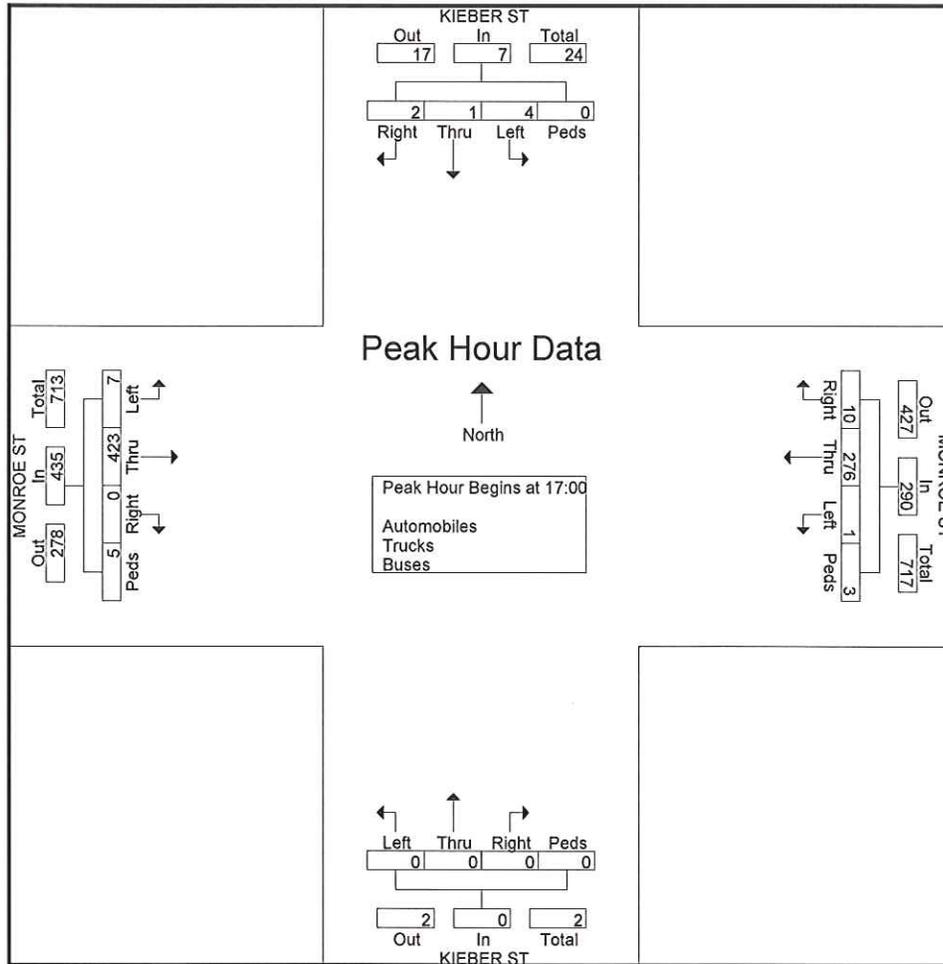
File Name : TM 15064-6 KIEBER ST @ MONROE ST

Site Code : 00150646

Start Date : 9/8/2015

Page No : 4

Start Time	KIEBER ST Southbound					MONROE ST Westbound					KIEBER ST Northbound					MONROE ST Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	0	0	0	0	0	0	52	3	0	55	0	0	0	0	0	3	111	0	0	114	169
17:15	1	0	1	0	2	0	81	0	1	82	0	0	0	0	0	1	106	0	2	109	193
17:30	1	0	1	0	2	0	78	3	2	83	0	0	0	0	0	0	104	0	2	106	191
17:45	2	1	0	0	3	1	65	4	0	70	0	0	0	0	0	3	102	0	1	106	179
Total Volume	4	1	2	0	7	1	276	10	3	290	0	0	0	0	0	7	423	0	5	435	732
% App. Total	57.1	14.3	28.6	0		0.3	95.2	3.4	1		0	0	0	0		1.6	97.2	0	1.1		
PHF	.500	.250	.500	.000	.583	.250	.852	.625	.375	.873	.000	.000	.000	.000	.000	.583	.953	.000	.625	.954	.948





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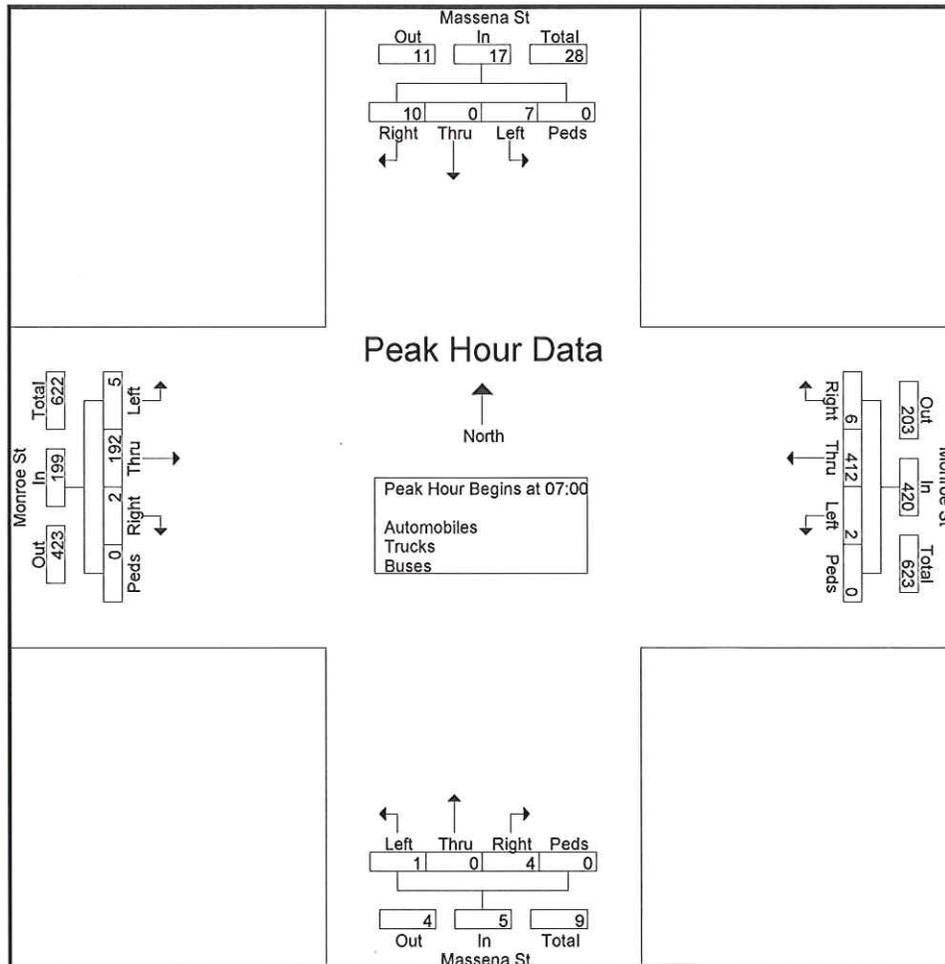
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MASSENA ST @ MONROE ST  
MANDEVILLE, LA

File Name : 15064-4 MASSENA @ MONROE ST  
Site Code : 00150644  
Start Date : 9/9/2015  
Page No : 3

Start Time	Massena St Southbound					Monroe St Westbound					Massena St Northbound					Monroe St Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	3	0	7	0	10	1	167	4	0	172	0	0	2	0	2	3	72	1	0	76	260
07:15	1	0	0	0	1	0	135	1	0	136	1	0	1	0	2	1	69	0	0	70	209
07:30	0	0	2	0	2	1	54	1	0	56	0	0	0	0	0	0	26	0	0	26	84
07:45	3	0	1	0	4	0	56	0	0	56	0	0	1	0	1	1	25	1	0	27	88
Total Volume	7	0	10	0	17	2	412	6	0	420	1	0	4	0	5	5	192	2	0	199	641
% App. Total	41.2	0	58.8	0		0.5	98.1	1.4	0		20	0	80	0		2.5	96.5	1	0		
PHF	.583	.000	.357	.000	.425	.500	.617	.375	.000	.610	.250	.000	.500	.000	.625	.417	.667	.500	.000	.655	.616





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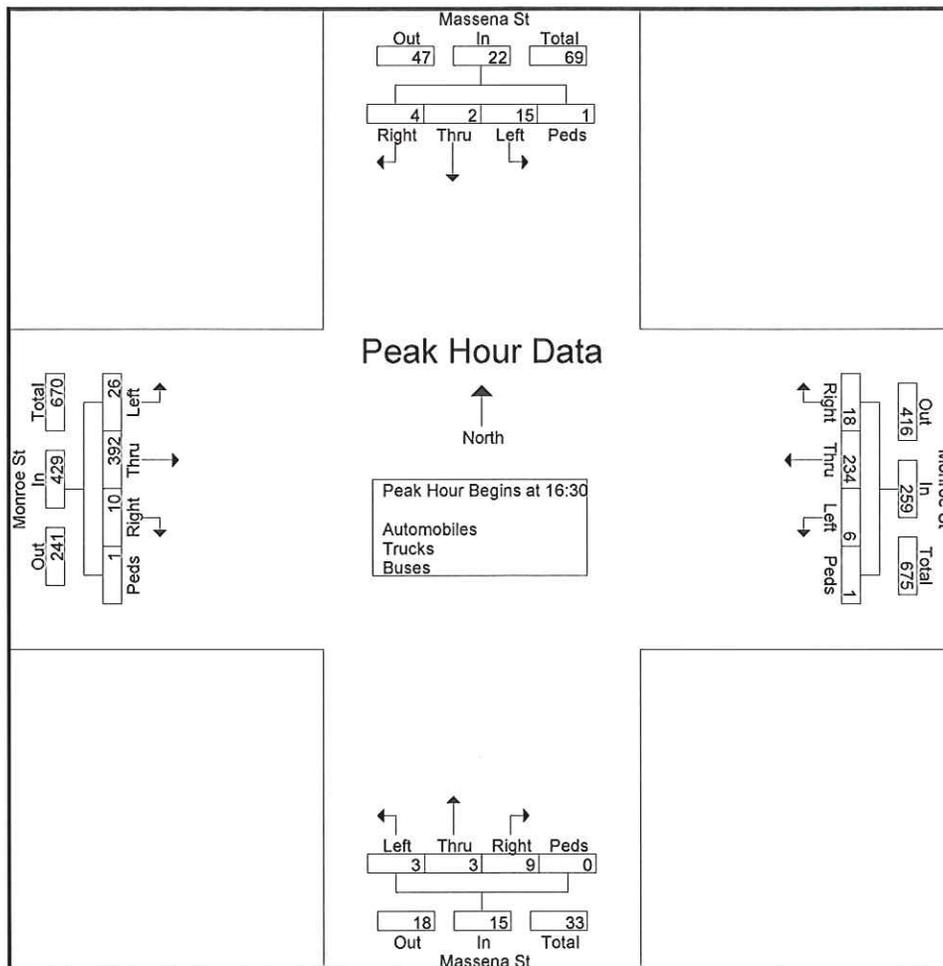
File Name : 15064-4 MASSENA @ MONROE ST

Site Code : 00150644

Start Date : 9/9/2015

Page No : 4

Start Time	Massena St Southbound					Monroe St Westbound					Massena St Northbound					Monroe St Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	4	0	0	0	4	1	51	6	0	58	0	0	2	0	2	9	95	5	0	109	173
16:45	2	1	1	1	5	2	61	3	0	66	1	1	7	0	9	7	85	4	1	97	177
17:00	6	1	1	0	8	1	50	3	0	54	1	0	0	0	1	4	114	1	0	119	182
17:15	3	0	2	0	5	2	72	6	1	81	1	2	0	0	3	6	98	0	0	104	193
Total Volume	15	2	4	1	22	6	234	18	1	259	3	3	9	0	15	26	392	10	1	429	725
% App. Total	68.2	9.1	18.2	4.5		2.3	90.3	6.9	0.4		20	20	60	0		6.1	91.4	2.3	0.2		
PHF	.625	.500	.500	.250	.688	.750	.813	.750	.250	.799	.750	.375	.321	.000	.417	.722	.860	.500	.250	.901	.939





# Southern Traffic Services, Inc.

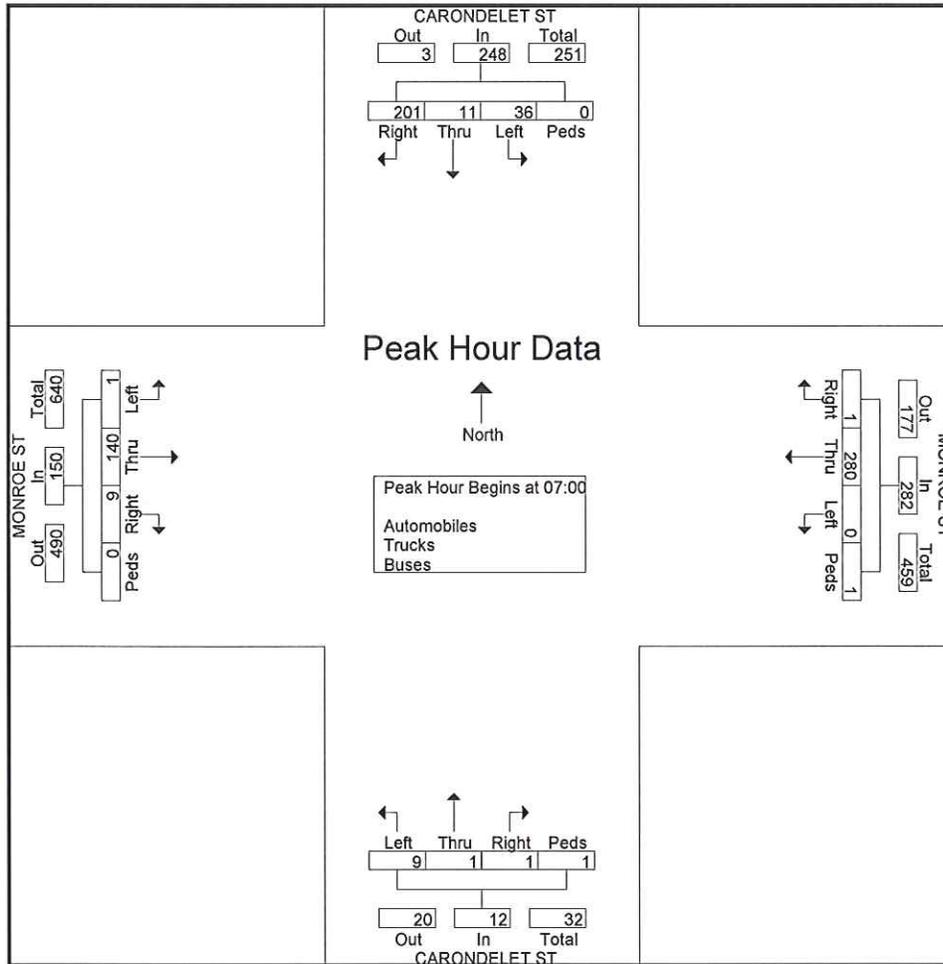
2911 Westfield Rd  
Gulf Breeze, FL 32563

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CARONDELET ST @ MONROE ST  
MANDEVILLE, LA

File Name : 15064-2 Carondelet @ Monroe  
Site Code : 00150642  
Start Date : 9/10/2015  
Page No : 3

Start Time	CARONDELET ST Southbound					MONROE ST Westbound					CARONDELET ST Northbound					MONROE ST Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	17	2	85	0	104	0	85	0	1	86	2	0	0	0	2	0	45	3	0	48	240
07:15	17	2	93	0	112	0	73	0	0	73	4	0	1	1	6	0	43	3	0	46	237
07:30	0	5	15	0	20	0	71	1	0	72	1	0	0	0	1	1	24	0	0	25	118
07:45	2	2	8	0	12	0	51	0	0	51	2	1	0	0	3	0	28	3	0	31	97
Total Volume	36	11	201	0	248	0	280	1	1	282	9	1	1	1	12	1	140	9	0	150	692
% App. Total	14.5	4.4	81	0		0	99.3	0.4	0.4		75	8.3	8.3	8.3		0.7	93.3	6	0		
PHF	.529	.550	.540	.000	.554	.000	.824	.250	.250	.820	.563	.250	.250	.250	.500	.250	.778	.750	.000	.781	.721





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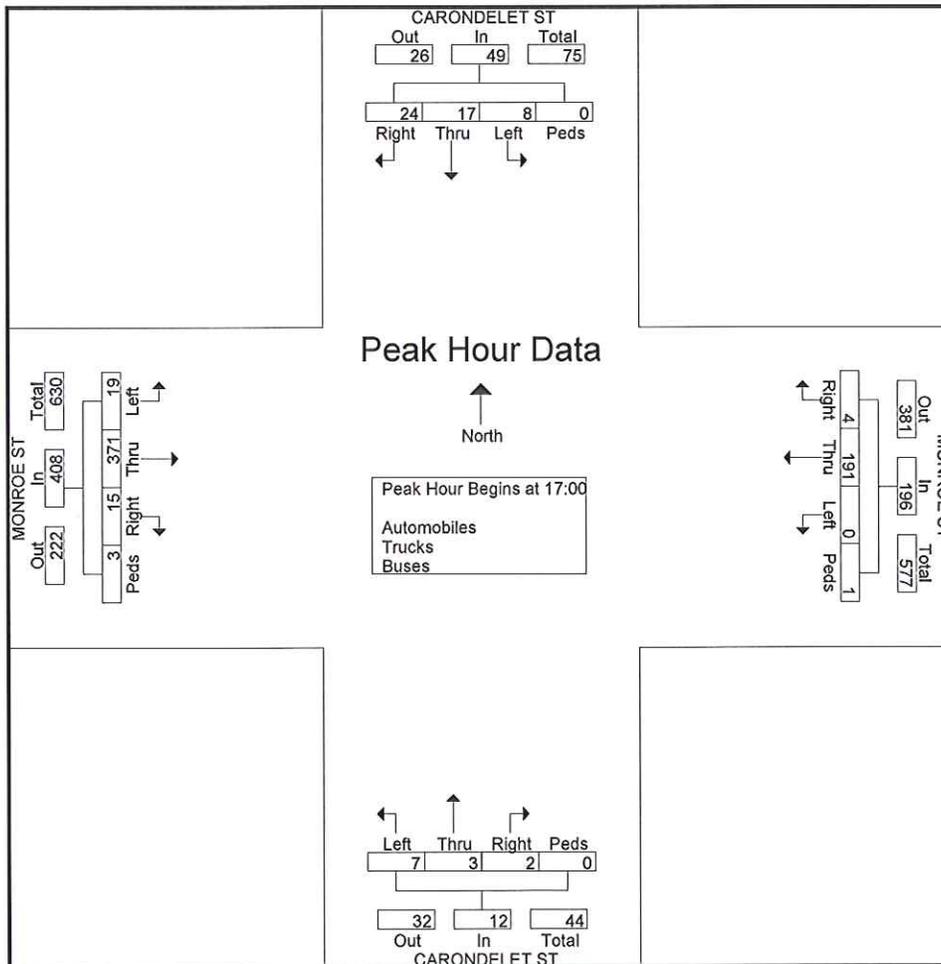
2911 Westfield Rd  
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CARONDELET ST @ MONROE ST  
MANDEVILLE, LA

File Name : 15064-2 Carondelet @ Monroe  
Site Code : 00150642  
Start Date : 9/10/2015  
Page No : 4

Start Time	CARONDELET ST Southbound					MONROE ST Westbound					CARONDELET ST Northbound					MONROE ST Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	3	5	5	0	13	0	33	0	0	33	1	0	1	0	2	6	106	4	1	117	165
17:15	1	4	6	0	11	0	58	2	1	61	2	0	0	0	2	0	101	4	1	106	180
17:30	3	4	6	0	13	0	58	0	0	58	3	2	1	0	6	7	86	7	1	101	178
17:45	1	4	7	0	12	0	42	2	0	44	1	1	0	0	2	6	78	0	0	84	142
Total Volume	8	17	24	0	49	0	191	4	1	196	7	3	2	0	12	19	371	15	3	408	665
% App. Total	16.3	34.7	49	0		0	97.4	2	0.5		58.3	25	16.7	0		4.7	90.9	3.7	0.7		
PHF	.667	.850	.857	.000	.942	.000	.823	.500	.250	.803	.583	.375	.500	.000	.500	.679	.875	.536	.750	.872	.924





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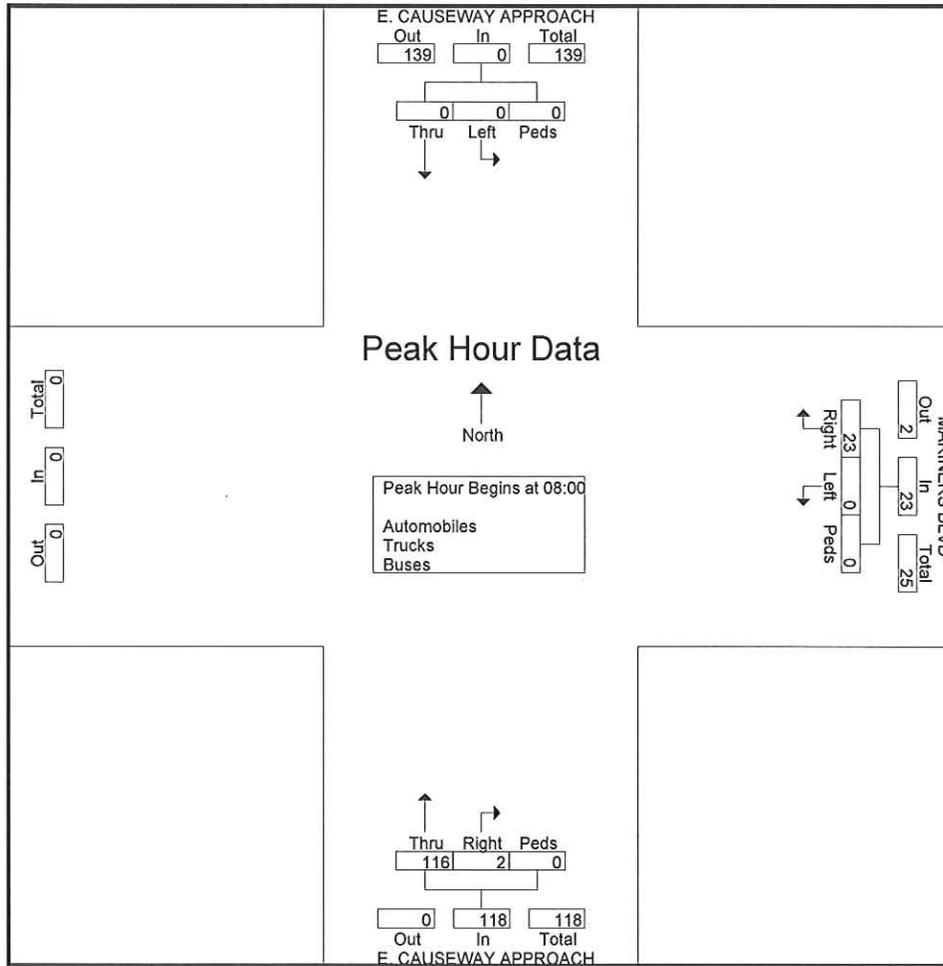
E. CAUSEWAY APPROACH @ MARINERS BLVD 064-9 E CAUSEWAY APPROACH @ MARINERS BLVD  
MANDEVILLE, LOUISIANA

Site Code : 00150649

Start Date : 9/8/2015

Page No : 3

Start Time	E. CAUSEWAY APPROACH Southbound				MARINERS BLVD Westbound				E. CAUSEWAY APPROACH Northbound				Int. Total
	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 10:45 - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00													
08:00	0	0	0	0	0	3	0	3	24	0	0	24	27
08:15	0	0	0	0	0	8	0	8	31	1	0	32	40
08:30	0	0	0	0	0	6	0	6	24	1	0	25	31
08:45	0	0	0	0	0	6	0	6	37	0	0	37	43
Total Volume	0	0	0	0	0	23	0	23	116	2	0	118	141
% App. Total	0	0	0	0	0	100	0	100	98.3	1.7	0	100	100
PHF	.000	.000	.000	.000	.000	.719	.000	.719	.784	.500	.000	.797	.820





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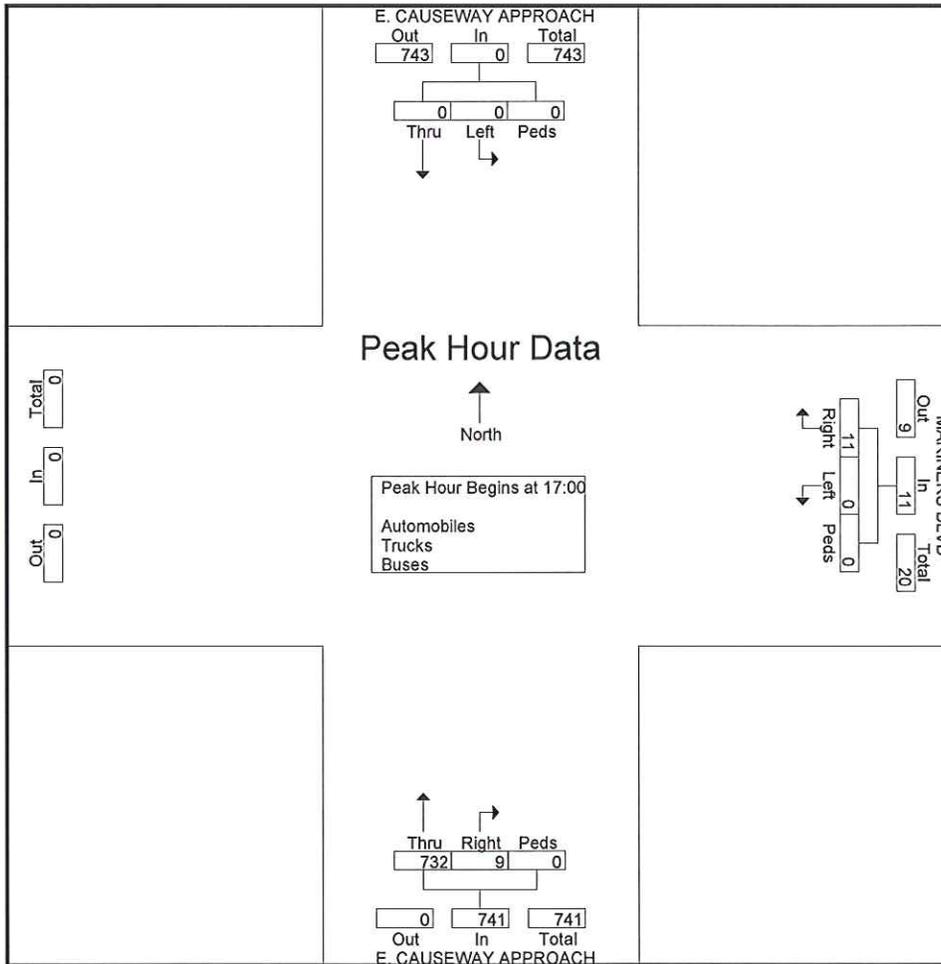
E. CAUSEWAY APPROACH @ MARINERS BLVD 064-9 E CAUSEWAY APPROACH @ MARINERS BLVD  
MANDEVILLE, LOUISIANA

Site Code : 00150649

Start Date : 9/8/2015

Page No : 4

Start Time	E. CAUSEWAY APPROACH Southbound				MARINERS BLVD Westbound				E. CAUSEWAY APPROACH Northbound				Int. Total
	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 11:00 to 17:45 - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 17:00													
17:00	0	0	0	0	0	5	0	5	132	1	0	133	138
17:15	0	0	0	0	0	4	0	4	228	3	0	231	235
17:30	0	0	0	0	0	0	0	0	176	0	0	176	176
17:45	0	0	0	0	0	2	0	2	196	5	0	201	203
Total Volume	0	0	0	0	0	11	0	11	732	9	0	741	752
% App. Total	0	0	0		0	100	0		98.8	1.2	0		
PHF	.000	.000	.000	.000	.000	.550	.000	.550	.803	.450	.000	.802	.800



**APPENDIX B**

**ITE CODES**

---

## Land Use: 210

# Single-Family Detached Housing

### Description

Single-family detached housing includes all single-family detached homes on individual lots. A typical site surveyed is a suburban subdivision.

### Additional Data

The number of vehicles and residents had a high correlation with average weekday vehicle trip ends. The use of these variables was limited, however, because the number of vehicles and residents was often difficult to obtain or predict. The number of dwelling units was generally used as the independent variable of choice because it was usually readily available, easy to project and had a high correlation with average weekday vehicle trip ends.

This land use included data from a wide variety of units with different sizes, price ranges, locations and ages. Consequently, there was a wide variation in trips generated within this category. Other factors, such as geographic location and type of adjacent and nearby development, may also have had an effect on the site trip generation.

Single-family detached units had the highest trip generation rate per dwelling unit of all residential uses because they were the largest units in size and had more residents and more vehicles per unit than other residential land uses; they were generally located farther away from shopping centers, employment areas and other trip attractors than other residential land uses; and they generally had fewer alternative modes of transportation available because they were typically not as concentrated as other residential land uses.

The peak hour of the generator typically coincided with the peak hour of the adjacent street traffic.

The sites were surveyed between the late 1960s and the 2000s throughout the United States and Canada.

### Source Numbers

1, 4, 5, 6, 7, 8, 11, 12, 13, 14, 16, 19, 20, 21, 26, 34, 35, 36, 38, 40, 71, 72, 84, 91, 98, 100, 105, 108, 110, 114, 117, 119, 157, 167, 177, 187, 192, 207, 211, 246, 275, 283, 293, 300, 319, 320, 357, 384, 435, 550, 552, 579, 598, 601, 603, 611, 614, 637, 711, 735

# Single-Family Detached Housing (210)

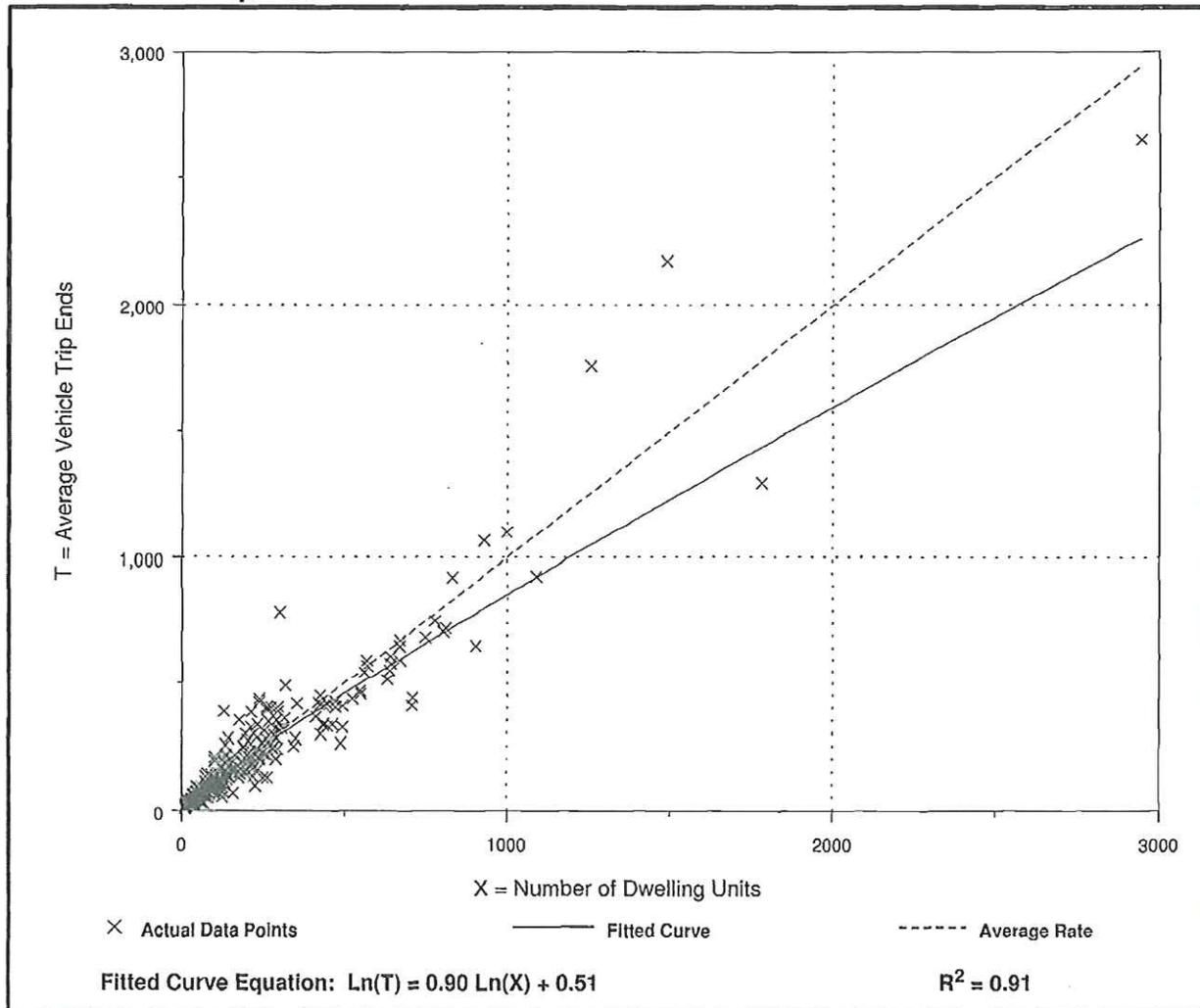
**Average Vehicle Trip Ends vs: Dwelling Units**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**

Number of Studies: 321  
 Avg. Number of Dwelling Units: 207  
 Directional Distribution: 63% entering, 37% exiting

## Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
1.00	0.42 - 2.98	1.05

## Data Plot and Equation



## Land Use: 220 Apartment

### Description

Apartments are rental dwelling units located within the same building with at least three other dwelling units, for example, quadraplexes and all types of apartment buildings. The studies included in this land use did not identify whether the apartments were low-rise, mid-rise, or high-rise. Low-rise apartment (Land Use 221), high-rise apartment (Land Use 222) and mid-rise apartment (Land Use 223) are related uses.

### Additional Data

This land use included data from a wide variety of units with different sizes, price ranges, locations and ages. Consequently, there was a wide variation in trips generated within this category. Other factors, such as geographic location and type of adjacent and nearby development, may also have had an effect on the site trip generation.

The peak hour of the generator typically coincided with the peak hour of the adjacent street traffic.

The sites were surveyed between the late 1960s and the 2000s throughout the United States and Canada.

***Many of the studies included in this land use did not indicate the total number of bedrooms. To assist in the future analysis of this land use, it is important that this information be collected and included in trip generation data submissions.***

### Source Numbers

2, 4, 5, 6, 9, 10, 11, 12, 13, 14, 16, 19, 20, 34, 35, 40, 72, 91, 100, 108, 188, 192, 204, 211, 253, 283, 357, 436, 525, 530, 579, 583, 638

# Apartment (220)

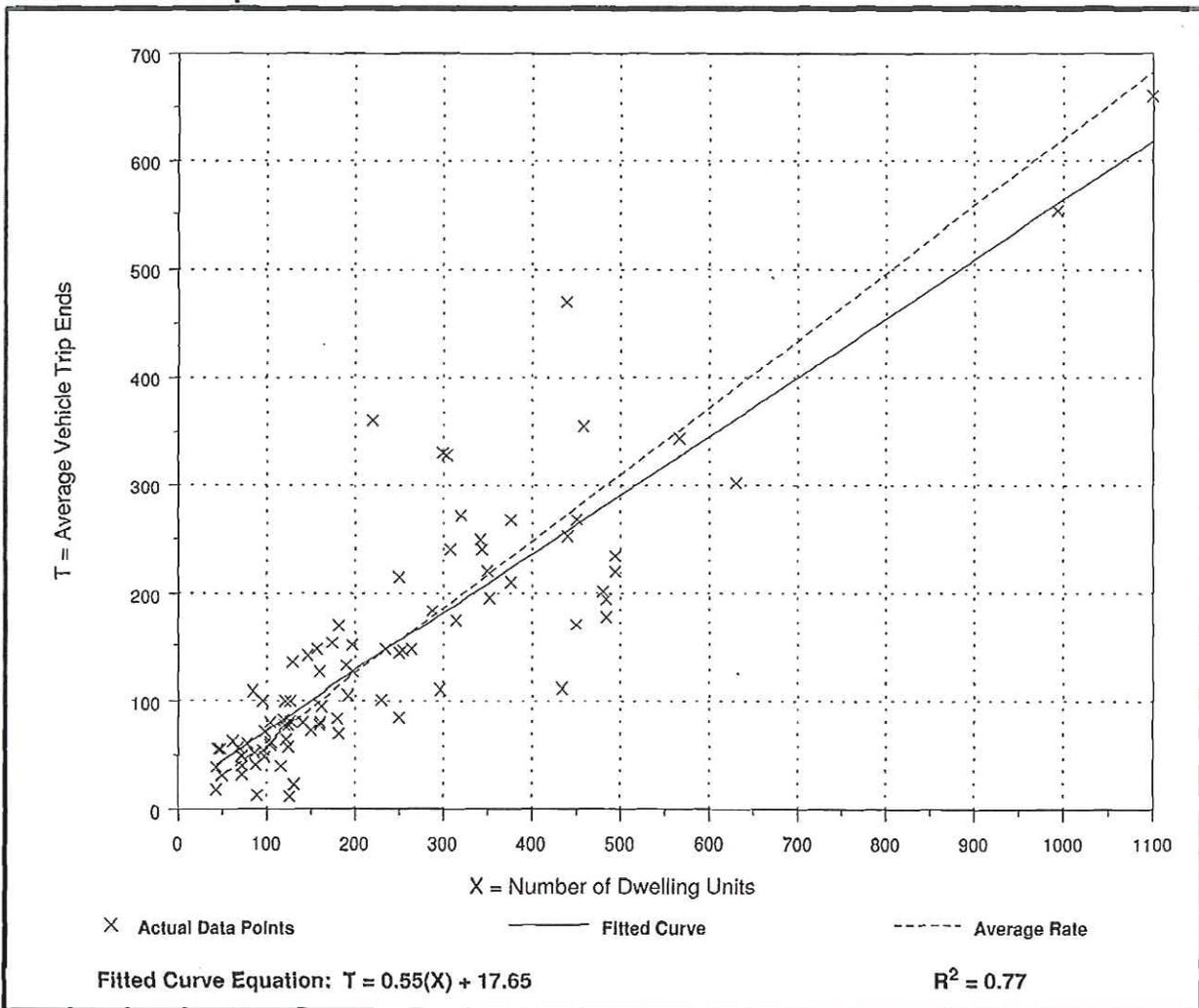
**Average Vehicle Trip Ends vs: Dwelling Units**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**

Number of Studies: 90  
 Avg. Number of Dwelling Units: 233  
 Directional Distribution: 65% entering, 35% exiting

### Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.62	0.10 - 1.64	0.82

### Data Plot and Equation



## Land Use: 230

### Residential Condominium/Townhouse

#### Description

Residential condominiums/townhouses are defined as ownership units that have at least one other owned unit within the same building structure. **Both condominiums and townhouses are included in this land use.** The studies in this land use did not identify whether the condominiums/townhouses were low-rise or high-rise. Low-rise residential condominium/townhouse (Land Use 231), high-rise residential condominium/townhouse (Land Use 232) and luxury condominium/townhouse (Land Use 233) are related uses.

#### Additional Data

The number of vehicles and the number of residents had a high correlation with average weekday vehicle trip ends. The use of these variables was limited, however, because the number of vehicles and residents was often difficult to obtain or predict. The number of dwelling units was generally used as the independent variable of choice because it is usually readily available, easy to project and had a high correlation with average weekday vehicle trip ends.

The peak hour of the generator typically coincided with the peak hour of the adjacent street traffic.

The sites were surveyed between the mid-1970s and the 2000s throughout the United States and Canada.

#### Source Numbers

4, 92, 94, 95, 97, 100, 105, 106, 114, 168, 186, 204, 237, 253, 293, 319, 320, 321, 390, 412, 418, 561, 562, 583, 638

# Residential Condominium/Townhouse (230)

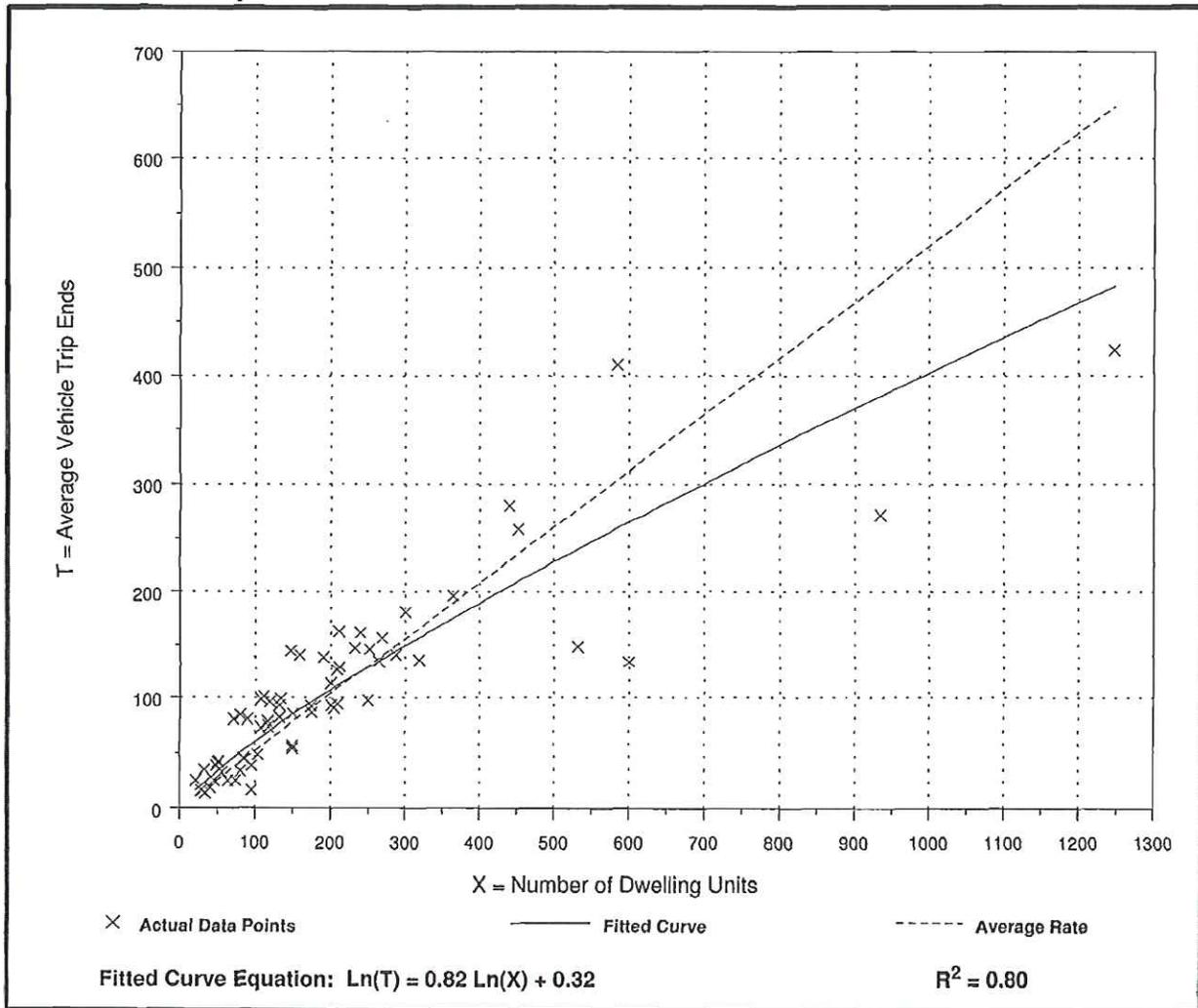
Average Vehicle Trip Ends vs: Dwelling Units  
On a: Weekday,  
Peak Hour of Adjacent Street Traffic,  
One Hour Between 4 and 6 p.m.

Number of Studies: 62  
Avg. Number of Dwelling Units: 205  
Directional Distribution: 67% entering, 33% exiting

### Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.52	0.18 - 1.24	0.75

### Data Plot and Equation



## Land Use: 310 Hotel

### Description

Hotels are places of lodging that provide sleeping accommodations and supporting facilities such as restaurants, cocktail lounges, meeting and banquet rooms or convention facilities, limited recreational facilities (pool, fitness room), and/or other retail and service shops. Some of the sites included in this land use category are actually large motels providing the hotel facilities noted above. All suites hotel (Land Use 311), business hotel (Land Use 312), motel (Land Use 320) and resort hotel (Land Use 330) are related uses.

### Additional Data

Studies of hotel employment density indicate that, on the average, a hotel will employ 0.9 employees per room.<sup>1</sup>

Thirty studies provided information on occupancy rates at the time the studies were conducted. The average occupancy rate for these studies was approximately 83 percent.

The hotels surveyed were primarily located outside central business districts in suburban areas.

Some properties contained in this land use provide guest transportation services such as airport shuttles, limousine service, or golf course shuttle service, which may have an impact on the overall trip generation rates.

The sites were surveyed between the late 1960s and the 2000s throughout the United States.

*For all lodging uses, it is important to collect data on occupied rooms as well as total rooms in order to accurately predict trip generation characteristics for the site.*

Trip generation at a hotel may be related to the presence of supporting facilities such as convention facilities, restaurants, meeting/banquet space and retail facilities. Future data submissions should specify the presence of these amenities. Reporting the level of activity at the supporting facilities such as full, empty, partially active, number of people attending a meeting/banquet during observation may also be useful in further analysis of this land use.

### Source Numbers

4, 5, 12, 13, 18, 55, 72, 170, 187, 254, 260, 262, 277, 280, 301, 306, 357, 422, 436, 507, 577, 728

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<sup>1</sup> Buttke, Carl H. Unpublished studies of building employment densities, Portland, Oregon.

# Hotel (310)

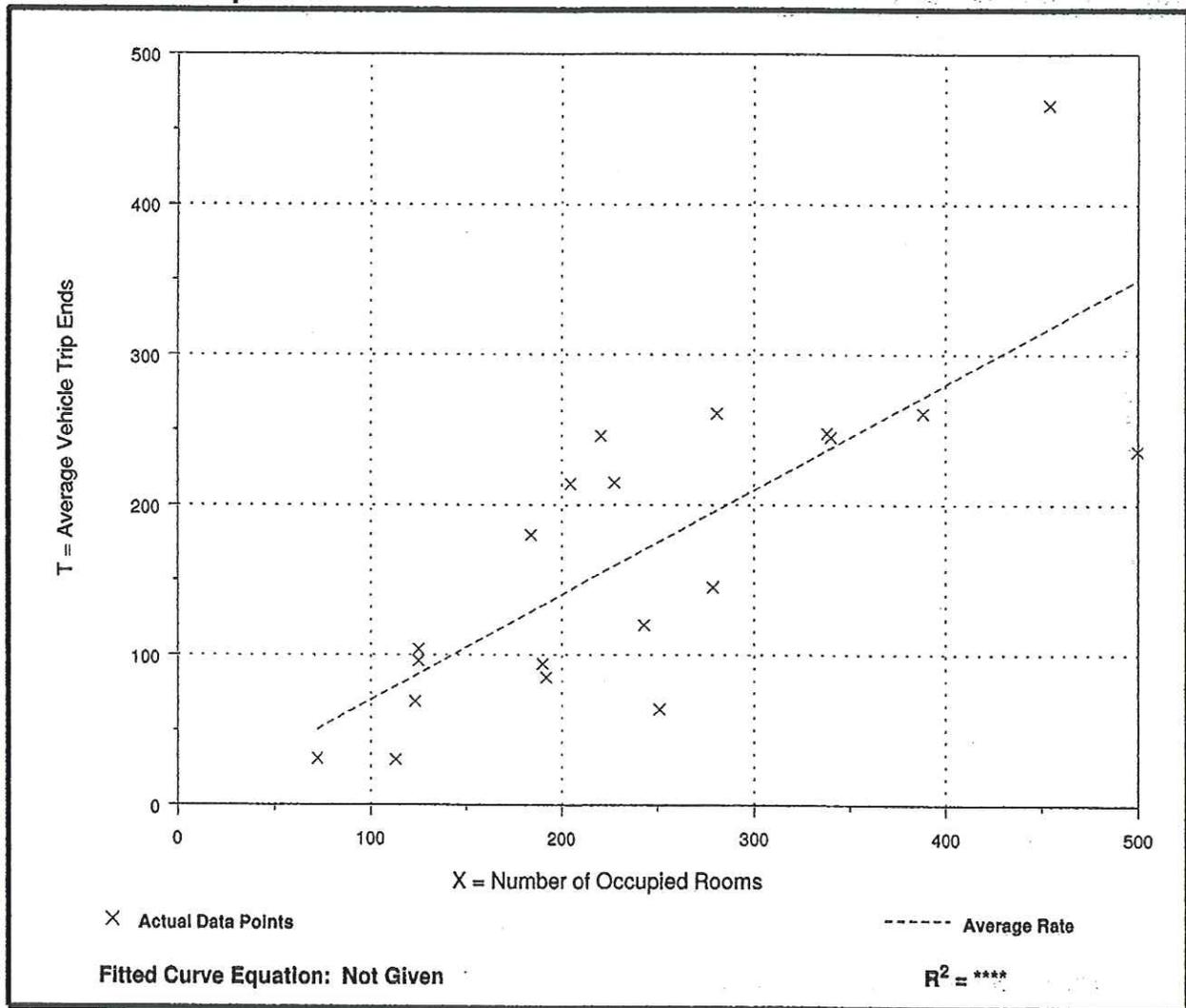
**Average Vehicle Trip Ends vs: Occupied Rooms**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**

Number of Studies: 20  
 Average Number of Occupied Rooms: 243  
 Directional Distribution: 49% entering, 51% exiting

### Trip Generation per Occupied Room

Average Rate	Range of Rates	Standard Deviation
0.70	0.25 - 1.11	0.87

### Data Plot and Equation



## Land Use: 420 Marina

### **Description**

Marinas are public or private facilities that provide docks and berths for boats and may include limited retail and restaurant space.

### **Additional Data**

The number of boat berths ranged from 108 to 1,750; the number of acres ranged from 11 to 105; and the number of parking spaces ranged from 65 to 493.

The sites were surveyed between the late 1960s and the late 1980s in California and Washington.

### **Source Numbers**

6, 12, 19, 101, 123, 265

# Marina (420)

**Average Vehicle Trip Ends vs: Berths**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**

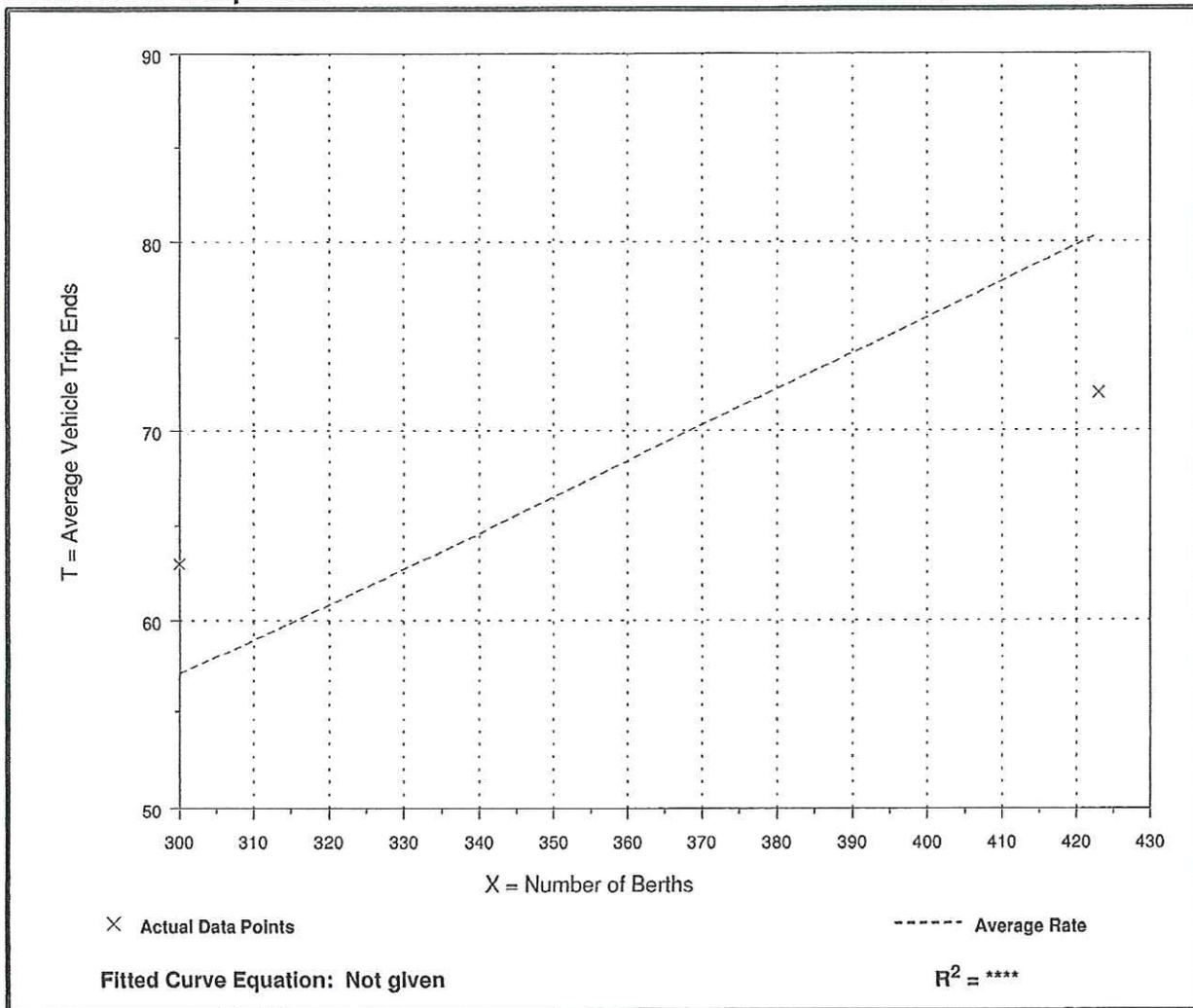
Number of Studies: 2  
 Average Number of Berths: 362  
 Directional Distribution: 60% entering, 40% exiting

### Trip Generation per Berth

Average Rate	Range of Rates	Standard Deviation
0.19	0.17 - 0.21	*

### Data Plot and Equation

*Caution - Use Carefully - Small Sample Size*



# Land Use: 820

## Shopping Center

### Description

A shopping center is an integrated group of commercial establishments that is planned, developed, owned and managed as a unit. A shopping center's composition is related to its market area in terms of size, location and type of store. A shopping center also provides on-site parking facilities sufficient to serve its own parking demands. Specialty retail center (Land Use 826) and factory outlet center (Land Use 823) are related uses.

### Additional Data

Shopping centers, including neighborhood centers, community centers, regional centers and super regional centers, were surveyed for this land use. Some of these centers contained non-merchandising facilities, such as office buildings, movie theaters, restaurants, post offices, banks, health clubs and recreational facilities (for example, ice skating rinks or indoor miniature golf courses). The centers ranged in size from 1,700 to 2.2 million square feet gross leasable area (GLA). The centers studied were located in suburban areas throughout the United States and, therefore, represent typical U.S. suburban conditions.

**Many shopping centers, in addition to the integrated unit of shops in one building or enclosed around a mall, include outparcels (peripheral buildings or pads located on the perimeter of the center adjacent to the streets and major access points). These buildings are typically drive-in banks, retail stores, restaurants, or small offices. Although the data herein do not indicate which of the centers studied included peripheral buildings, it can be assumed that some of the data show their effect.**

The vehicle trips generated at a shopping center are based upon the total GLA of the center. In cases of smaller centers without an enclosed mall or peripheral buildings, the GLA could be the same as the gross floor area of the building.

Separate equations have been developed for shopping centers during the Christmas shopping season. Plots were included for the weekday peak hour of adjacent street traffic and the Saturday peak hour of the generator.

**Information on approximate hourly, monthly and daily variation in shopping center traffic is shown in Tables 1–3. It should be noted, however, that the information contained in these tables is based on a limited sample size. Therefore, caution should be exercised when applying the data. Also, some information provided in the tables may conflict with the results obtained by applying the average rate or regression equations. When this occurs, it is suggested that the results from the average rate or regression equations be used, as they are based on a larger number of studies.**

# Shopping Center (820)

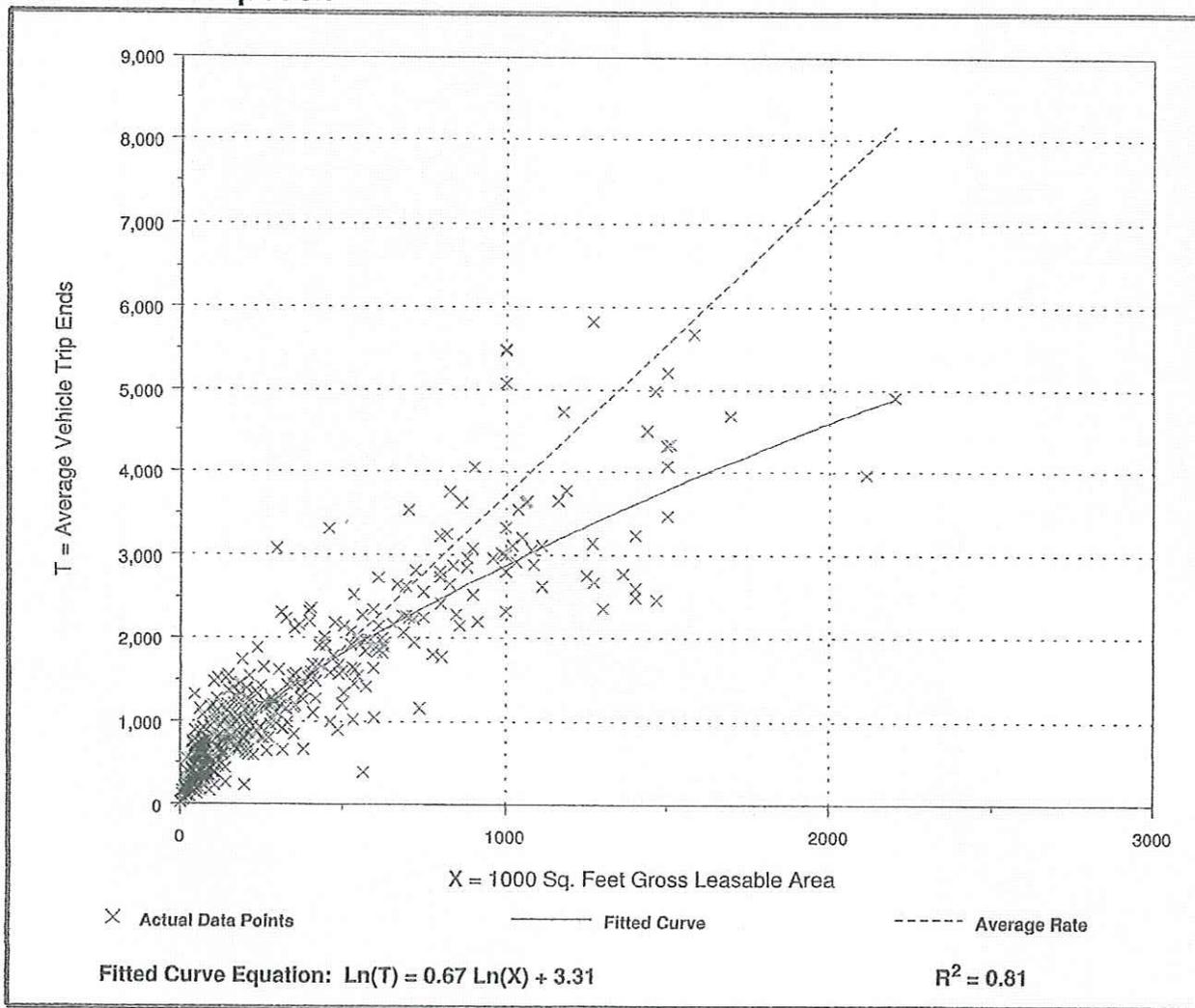
Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Leasable Area  
On a: Weekday,  
Peak Hour of Adjacent Street Traffic,  
One Hour Between 4 and 6 p.m.

Number of Studies: 426  
Average 1000 Sq. Feet GLA: 376  
Directional Distribution: 48% entering, 52% exiting

### Trip Generation per 1000 Sq. Feet Gross Leasable Area

Average Rate	Range of Rates	Standard Deviation
3.71	0.68 - 29.27	2.74

### Data Plot and Equation



## Land Use: 826 Specialty Retail Center

### Description

Specialty retail centers are generally small strip shopping centers that contain a variety of retail shops and specialize in quality apparel, hard goods and services, such as real estate offices, dance studios, florists and small restaurants. Shopping center (Land Use 820) is a related use.

### Additional Data

The sites were surveyed between the late 1970s and the 2000s in California, Florida, Georgia, New York and Pennsylvania.

### Source Numbers

100, 304, 305, 367, 423, 507, 577

# Specialty Retail Center (826)

**Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Leasable Area**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**

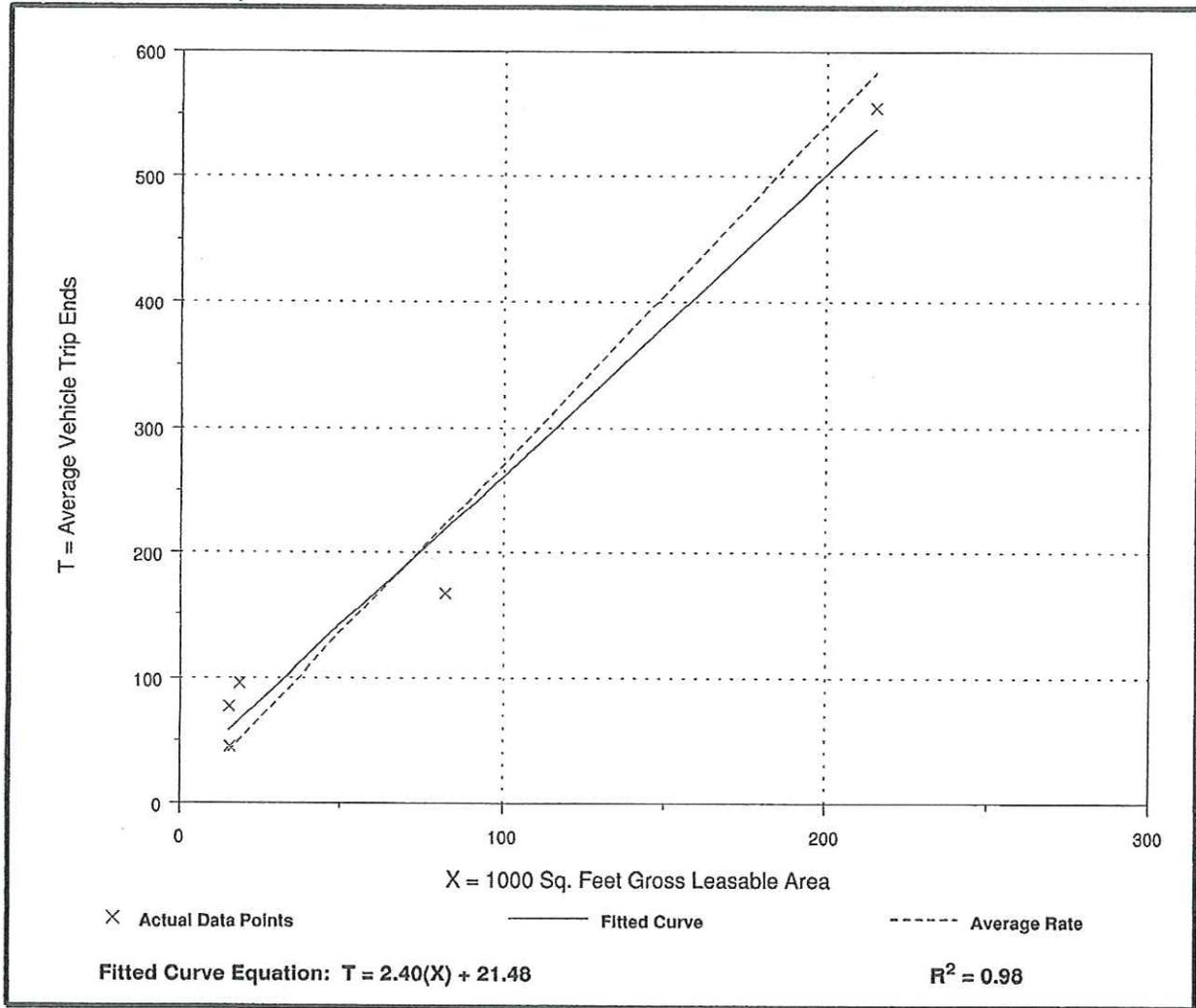
Number of Studies: 5  
 Average 1000 Sq. Feet GLA: 69  
 Directional Distribution: 44% entering, 56% exiting

### Trip Generation per 1000 Sq. Feet Gross Leasable Area

Average Rate	Range of Rates	Standard Deviation
2.71	2.03 - 5.16	1.83

### Data Plot and Equation

*Caution - Use Carefully - Small Sample Size*



# Land Use: 931

## Quality Restaurant

### Description

This land use consists of high quality, full-service eating establishments with typical duration of stay of at least one hour. Quality restaurants generally do not serve breakfast; some do not serve lunch; all serve dinner. This type of restaurant often requests and sometimes requires reservations and is generally not part of a chain. Patrons commonly wait to be seated, are served by a waiter/waitress, order from menus and pay for meals after they eat. While some of the study sites have lounge or bar facilities (serving alcoholic beverages), they are ancillary to the restaurant. High-turnover (sit-down) restaurant (Land Use 932) is a related use.

### Additional Data

Truck trips accounted for approximately 1 to 4 percent of the weekday traffic. The average for the sites that were surveyed was approximately 1.6 percent.

Vehicle occupancy ranged from 1.59 to 1.98 persons per automobile on an average weekday. The average for the sites that were surveyed was approximately 1.78.

The outdoor seating area is not included in the overall gross floor area. Therefore, the number of seats may be a more reliable independent variable on which to establish trip generation rates for facilities having significant outdoor seating.

The sites were surveyed between the 1970s and the 1990s throughout the United States.

### Source Numbers

13, 73, 88, 90, 98, 100, 126, 172, 260, 291, 301, 338, 339, 368, 437, 440

# Quality Restaurant (931)

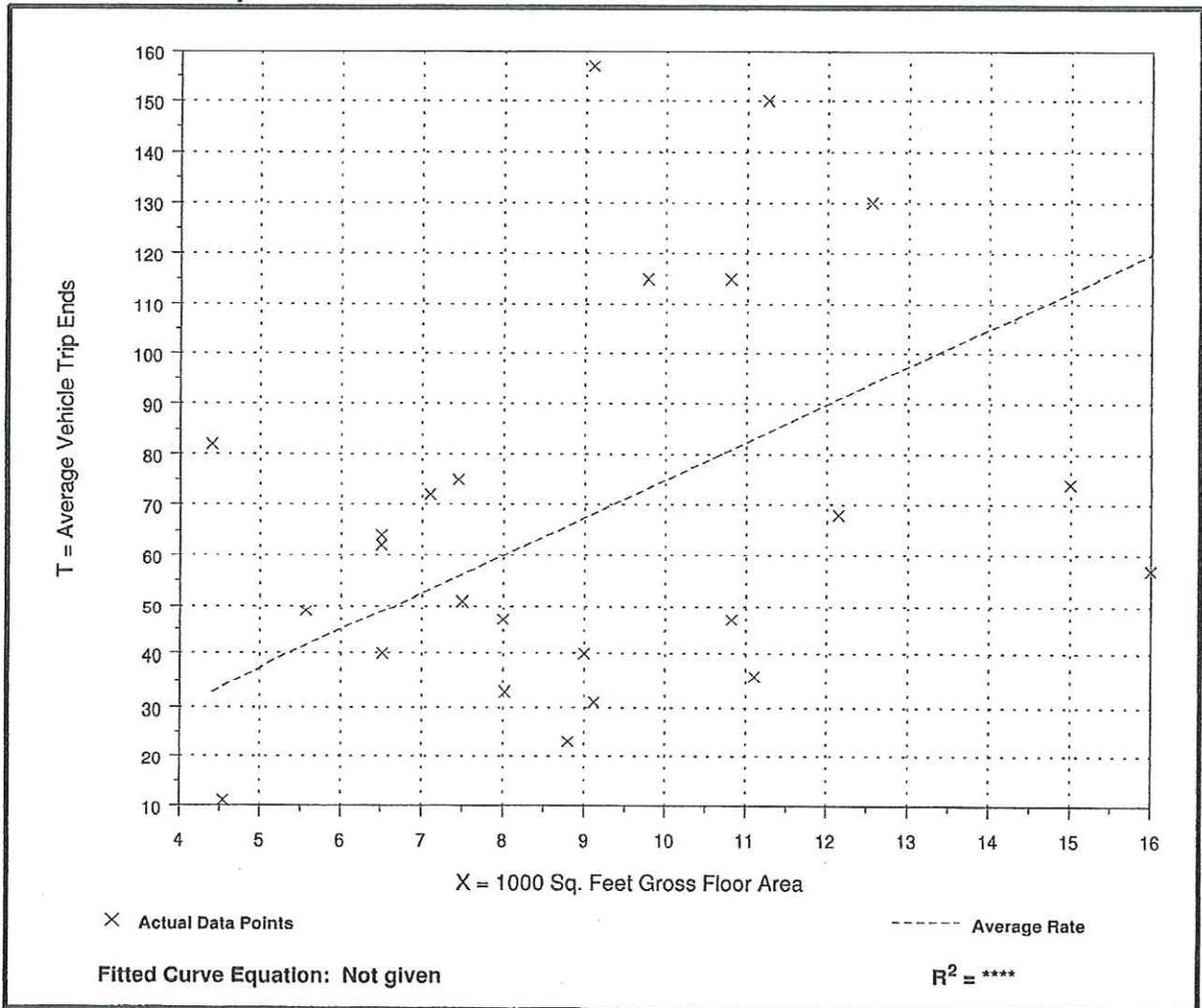
Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Floor Area  
 On a: Weekday,  
 Peak Hour of Adjacent Street Traffic,  
 One Hour Between 4 and 6 p.m.

Number of Studies: 24  
 Average 1000 Sq. Feet GFA: 9  
 Directional Distribution: 67% entering, 33% exiting

## Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
7.49	2.42 - 18.64	4.89

## Data Plot and Equation



## Land Use: 932

### High-Turnover (Sit-Down) Restaurant

#### Description

This land use consists of sit-down, full-service eating establishments with typical duration of stay of approximately one hour. This type of restaurant is usually moderately priced and frequently belongs to a restaurant chain. Generally, these restaurants serve lunch and dinner; they may also be open for breakfast and are sometimes open 24 hours per day. These restaurants typically do not take reservations. Patrons commonly wait to be seated, are served by a waiter/waitress, order from menus and pay for their meal after they eat. Some facilities contained within this land use may also contain a bar area for serving food and alcoholic drinks. Quality restaurant (Land Use 931), fast-food restaurant without drive-through window (Land Use 933), fast-food restaurant with drive-through window (Land Use 934) and fast-food restaurant with drive-through window and no indoor seating (Land Use 935) are related uses.

#### Additional Data

***Users should exercise caution when applying statistics during the A.M. peak periods, as the sites contained in the database for this land use may or may not be open for breakfast. In cases where it was confirmed that the sites were not open for breakfast, data for the A.M. peak hour of the adjacent street traffic were removed from the database.***

Information on approximate hourly variation in high-turnover (sit-down) restaurant traffic is shown in the following table. It should be noted, however, that the information contained in this table is based on a limited sample size. Therefore, caution should be exercised when applying the data. Also, some information provided in the table may conflict with the results obtained by applying the average rate or regression equations. When this occurs, it is suggested that the results from the average rate or regression equations be used, as they are based on a larger number of studies.

# High-Turnover (Sit-Down) Restaurant (932)

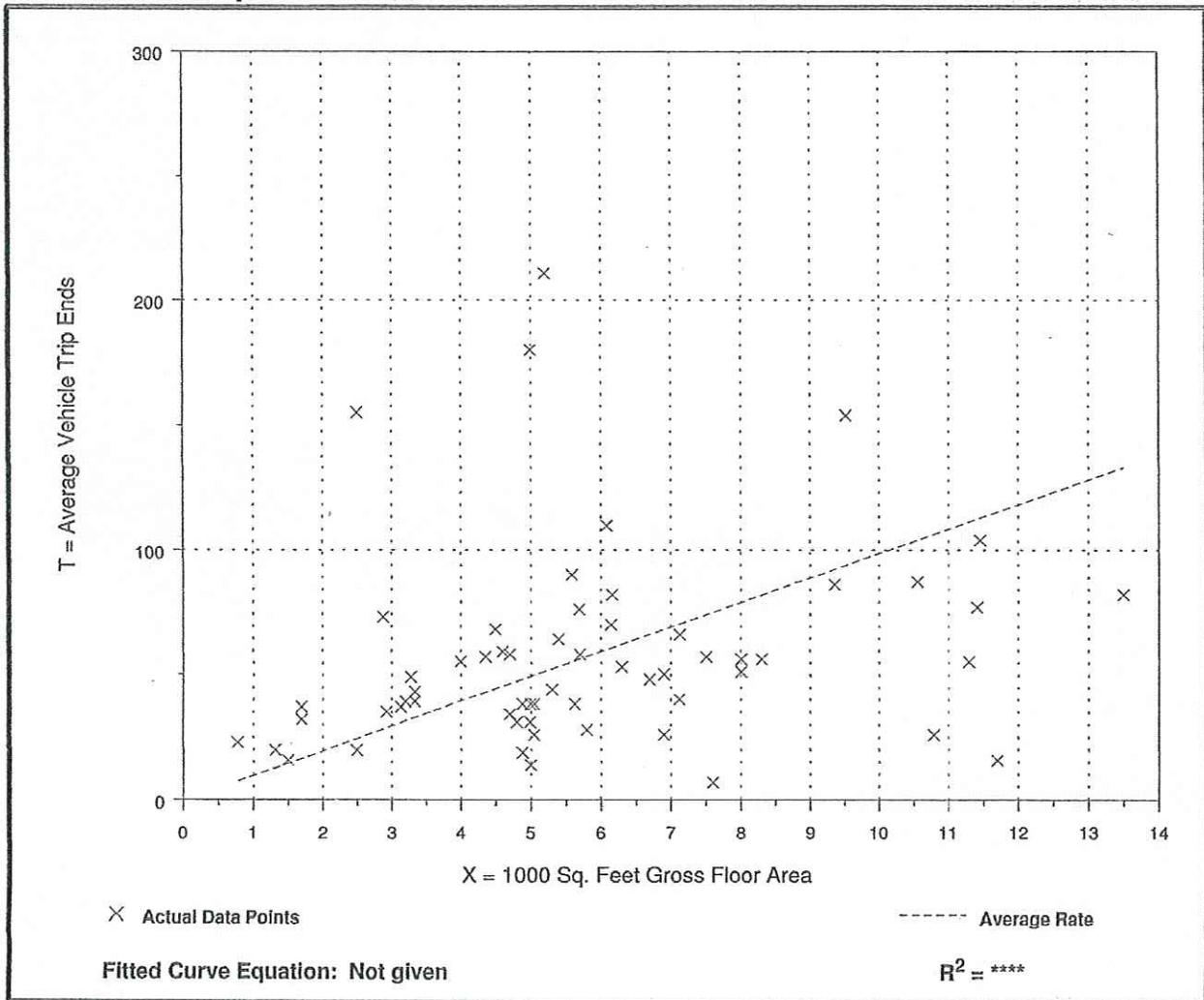
**Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Floor Area**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**

Number of Studies: 60  
 Average 1000 Sq. Feet GFA: 6  
 Directional Distribution: 60% entering, 40% exiting

## Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
9.85	0.92 - 62.00	8.54

## Data Plot and Equation



**APPENDIX C**  
**IMPACT ANALYSIS TABLES**

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**AM LOS/DELAY Evaluation with 5% Reduction**

**Monroe St. - West Service Road**

Alternative	EB	WB	NB	SB	Intersection Delay (sec)	Intersection Capacity Utilization / LOS
2015 AM (EXISTING GEOMETRY)	B	A	A	B	11	50%
2025 AM (EXISTING GEOMETRY) / Scheme 3	B	B	B	C	14	53%

**Monroe St. - East Causeway Approach (signalized)**

Alternative	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Intersection Delay (sec)
2015 AM (EXISTING GEOMETRY)	D	N/A	D	D	N/A	D	C	B	B	D	N/A	E	49
2025 AM (EXISTING GEOMETRY) / Scheme 3	E	N/A	D	E	N/A	D	C	B	B	E	N/A	F	62
2025 AM (SBRTL) / Scheme 3	D	N/A	D	D	N/A	D	C	B	B	D	E	D	46
2025 AM (SBRTL+SBLTL) / Scheme 3	D	N/A	D	D	N/A	D	C	B	B	C	D	D	43
2025 AM (WBLTL) / Scheme 3	D	N/A	D	D	D	D	C	B	B	D	N/A	E	48

\* Recommended improvement = add SBRTL & SBLTL

**Monroe St. - Cambronne**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	SB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 AM (EXISTING GEOMETRY)	N/A	N/A	C	C	18	17	38% / A
2025 AM (EXISTING GEOMETRY) / Scheme 3	N/A	N/A	C	D	22	27	43% / A

**Monroe St. - Kleber**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	SB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 AM (EXISTING GEOMETRY)	N/A	N/A	C	C	18	23	42% / A
2025 AM (EXISTING GEOMETRY) / Scheme 3	N/A	N/A	F	E	118	36	46% / A

No improvement recommended based on inconsistency in traffic counts.

**Monroe St. - Lambert**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	SB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 AM (EXISTING GEOMETRY)	N/A	N/A	N/A	B	13	N/A	32% / A
2025 AM (EXISTING GEOMETRY) / Scheme 3	N/A	N/A	C	C	17	17	44% / A

**Monroe St. - Massena**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	SB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 AM (EXISTING GEOMETRY)	N/A	N/A	B	C	13	18	33% / A
2025 AM (EXISTING GEOMETRY) / Scheme 3	N/A	N/A	C	C	16	22	40% / A

**Monroe St. - Corondelet**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	SB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 AM (EXISTING GEOMETRY)	N/A	N/A	E	C	36	23	36% / A
2025 AM (EXISTING GEOMETRY) / Scheme 3	N/A	N/A	F	D	54	31	52% / A

No improvement recommended based on existing condition, minor increase in approach delay due to development trips.

**East Causeway Approach - Mariners Blvd.**

Alternative	EB	WB	NB	SB	WB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 AM (EXISTING GEOMETRY)	N/A	A	N/A	N/A	9	13% / A
2025 AM (EXISTING GEOMETRY) / Scheme 3	N/A	A	N/A	N/A	9	27% / A

**East Causeway Approach - Cambronne St.**

Alternative	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Intersection Delay (sec)
2015 AM (EXISTING GEOMETRY)	A	A	A	B	B	A	B	N/A	N/A	B	N/A	B	13
2025 AM (EXISTING GEOMETRY) / Scheme 3	A	A	A	B	C	B	A	N/A	N/A	B	N/A	A	19

**East Causeway Approach - Kleber**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 AM (EXISTING GEOMETRY)	N/A	N/A	C	N/A	16	49% / A
2025 AM (EXISTING GEOMETRY) / Scheme 3	N/A	N/A	C	N/A	18	52% / A

**East Causeway Approach - Lambert St.**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	SB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 AM (EXISTING GEOMETRY)	N/A	N/A	A	N/A	10	N/A	36% / A
2025 AM (OPEN MEDIAN) / Scheme 3	N/A	N/A	C	E	20	39	51% / A

\* ten SB trips were added to approach (4 left, 2 thru, 4 right) to indicate impact of opening median.  
 Additional improvements not recommended until signal warrants are met.

**East Causeway Approach - Massena St.**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	SB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 AM (EXISTING GEOMETRY)	N/A	N/A	D	E	33	45	60% / B
2025 AM (EXISTING GEOMETRY) / Scheme 3	N/A	N/A	D	E	33	45	60% / B

No improvement recommended based on existing condition and no impact from development trips.

**Florida St. (US190) - Corondelet St.**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	SB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 AM (EXISTING GEOMETRY)	N/A	N/A	C	C	16	21	58% / B
2025 AM (EXISTING GEOMETRY) / Scheme 3	N/A	N/A	B	C	14	21	60% / B

Uncontrolled approaches at two-way stop intersections, LOS analysis is not applicable.

**PM LOS/DELAY Evaluation with 5% Retention**

**Monroe St. - West Service Road**

Alternative	EB	WB	NB	SB	Intersection Delay (sec)	Intersection Capacity Utilization / LOS
2015 PM (EXISTING GEOMETRY)	A	A	A	C	12	45% / A
2025 PM (EXISTING GEOMETRY) / Scheme 3	B	B	B	D	19	53% / A

**Monroe St. - East Causeway Approach**

Alternative	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Intersection Delay (sec)
2015 PM (EXISTING GEOMETRY)	C	N/A	C	C	N/A	C	B	B	B	C	N/A	C	25
2025 PM (EXISTING GEOMETRY) / Scheme 3	D	N/A	D	D	N/A	D	C	C	C	C	N/A	C	31

**Monroe St. - Cambronne**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	SB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 PM (EXISTING GEOMETRY)	N/A	N/A	C	C	16	17	37% / A
2025 PM (EXISTING GEOMETRY) / Scheme 3	N/A	N/A	C	D	21	30	43% / A

**Monroe St. - Kleber**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	SB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 PM (EXISTING GEOMETRY)	N/A	N/A	A	C	0	15	37% / A
2025 PM (EXISTING GEOMETRY) / Scheme 3	N/A	N/A	C	C	24	22	44% / A

**Monroe St. - Lambert**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	SB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 PM (EXISTING GEOMETRY)	N/A	N/A	N/A	B	N/A	12	35% / A
2025 PM (EXISTING GEOMETRY) / Scheme 3	N/A	N/A	C	C	19	19	47% / A

**Monroe St. - Massena**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	SB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 PM (EXISTING GEOMETRY)	N/A	N/A	B	C	14	18	44% / A
2025 PM (EXISTING GEOMETRY) / Scheme 3	N/A	N/A	C	D	18	27	39% / A

**Monroe St. - Corondelet**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	SB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 PM (EXISTING GEOMETRY)	N/A	N/A	C	B	16	14	45% / A
2025 PM (EXISTING GEOMETRY) / Scheme 3	N/A	N/A	C	B	21	14	52% / A

**East Causeway Approach - Mariners Blvd.**

Alternative	EB	WB	NB	SB	WB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 PM (EXISTING GEOMETRY)	N/A	B	N/A	N/A	12	31% / A
2025 PM (EXISTING GEOMETRY) / Scheme 3	N/A	B	N/A	N/A	15	35% / A

**East Causeway Approach - Cambronne St.**

Alternative	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Intersection Delay (sec)
2015 PM (EXISTING GEOMETRY)	B	N/A	B	A	A	A	A	N/A	N/A	B	N/A	A	13
2025 PM (EXISTING GEOMETRY) / Scheme 3	B	N/A	C	B	B	B	B	N/A	N/A	D	N/A	A	25

**East Causeway Approach - Kleber**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 PM (EXISTING GEOMETRY)	N/A	N/A	E	N/A	38	47% / A
2025 PM (EXISTING GEOMETRY) / Scheme 3	N/A	N/A	E	N/A	50	48% / A

No improvement recommended based on existing condition and minor delay increase due to development trips.

**East Causeway Approach - Lambert St.**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	SB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 PM (EXISTING GEOMETRY)	N/A	N/A	C	N/A	15	N/A	46% / A
2025 PM (OPEN MEDIAN) / Scheme 3	N/A	N/A	E	E	47	38	47% / A

No improvement recommended until signal warrants are met.

\* ten SB trips were added to approach (4 left, 2 thru, 4 right) to indicate impact of opening median.

**East Causeway Approach - Massena St.**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	SB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 PM (EXISTING GEOMETRY)	N/A	N/A	F	E	456	35	59% / B
2025 PM (EXISTING GEOMETRY) / Scheme 3	N/A	N/A	F	E	456	35	59% / B

No improvement recommended based on existing condition and no impact from development trips.

**Florida St. (US190) - Corondelet St.**

Alternative	EB	WB	NB	SB	NB Approach Delay (sec)	SB Approach Delay (sec)	Intersection Capacity Utilization / LOS
2015 PM (EXISTING GEOMETRY)	N/A	N/A	F	C	52	19	59% / B
2025 PM (EXISTING GEOMETRY) / Scheme 3	N/A	N/A	F	F	70	53	67% / C

No improvement recommended until signal warrants are met.

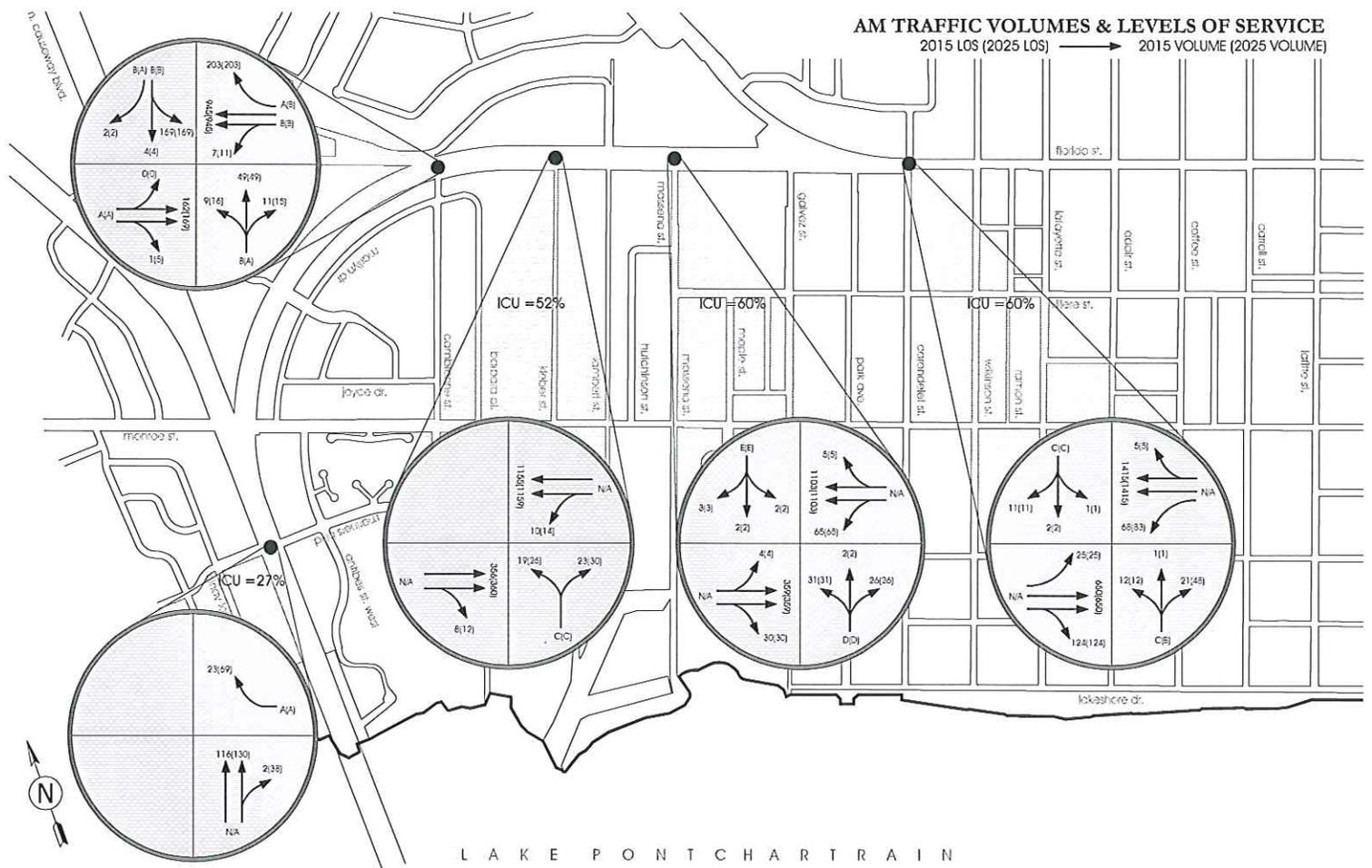
Uncontrolled approaches at two-way stop intersections, LOS analysis is not applicable.

**APPENDIX D**  
**VOLUME & LOS MAPS**

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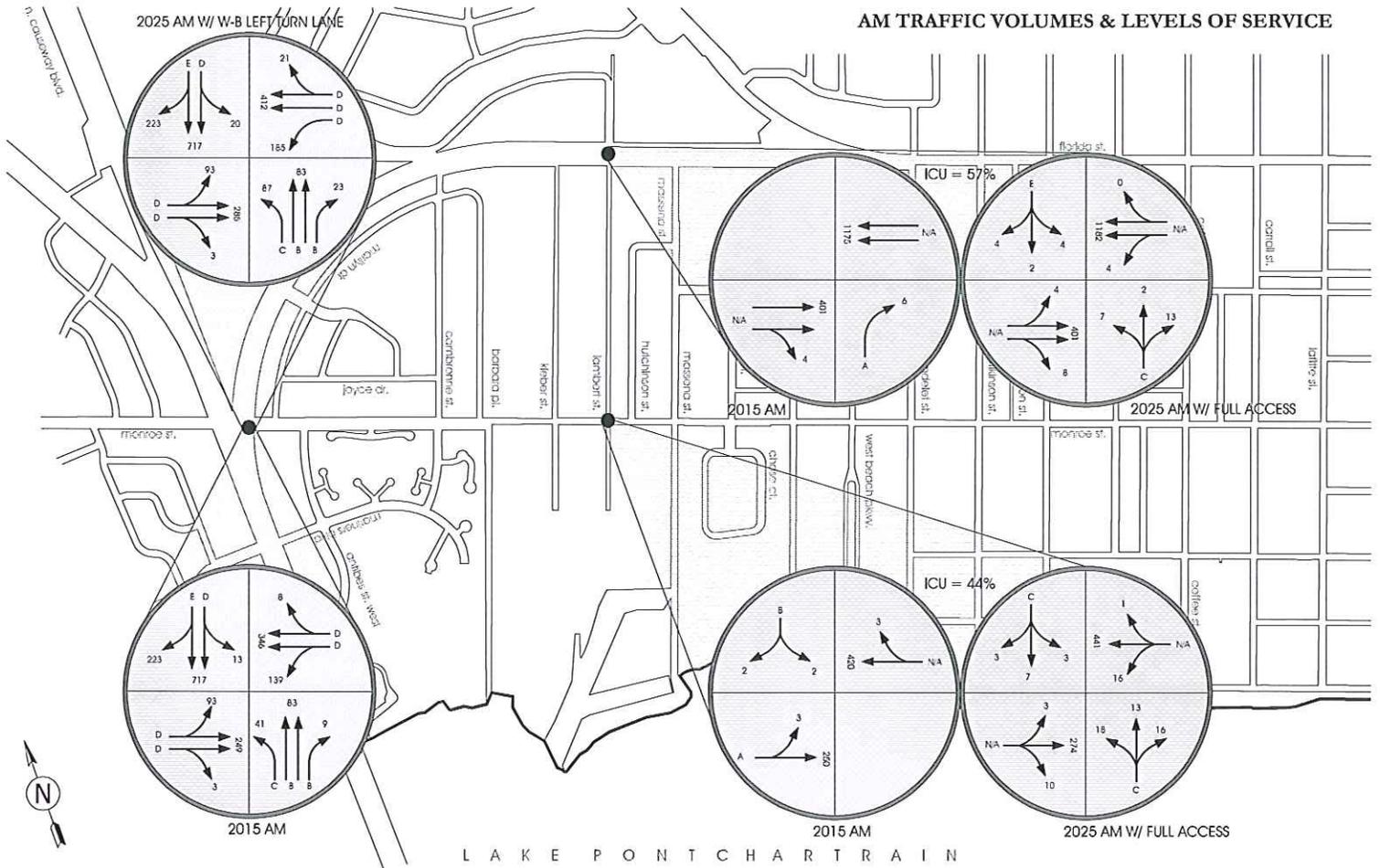


**AM TRAFFIC VOLUMES & LEVELS OF SERVICE**  
 2015 LOS (2025 LOS) → 2015 VOLUME (2025 VOLUME)

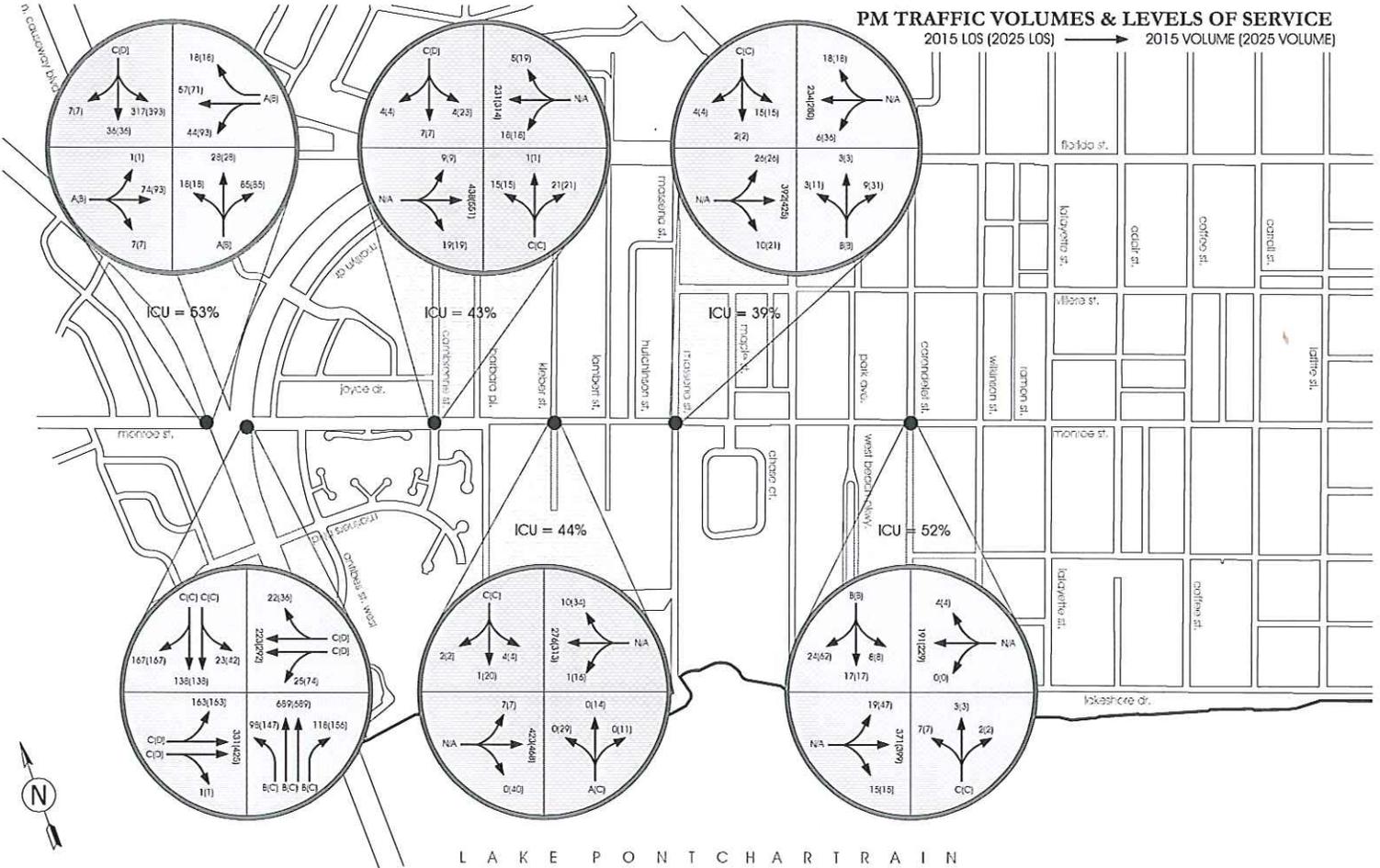


L A K E P O N T C H A R T R A I N

AM TRAFFIC VOLUMES & LEVELS OF SERVICE

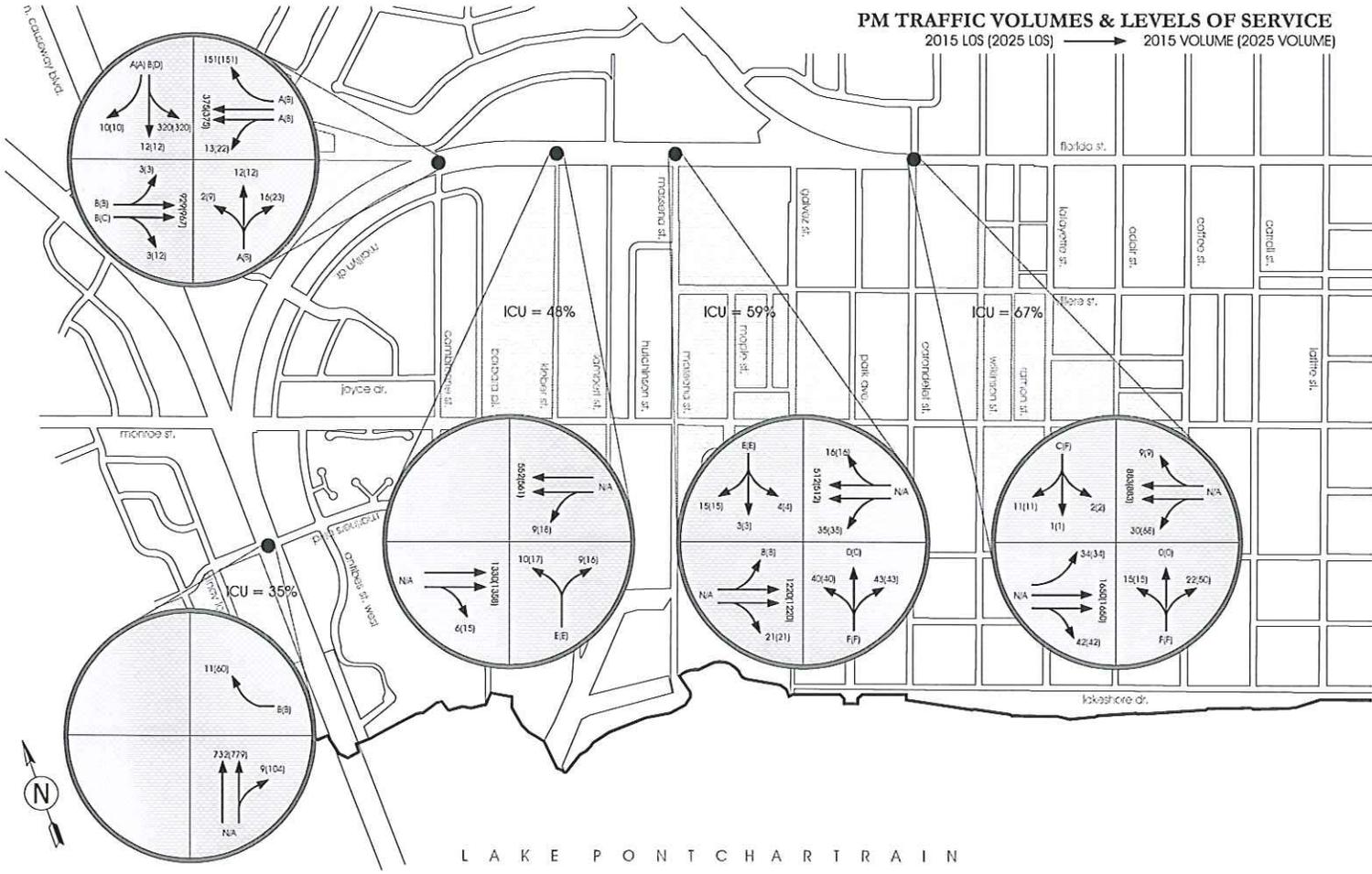


**PM TRAFFIC VOLUMES & LEVELS OF SERVICE**  
 2015 LOS (2025 LOS) → 2015 VOLUME (2025 VOLUME)



L A K E P O N T C H A R T R A I N

**PM TRAFFIC VOLUMES & LEVELS OF SERVICE**  
 2015 LOS (2025 LOS) → 2015 VOLUME (2025 VOLUME)



L A K E P O N T C H A R T R A I N



**APPENDIX E**

**OPERATIONAL ANALYSIS REPORTS (SYNCHRO)**

**2015 AM, 2025 AM, 2015 PM, 2025 PM in order of Intersection**

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2015 AM

35: West Service Road & Monroe St.

10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	19	64	14	32	31	29	11	28	160	231	56	8
Future Volume (vph)	19	64	14	32	31	29	11	28	160	231	56	8
Peak Hour Factor	0.83	0.83	0.83	0.70	0.70	0.70	0.87	0.87	0.87	0.80	0.80	0.80
Hourly flow rate (vph)	23	77	17	46	44	41	13	32	184	289	70	10
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	117	90	41	229	369							
Volume Left (vph)	23	46	0	13	289							
Volume Right (vph)	17	0	41	184	10							
Hadj (s)	-0.01	0.29	-0.67	-0.44	0.17							
Departure Headway (s)	5.8	6.5	5.5	4.7	5.1							
Degree Utilization, x	0.19	0.16	0.06	0.30	0.52							
Capacity (veh/h)	554	500	580	710	676							
Control Delay (s)	10.1	9.6	7.7	9.8	13.6							
Approach Delay (s)	10.1	9.0		9.8	13.6							
Approach LOS	B	A		A	B							
Intersection Summary												
Delay			11.4									
Level of Service			B									
Intersection Capacity Utilization			50.1%	ICU Level of Service	A							
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	19	71	14	78	44	29	11	28	160	260	56	8
Future Volume (vph)	19	71	14	78	44	29	11	28	160	260	56	8
Peak Hour Factor	0.83	0.83	0.83	0.70	0.70	0.70	0.87	0.87	0.87	0.80	0.80	0.80
Hourly flow rate (vph)	23	86	17	111	63	41	13	32	184	325	70	10
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	126	174	41	229	405							
Volume Left (vph)	23	111	0	13	325							
Volume Right (vph)	17	0	41	184	10							
Hadj (s)	-0.01	0.35	-0.67	-0.44	0.18							
Departure Headway (s)	6.2	6.8	5.8	5.2	5.5							
Degree Utilization, x	0.22	0.33	0.07	0.33	0.62							
Capacity (veh/h)	495	481	558	625	625							
Control Delay (s)	11.0	12.0	8.0	10.8	17.2							
Approach Delay (s)	11.0	11.2		10.8	17.2							
Approach LOS	B	B		B	C							
Intersection Summary												
Delay			13.6									
Level of Service			B									
Intersection Capacity Utilization			53.1%	ICU Level of Service	A							
Analysis Period (min)			15									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↖	↗	↗		↕↕	
Traffic Volume (veh/h)	93	249	3	139	346	8	41	83	9	13	717	223
Future Volume (veh/h)	93	249	3	139	346	8	41	83	9	13	717	223
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	116	311	4	170	422	10	47	95	10	15	824	256
Adj No. of Lanes	0	2	0	0	2	0	1	2	1	0	2	0
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	148	423	6	206	547	13	210	1655	738	41	876	270
Arrive On Green	0.16	0.16	0.16	0.21	0.21	0.21	0.07	0.47	0.47	0.34	0.34	0.34
Sat Flow, veh/h	940	2696	36	986	2614	64	1774	3539	1578	21	2590	797
Grp Volume(v), veh/h	224	0	207	313	0	289	47	95	10	596	0	499
Grp Sat Flow(s),veh/h/ln	1816	0	1856	1813	0	1851	1774	1770	1578	1853	0	1554
Q Serve(g_s), s	12.9	0.0	11.5	17.8	0.0	15.9	1.7	1.6	0.4	13.7	0.0	34.0
Cycle Q Clear(g_c), s	12.9	0.0	11.5	17.8	0.0	15.9	1.7	1.6	0.4	33.9	0.0	34.0
Prop In Lane	0.52		0.02	0.54		0.03	1.00		1.00	0.03		0.51
Lane Grp Cap(c), veh/h	285	0	292	380	0	388	210	1655	738	661	0	526
V/C Ratio(X)	0.79	0.00	0.71	0.82	0.00	0.75	0.22	0.06	0.01	0.90	0.00	0.95
Avail Cap(c_a), veh/h	452	0	462	485	0	495	210	1665	743	667	0	531
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.9	0.0	43.3	40.9	0.0	40.2	24.6	15.8	15.5	34.9	0.0	35.0
Incr Delay (d2), s/veh	4.8	0.0	3.2	8.8	0.0	4.6	0.5	0.0	0.0	15.3	0.0	26.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	0.0	6.1	9.9	0.0	8.6	0.9	0.8	0.2	20.2	0.0	18.5
LnGrp Delay(d),s/veh	48.7	0.0	46.5	49.7	0.0	44.8	25.1	15.8	15.5	50.2	0.0	61.8
LnGrp LOS	D		D	D		D	C	B	B	D		E
Approach Vol, veh/h		431			602			152			1095	
Approach Delay, s/veh		47.6			47.3			18.7			55.5	
Approach LOS		D			D			B			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		56.7		23.0	14.0	42.7		28.7				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		51.0		27.0	8.0	37.0		29.0				
Max Q Clear Time (g_c+I1), s		3.6		14.9	3.7	36.0		19.8				
Green Ext Time (p_c), s		9.3		1.4	0.0	0.7		2.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			49.4									
HCM 2010 LOS			D									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↗	↗		↔	
Traffic Volume (veh/h)	93	285	3	185	412	21	87	83	23	20	717	223
Future Volume (veh/h)	93	285	3	185	412	21	87	83	23	20	717	223
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	116	356	4	226	502	26	100	95	26	23	824	256
Adj No. of Lanes	0	2	0	0	2	0	1	2	1	0	2	0
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	142	464	5	249	589	31	185	1558	695	45	821	252
Arrive On Green	0.17	0.17	0.17	0.24	0.24	0.24	0.07	0.44	0.44	0.32	0.32	0.32
Sat Flow, veh/h	853	2791	32	1044	2473	132	1774	3539	1578	40	2571	789
Grp Volume(v), veh/h	247	0	229	392	0	362	100	95	26	598	0	505
Grp Sat Flow(s),veh/h/ln	1820	0	1857	1811	0	1838	1774	1770	1578	1844	0	1556
Q Serve(g_s), s	15.2	0.0	13.6	24.4	0.0	21.6	4.1	1.8	1.1	20.8	0.0	37.0
Cycle Q Clear(g_c), s	15.2	0.0	13.6	24.4	0.0	21.6	4.1	1.8	1.1	37.0	0.0	37.0
Prop In Lane	0.47		0.02	0.58		0.07	1.00		1.00	0.04		0.51
Lane Grp Cap(c), veh/h	302	0	309	431	0	438	185	1558	695	621	0	497
V/C Ratio(X)	0.82	0.00	0.74	0.91	0.00	0.83	0.54	0.06	0.04	0.96	0.00	1.02
Avail Cap(c_a), veh/h	424	0	433	453	0	460	185	1558	695	621	0	497
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.6	0.0	45.9	42.9	0.0	41.9	28.2	18.6	18.5	39.6	0.0	39.4
Incr Delay (d2), s/veh	8.4	0.0	4.2	21.5	0.0	11.4	3.2	0.0	0.0	27.1	0.0	44.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	0.0	7.3	14.8	0.0	12.3	2.1	0.9	0.5	23.6	0.0	21.8
LnGrp Delay(d),s/veh	55.0	0.0	50.1	64.5	0.0	53.2	31.4	18.7	18.5	66.8	0.0	83.7
LnGrp LOS	E		D	E		D	C	B	B	E		F
Approach Vol, veh/h		476			754			221			1103	
Approach Delay, s/veh		52.7			59.1			24.4			74.5	
Approach LOS		D			E			C			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		57.0		25.3	14.0	43.0		33.6				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		51.0		27.0	8.0	37.0		29.0				
Max Q Clear Time (g_c+1), s		3.8		17.2	6.1	39.0		26.4				
Green Ext Time (p_c), s		9.5		1.4	0.0	0.0		1.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			61.6									
HCM 2010 LOS			E									

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔↔			↔↔		↗	↕↕	↖	↗	↕↕	↖	
Traffic Volume (veh/h)	93	285	3	185	412	21	87	83	23	20	717	223	
Future Volume (veh/h)	93	285	3	185	412	21	87	83	23	20	717	223	
Number	7	4	14	3	8	18	5	2	12	1	6	16	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1863	1863	1863	1863	
Adj Flow Rate, veh/h	116	356	4	226	502	26	100	95	26	23	824	256	
Adj No. of Lanes	0	2	0	0	2	0	1	2	1	1	2	1	
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	147	481	6	263	623	33	230	1409	628	398	918	411	
Arrive On Green	0.17	0.17	0.17	0.25	0.25	0.25	0.08	0.40	0.40	0.26	0.26	0.26	
Sat Flow, veh/h	853	2791	32	1044	2473	132	1774	3539	1577	1259	3539	1583	
Grp Volume(v), veh/h	247	0	229	392	0	362	100	95	26	23	824	256	
Grp Sat Flow(s),veh/h/ln	1820	0	1857	1811	0	1839	1774	1770	1577	1259	1770	1583	
Q Serve(g_s), s	13.2	0.0	11.7	20.9	0.0	18.5	3.9	1.7	1.0	1.4	22.7	14.4	
Cycle Q Clear(g_c), s	13.2	0.0	11.7	20.9	0.0	18.5	3.9	1.7	1.0	1.4	22.7	14.4	
Prop In Lane	0.47		0.02	0.58		0.07	1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	313	0	320	456	0	463	230	1409	628	398	918	411	
V/C Ratio(X)	0.79	0.00	0.71	0.86	0.00	0.78	0.44	0.07	0.04	0.06	0.90	0.62	
Avail Cap(c_a), veh/h	486	0	496	520	0	528	230	1436	640	408	946	423	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	40.1	0.0	39.5	36.1	0.0	35.2	25.7	18.8	18.6	28.2	36.1	33.1	
Incr Delay (d2), s/veh	4.7	0.0	3.0	12.5	0.0	6.6	1.3	0.0	0.0	0.1	11.0	2.7	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	7.0	0.0	6.3	12.0	0.0	10.3	1.9	0.8	0.4	0.5	12.5	6.6	
LnGrp Delay(d),s/veh	44.8	0.0	42.5	48.6	0.0	41.9	27.0	18.8	18.6	28.3	47.1	35.8	
LnGrp LOS	D		D	D		D	C	B	B	C	D	D	
Approach Vol, veh/h		476			754			221			1103		
Approach Delay, s/veh		43.7			45.4			22.5			44.1		
Approach LOS		D			D			C			D		
Timer	1	2	3	4	5	6	7	8					
Assigned Phs		2		4	5	6		8					
Phs Duration (G+Y+Rc), s		46.2		23.4	14.0	32.2		31.4					
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0					
Max Green Setting (Gmax), s		41.0		27.0	8.0	27.0		29.0					
Max Q Clear Time (g_c+I1), s		3.7		15.2	5.9	24.7		22.9					
Green Ext Time (p_c), s		8.2		1.5	0.0	1.5		2.4					
<b>Intersection Summary</b>													
HCM 2010 Ctrl Delay			42.5										
HCM 2010 LOS			D										

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖	↗		↖	↗	↗		↔	
Traffic Volume (veh/h)	93	285	3	185	412	21	87	83	23	20	717	223
Future Volume (veh/h)	93	285	3	185	412	21	87	83	23	20	717	223
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	116	356	4	226	502	26	100	95	26	23	824	256
Adj No. of Lanes	0	2	0	1	2	0	1	2	1	0	2	0
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	473	6	340	656	34	212	1669	744	48	878	269
Arrive On Green	0.17	0.17	0.17	0.19	0.19	0.19	0.07	0.47	0.47	0.34	0.34	0.34
Sat Flow, veh/h	853	2791	32	1774	3423	177	1774	3539	1578	38	2572	790
Grp Volume(v), veh/h	247	0	229	226	259	269	100	95	26	599	0	504
Grp Sat Flow(s),veh/h/ln	1820	0	1857	1774	1770	1830	1774	1770	1578	1844	0	1556
Q Serve(g_s), s	14.1	0.0	12.5	12.7	14.9	15.0	3.6	1.6	1.0	17.3	0.0	34.0
Cycle Q Clear(g_c), s	14.1	0.0	12.5	12.7	14.9	15.0	3.6	1.6	1.0	34.0	0.0	34.0
Prop In Lane	0.47		0.02	1.00		0.10	1.00		1.00	0.04		0.51
Lane Grp Cap(c), veh/h	308	0	315	340	339	351	212	1669	744	664	0	531
V/C Ratio(X)	0.80	0.00	0.73	0.66	0.76	0.77	0.47	0.06	0.03	0.90	0.00	0.95
Avail Cap(c_a), veh/h	457	0	466	479	477	494	212	1679	749	670	0	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.9	0.0	42.3	40.3	41.1	41.2	25.0	15.4	15.3	34.4	0.0	34.5
Incr Delay (d2), s/veh	6.2	0.0	3.2	2.2	4.7	4.6	1.6	0.0	0.0	15.3	0.0	26.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	0.0	6.7	6.4	7.7	8.0	1.9	0.8	0.4	20.1	0.0	18.5
LnGrp Delay(d),s/veh	49.1	0.0	45.5	42.5	45.8	45.8	26.6	15.4	15.3	49.8	0.0	61.3
LnGrp LOS	D		D	D	D	D	C	B	B	D		E
Approach Vol, veh/h		476			754			221				1103
Approach Delay, s/veh		47.4			44.8			20.5				55.0
Approach LOS		D			D			C				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		56.7		24.2	14.0	42.7		26.6				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		51.0		27.0	8.0	37.0		29.0				
Max Q Clear Time (g_c+l1), s		3.6		16.1	5.6	36.0		17.0				
Green Ext Time (p_c), s		9.5		1.5	0.0	0.7		3.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			47.6									
HCM 2010 LOS			D									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	93	285	3	185	412	21	87	83	23	20	717	223
Future Volume (veh/h)	93	285	3	185	412	21	87	83	23	20	717	223
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	116	356	4	226	502	26	100	95	26	23	824	256
Adj No. of Lanes	0	2	0	1	2	0	1	2	1	1	2	1
Peak Hour Factor	0.80	0.80	0.80	0.82	0.82	0.82	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	493	6	359	692	36	260	1506	671	423	967	433
Arrive On Green	0.18	0.18	0.18	0.20	0.20	0.20	0.09	0.43	0.43	0.27	0.27	0.27
Sat Flow, veh/h	853	2791	32	1774	3423	177	1774	3539	1578	1259	3539	1583
Grp Volume(v), veh/h	247	0	229	226	259	269	100	95	26	23	824	256
Grp Sat Flow(s),veh/h/ln	1820	0	1857	1774	1770	1830	1774	1770	1578	1259	1770	1583
Q Serve(g_s), s	11.9	0.0	10.6	10.7	12.6	12.6	3.4	1.5	0.9	1.2	20.3	12.9
Cycle Q Clear(g_c), s	11.9	0.0	10.6	10.7	12.6	12.6	3.4	1.5	0.9	1.2	20.3	12.9
Prop In Lane	0.47		0.02	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	321	0	328	359	358	370	260	1506	671	423	967	433
V/C Ratio(X)	0.77	0.00	0.70	0.63	0.72	0.73	0.38	0.06	0.04	0.05	0.85	0.59
Avail Cap(c_a), veh/h	534	0	545	559	558	577	260	1578	703	448	1039	465
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	0.0	35.6	33.5	34.3	34.3	21.9	15.6	15.4	24.7	31.6	29.0
Incr Delay (d2), s/veh	3.9	0.0	2.7	1.8	2.8	2.7	0.9	0.0	0.0	0.1	6.6	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	0.0	5.7	5.4	6.4	6.6	1.7	0.7	0.4	0.4	10.7	5.8
LnGrp Delay(d),s/veh	40.0	0.0	38.2	35.4	37.1	37.0	22.9	15.6	15.4	24.8	38.2	30.7
LnGrp LOS	D		D	D	D	D	C	B	B	C	D	C
Approach Vol, veh/h		476			754			221			1103	
Approach Delay, s/veh		39.2			36.5			18.9			36.2	
Approach LOS		D			D			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		45.1		22.2	14.0	31.1		24.6				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		41.0		27.0	8.0	27.0		29.0				
Max Q Clear Time (g_c+1), s		3.5		13.9	5.4	22.3		14.6				
Green Ext Time (p_c), s		8.2		1.6	0.0	2.7		3.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			35.4									
HCM 2010 LOS			D									

2015 AM

1: Monroe & Cambronne St

10/29/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	7	195	9	9	427	26	10	8	14	2	1	4
Future Volume (Veh/h)	7	195	9	9	427	26	10	8	14	2	1	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.65	0.65	0.65	0.74	0.74	0.74	0.67	0.67	0.67	0.44	0.44	0.44
Hourly flow rate (vph)	11	300	14	12	577	35	15	12	21	5	2	9
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	612			314			958	965	307	974	954	594
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	612			314			958	965	307	974	954	594
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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	95	97	98	99	98
cM capacity (veh/h)	967			1246			228	250	733	213	253	505
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	325	624	48	16								
Volume Left	11	12	15	5								
Volume Right	14	35	21	9								
cSH	967	1246	337	325								
Volume to Capacity	0.01	0.01	0.14	0.05								
Queue Length 95th (ft)	1	1	12	4								
Control Delay (s)	0.4	0.3	17.5	16.7								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.4	0.3	17.5	16.7								
Approach LOS			C	C								
<b>Intersection Summary</b>												
Average Delay			1.4									
Intersection Capacity Utilization			37.7%		ICU Level of Service				A			
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	7	238	9	9	506	39	10	8	14	9	1	4
Future Volume (Veh/h)	7	238	9	9	506	39	10	8	14	9	1	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.65	0.65	0.65	0.74	0.74	0.74	0.67	0.67	0.67	0.44	0.44	0.44
Hourly flow rate (vph)	11	366	14	12	684	53	15	12	21	20	2	9
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	737			380			1140	1156	373	1156	1136	710
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	737			380			1140	1156	373	1156	1136	710
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			91	94	97	87	99	98
cM capacity (veh/h)	869			1178			170	192	673	157	197	433
<b>Direction, Lane #</b>												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	391	749	48	31								
Volume Left	11	12	15	20								
Volume Right	14	53	21	9								
cSH	869	1178	264	196								
Volume to Capacity	0.01	0.01	0.18	0.16								
Queue Length 95th (ft)	1	1	16	14								
Control Delay (s)	0.4	0.3	21.6	26.8								
Lane LOS	A	A	C	D								
Approach Delay (s)	0.4	0.3	21.6	26.8								
Approach LOS			C	D								
<b>Intersection Summary</b>												
Average Delay			1.8									
Intersection Capacity Utilization			43.0%	ICU Level of Service		A						
Analysis Period (min)			15									

2015 AM

3: Monroe & Kleber St

10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	11	246	1	1	531	21	1	0	2	5	0	5
Future Volume (Veh/h)	11	246	1	1	531	21	1	0	2	5	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.64	0.64	0.64	0.68	0.68	0.68	0.38	0.38	0.38	0.50	0.50	0.50
Hourly flow rate (vph)	17	384	2	1	781	31	3	0	5	10	0	10
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	812			386			1228	1233	385	1222	1218	796
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	812			386			1228	1233	385	1222	1218	796
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	98			100			98	100	99	93	100	97
cM capacity (veh/h)	814			1172			149	173	663	153	176	387
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	403	813	8	20								
Volume Left	17	1	3	10								
Volume Right	2	31	5	10								
cSH	814	1172	288	219								
Volume to Capacity	0.02	0.00	0.03	0.09								
Queue Length 95th (ft)	2	0	2	7								
Control Delay (s)	0.6	0.0	17.8	23.1								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.6	0.0	17.8	23.1								
Approach LOS			C	C								
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			39.6%	ICU Level of Service		A						
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	266	16	7	561	21	29	13	13	5	7	5
Future Volume (Veh/h)	11	266	16	7	561	21	29	13	13	5	7	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.64	0.64	0.64	0.68	0.68	0.68	0.38	0.38	0.38	0.50	0.50	0.50
Hourly flow rate (vph)	17	416	25	10	825	31	76	34	34	10	14	10
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	856			441			1340	1338	428	1374	1336	840
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	856			441			1340	1338	428	1374	1336	840
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	98			99			34	77	95	89	91	97
cM capacity (veh/h)	784			1119			114	148	626	93	149	365
<b>Direction, Lane #</b>												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	458	866	144	34								
Volume Left	17	10	76	10								
Volume Right	25	31	34	10								
cSH	784	1119	152	149								
Volume to Capacity	0.02	0.01	0.95	0.23								
Queue Length 95th (ft)	2	1	172	21								
Control Delay (s)	0.6	0.2	118.4	36.2								
Lane LOS	A	A	F	E								
Approach Delay (s)	0.6	0.2	118.4	36.2								
Approach LOS			F	E								
<b>Intersection Summary</b>												
Average Delay			12.5									
Intersection Capacity Utilization			45.5%	ICU Level of Service		A						
Analysis Period (min)			15									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Volume (veh/h)	3	250	420	3	2	2
Future Volume (Veh/h)	3	250	420	3	2	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	272	457	3	2	2
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	460				736	458
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	460				736	458
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				99	100
cM capacity (veh/h)	1101				385	602

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	275	460	4
Volume Left	3	0	2
Volume Right	0	3	2
cSH	1101	1700	470
Volume to Capacity	0.00	0.27	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.1	0.0	12.7
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	12.7
Approach LOS			B

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		32.3%	ICU Level of Service
Analysis Period (min)		15	A

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	274	10	16	441	1	18	13	16	3	7	3
Future Volume (Veh/h)	3	274	10	16	441	1	18	13	16	3	7	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	298	11	17	479	1	20	14	17	3	8	3
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	480			309			830	824	304	847	828	480
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	480			309			830	824	304	847	828	480
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			93	95	98	99	97	99
cM capacity (veh/h)	1082			1252			279	303	736	262	301	586
<b>Direction, Lane #</b>												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	312	497	51	14								
Volume Left	3	17	20	3								
Volume Right	11	1	17	3								
cSH	1082	1252	362	325								
Volume to Capacity	0.00	0.01	0.14	0.04								
Queue Length 95th (ft)	0	1	12	3								
Control Delay (s)	0.1	0.4	16.6	16.6								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.1	0.4	16.6	16.6								
Approach LOS			C	C								
<b>Intersection Summary</b>												
Average Delay			1.5									
Intersection Capacity Utilization			44.3%		ICU Level of Service					A		
Analysis Period (min)			15									

2015 AM

8: Monroe & Massena St

10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	5	192	2	2	412	6	1	0	4	7	0	10
Future Volume (Veh/h)	5	192	2	2	412	6	1	0	4	7	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.66	0.66	0.66	0.61	0.61	0.61	0.63	0.63	0.63	0.43	0.43	0.43
Hourly flow rate (vph)	8	291	3	3	675	10	2	0	6	16	0	23
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	685			294			1018	1000	292	1000	996	680
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	685			294			1018	1000	292	1000	996	680
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			100			99	100	99	93	100	95
cM capacity (veh/h)	908			1268			203	241	747	218	242	451
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	302	688	8	39								
Volume Left	8	3	2	16								
Volume Right	3	10	6	23								
cSH	908	1268	447	314								
Volume to Capacity	0.01	0.00	0.02	0.12								
Queue Length 95th (ft)	1	0	1	11								
Control Delay (s)	0.3	0.1	13.2	18.1								
Lane LOS	A	A	B	C								
Approach Delay (s)	0.3	0.1	13.2	18.1								
Approach LOS			B	C								
<b>Intersection Summary</b>												
Average Delay			0.9									
Intersection Capacity Utilization			33.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	5	224	7	14	429	6	10	0	25	7	0	10
Future Volume (Veh/h)	5	224	7	14	429	6	10	0	25	7	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.66	0.66	0.66	0.61	0.61	0.61	0.63	0.63	0.63	0.43	0.43	0.43
Hourly flow rate (vph)	8	339	11	23	703	10	16	0	40	16	0	23
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	713			350			1138	1120	344	1154	1120	708
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	713			350			1138	1120	344	1154	1120	708
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			98			90	100	94	90	100	95
cM capacity (veh/h)	887			1209			166	201	698	161	201	435
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	358	736	56	39								
Volume Left	8	23	16	16								
Volume Right	11	10	40	23								
cSH	887	1209	364	256								
Volume to Capacity	0.01	0.02	0.15	0.15								
Queue Length 95th (ft)	1	1	13	13								
Control Delay (s)	0.3	0.5	16.7	21.6								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.3	0.5	16.7	21.6								
Approach LOS			C	C								
<b>Intersection Summary</b>												
Average Delay			1.9									
Intersection Capacity Utilization			40.0%		ICU Level of Service				A			
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	1	140	9	0	280	1	9	1	1	36	11	201
Future Volume (Veh/h)	1	140	9	0	280	1	9	1	1	36	11	201
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.78	0.78	0.78	0.82	0.82	0.82	0.50	0.50	0.50	0.55	0.55	0.55
Hourly flow rate (vph)	1	179	12	0	341	1	18	2	2	65	20	365
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	342			191			904	529	185	532	534	342
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	342			191			904	529	185	532	534	342
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			85	100	100	86	96	48
cM capacity (veh/h)	1217			1383			119	455	857	456	451	701
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	192	342	22	450								
Volume Left	1	0	18	65								
Volume Right	12	1	2	365								
cSH	1217	1383	140	636								
Volume to Capacity	0.00	0.00	0.16	0.71								
Queue Length 95th (ft)	0	0	14	145								
Control Delay (s)	0.0	0.0	35.5	23.2								
Lane LOS	A		E	C								
Approach Delay (s)	0.0	0.0	35.5	23.2								
Approach LOS			E	C								
<b>Intersection Summary</b>												
Average Delay			11.2									
Intersection Capacity Utilization			35.8%		ICU Level of Service				A			
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	28	167	9	0	295	1	9	1	1	36	11	216
Future Volume (Veh/h)	28	167	9	0	295	1	9	1	1	36	11	216
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.78	0.78	0.78	0.82	0.82	0.82	0.50	0.50	0.50	0.55	0.55	0.55
Hourly flow rate (vph)	36	214	12	0	360	1	18	2	2	65	20	393
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	361			226			1056	653	220	656	658	360
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	361			226			1056	653	220	656	658	360
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	97			100			78	99	100	82	95	43
cM capacity (veh/h)	1198			1342			81	375	820	368	372	684
<b>Direction, Lane #</b>												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	262	361	22	478								
Volume Left	36	0	18	65								
Volume Right	12	1	2	393								
cSH	1198	1342	96	594								
Volume to Capacity	0.03	0.00	0.23	0.80								
Queue Length 95th (ft)	2	0	21	200								
Control Delay (s)	1.4	0.0	53.5	31.4								
Lane LOS	A		F	D								
Approach Delay (s)	1.4	0.0	53.5	31.4								
Approach LOS			F	D								
<b>Intersection Summary</b>												
Average Delay			14.7									
Intersection Capacity Utilization			51.7%	ICU Level of Service		A						
Analysis Period (min)			15									



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑↑			↑↑
Traffic Volume (veh/h)	0	23	116	2	0	0
Future Volume (Veh/h)	0	23	116	2	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.72	0.72	0.80	0.80	0.92	0.92
Hourly flow rate (vph)	0	32	145	3	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			4			4
Upstream signal (ft)						1064
pX, platoon unblocked						
vC, conflicting volume	146	74			148	
vC1, stage 1 conf vol	146					
vC2, stage 2 conf vol	0					
vCu, unblocked vol	146	74			148	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	97			100	
cM capacity (veh/h)	864	973			1431	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	32	97	51	0	0
Volume Left	0	0	0	0	0
Volume Right	32	0	3	0	0
cSH	973	1700	1700	1700	1700
Volume to Capacity	0.03	0.06	0.03	0.00	0.00
Queue Length 95th (ft)	3	0	0	0	0
Control Delay (s)	8.8	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	8.8	0.0		0.0	
Approach LOS	A				

Intersection Summary			
Average Delay		1.6	
Intersection Capacity Utilization		13.3%	ICU Level of Service A
Analysis Period (min)		15	



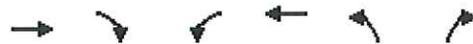
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↘		↕
Traffic Volume (veh/h)	0	69	130	38	0	850
Future Volume (Veh/h)	0	69	130	38	0	850
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.72	0.72	0.80	0.80	0.92	0.92
Hourly flow rate (vph)	0	96	163	48	0	924
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			4			4
Upstream signal (ft)						1064
pX, platoon unblocked	0.76					
vC, conflicting volume	649	106			211	
vC1, stage 1 conf vol	187					
vC2, stage 2 conf vol	462					
vCu, unblocked vol	0	106			211	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	90			100	
cM capacity (veh/h)	778	929			1357	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	96	109	102	462	462
Volume Left	0	0	0	0	0
Volume Right	96	0	48	0	0
cSH	929	1700	1700	1700	1700
Volume to Capacity	0.10	0.06	0.06	0.27	0.27
Queue Length 95th (ft)	9	0	0	0	0
Control Delay (s)	9.3	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	9.3	0.0		0.0	
Approach LOS	A				

Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization		26.8%	ICU Level of Service
Analysis Period (min)		15	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	↔
Traffic Volume (veh/h)	0	162	1	7	945	203	9	49	11	169	4	2
Future Volume (veh/h)	0	162	1	7	945	203	9	49	11	169	4	2
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1976	1937	1976	1976	1937	1937	1976	1937	1976	1976	1937	1937
Adj Flow Rate, veh/h	0	188	1	8	1099	236	12	65	15	232	5	3
Adj No. of Lanes	0	2	0	0	2	1	0	1	0	0	1	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.75	0.75	0.75	0.73	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1727	9	76	1657	757	111	435	91	563	9	494
Arrive On Green	0.00	0.46	0.46	0.46	0.46	0.46	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	0	3851	20	7	3602	1647	100	1450	302	1401	30	1647
Grp Volume(v), veh/h	0	92	97	594	513	236	92	0	0	237	0	3
Grp Sat Flow(s),veh/h/ln	0	1840	1934	1934	1675	1647	1851	0	0	1431	0	1647
Q Serve(g_s), s	0.0	1.4	1.4	0.0	11.9	4.5	0.0	0.0	0.0	4.7	0.0	0.1
Cycle Q Clear(g_c), s	0.0	1.4	1.4	11.9	11.9	4.5	1.8	0.0	0.0	6.5	0.0	0.1
Prop In Lane	0.00		0.01	0.01		1.00	0.13		0.16	0.98		1.00
Lane Grp Cap(c), veh/h	0	847	890	962	770	757	637	0	0	572	0	494
V/C Ratio(X)	0.00	0.11	0.11	0.62	0.67	0.31	0.14	0.00	0.00	0.41	0.00	0.01
Avail Cap(c_a), veh/h	0	847	890	962	770	757	637	0	0	572	0	494
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.7	7.7	10.5	10.5	8.5	12.9	0.0	0.0	14.4	0.0	12.3
Incr Delay (d2), s/veh	0.0	0.3	0.2	3.0	4.5	1.1	0.5	0.0	0.0	2.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.8	7.1	6.4	2.3	1.0	0.0	0.0	3.1	0.0	0.0
LnGrp Delay(d),s/veh	0.0	7.9	7.9	13.5	15.0	9.6	13.4	0.0	0.0	16.6	0.0	12.3
LnGrp LOS		A	A	B	B	A	B			B		B
Approach Vol, veh/h		189			1343			92			240	
Approach Delay, s/veh		7.9			13.4			13.4			16.5	
Approach LOS		A			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		21.0		29.0		21.0		29.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		15.0		23.0		15.0		23.0				
Max Q Clear Time (g_c+I1), s		3.8		3.4		8.5		13.9				
Green Ext Time (p_c), s		1.4		8.5		1.0		5.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				13.2								
HCM 2010 LOS				B								

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↗		↕			↖	↗
Traffic Volume (veh/h)	0	169	5	11	945	203	16	49	18	169	4	2
Future Volume (veh/h)	0	169	5	11	945	203	16	49	18	169	4	2
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1976	1937	1976	1976	1937	1937	1976	1937	1976	1976	1937	1937
Adj Flow Rate, veh/h	0	197	6	13	1099	236	21	65	24	232	5	3
Adj No. of Lanes	0	2	0	0	2	1	0	1	0	0	1	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.75	0.75	0.75	0.73	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1277	39	97	1256	576	170	432	138	663	13	576
Arrive On Green	0.00	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	0	3744	111	14	3589	1647	179	1236	395	1384	36	1647
Grp Volume(v), veh/h	0	99	104	596	516	236	110	0	0	237	0	3
Grp Sat Flow(s),veh/h/ln	0	1840	1918	1929	1675	1647	1809	0	0	1420	0	1647
Q Serve(g_s), s	0.0	1.5	1.5	2.4	11.6	4.3	0.0	0.0	0.0	3.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.5	1.5	11.6	11.6	4.3	1.6	0.0	0.0	4.8	0.0	0.0
Prop In Lane	0.00		0.06	0.02		1.00	0.19		0.22	0.98		1.00
Lane Grp Cap(c), veh/h	0	644	671	767	586	576	740	0	0	675	0	576
V/C Ratio(X)	0.00	0.15	0.15	0.78	0.88	0.41	0.15	0.00	0.00	0.35	0.00	0.01
Avail Cap(c_a), veh/h	0	644	671	767	586	576	740	0	0	675	0	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.9	8.9	12.2	12.2	9.9	9.0	0.0	0.0	9.9	0.0	8.5
Incr Delay (d2), s/veh	0.0	0.5	0.5	7.6	17.1	2.1	0.4	0.0	0.0	1.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.9	7.7	8.1	2.3	0.9	0.0	0.0	2.2	0.0	0.0
LnGrp Delay(d),s/veh	0.0	9.4	9.4	19.8	29.3	12.0	9.4	0.0	0.0	11.3	0.0	8.5
LnGrp LOS		A	A	B	C	B	A			B		A
Approach Vol, veh/h		203			1348			110				240
Approach Delay, s/veh		9.4			22.1			9.4				11.3
Approach LOS		A			C			A				B
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		20.0		20.0		20.0		20.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		14.0		14.0		14.0		14.0				
Max Q Clear Time (g_c+I1), s		3.6		3.5		6.8		13.6				
Green Ext Time (p_c), s		1.4		6.0		1.1		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				18.6								
HCM 2010 LOS				B								



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↓			↑↑	↘	
Traffic Volume (veh/h)	356	8	10	1155	19	23
Future Volume (Veh/h)	356	8	10	1155	19	23
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.75	0.75
Hourly flow rate (vph)	383	9	11	1242	25	31
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	950					
pX, platoon unblocked						
vC, conflicting volume			392		1030	196
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			392		1030	196
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		89	96
cM capacity (veh/h)			1163		227	812

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	255	137	425	828	56
Volume Left	0	0	11	0	25
Volume Right	0	9	0	0	31
cSH	1700	1700	1163	1700	378
Volume to Capacity	0.15	0.08	0.01	0.49	0.15
Queue Length 95th (ft)	0	0	1	0	13
Control Delay (s)	0.0	0.0	0.3	0.0	16.2
Lane LOS	A			C	
Approach Delay (s)	0.0		0.1	16.2	
Approach LOS				C	

Intersection Summary					
Average Delay			0.6		
Intersection Capacity Utilization			48.9%	ICU Level of Service	A
Analysis Period (min)			15		

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↔	↖	↗
Traffic Volume (veh/h)	360	12	14	1159	26	30
Future Volume (Veh/h)	360	12	14	1159	26	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.75	0.75
Hourly flow rate (vph)	387	13	15	1246	35	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	950					
pX, platoon unblocked						
vC, conflicting volume			400		1046	200
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			400		1046	200
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		84	95
cM capacity (veh/h)			1155		221	808
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	258	142	430	831	75	
Volume Left	0	0	15	0	35	
Volume Right	0	13	0	0	40	
cSH	1700	1700	1155	1700	360	
Volume to Capacity	0.15	0.08	0.01	0.49	0.21	
Queue Length 95th (ft)	0	0	1	0	19	
Control Delay (s)	0.0	0.0	0.4	0.0	17.6	
Lane LOS			A			C
Approach Delay (s)	0.0		0.1		17.6	
Approach LOS						C
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			51.9%	ICU Level of Service	A	
Analysis Period (min)			15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Volume (veh/h)	401	4	0	1175	0	6
Future Volume (Veh/h)	401	4	0	1175	0	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.94	0.94	0.50	0.50
Hourly flow rate (vph)	413	4	0	1250	0	12
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			417	1040	208	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			417	1040	208	
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	98	
cM capacity (veh/h)			1138	226	797	

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	275	142	625	625	12
Volume Left	0	0	0	0	0
Volume Right	0	4	0	0	12
cSH	1700	1700	1700	1700	797
Volume to Capacity	0.16	0.08	0.37	0.37	0.02
Queue Length 95th (ft)	0	0	0	0	1
Control Delay (s)	0.0	0.0	0.0	0.0	9.6
Lane LOS	A				
Approach Delay (s)	0.0		0.0		9.6
Approach LOS	A				

Intersection Summary					
Average Delay			0.1		
Intersection Capacity Utilization			35.8%	ICU Level of Service	A
Analysis Period (min)			15		

2025 AM  
7: Lambert St. & East Causeway Approach

Scheme 3 / 5% Reduction  
12/6/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	401	8	4	1182	0	7	2	13	4	2	4
Future Volume (Veh/h)	4	401	8	4	1182	0	7	2	13	4	2	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	436	9	4	1285	0	8	2	14	4	2	4
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	1285			445			1104	1742	222	1534	1746	642
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1285			445			1104	1742	222	1534	1746	642
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			100			95	98	98	95	98	99
cM capacity (veh/h)	536			1112			160	85	781	76	84	416
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	<b>SB 1</b>						
Volume Total	222	227	646	642	24	10						
Volume Left	4	0	4	0	8	4						
Volume Right	0	9	0	0	14	4						
cSH	536	1700	1112	1700	262	116						
Volume to Capacity	0.01	0.13	0.00	0.38	0.09	0.09						
Queue Length 95th (ft)	1	0	0	0	7	7						
Control Delay (s)	0.3	0.0	0.1	0.0	20.1	38.8						
Lane LOS	A		A		C	E						
Approach Delay (s)	0.2		0.0		20.1	38.8						
Approach LOS					C	E						
<b>Intersection Summary</b>												
Average Delay			0.6									
Intersection Capacity Utilization			45.5%		ICU Level of Service				A			
Analysis Period (min)			15									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	359	30	65	1103	5	31	2	26	2	2	3
Future Volume (Veh/h)	4	359	30	65	1103	5	31	2	26	2	2	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.91	0.91	0.91	0.78	0.78	0.78	0.44	0.44	0.44
Hourly flow rate (vph)	4	366	31	71	1212	5	40	3	33	5	5	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None					None						
Median storage (veh)												
Upstream signal (ft)	1035											
pX, platoon unblocked												
vC, conflicting volume	1217			397			1147	1748	198	1582	1762	608
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1217			397			1147	1748	198	1582	1762	608
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			94			71	96	96	92	94	98
cM capacity (veh/h)	569			1158			137	79	809	65	78	438
<b>Direction, Lane #</b>												
	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	187	214	677	611	76	17						
Volume Left	4	0	71	0	40	5						
Volume Right	0	31	0	5	33	7						
cSH	569	1700	1158	1700	205	108						
Volume to Capacity	0.01	0.13	0.06	0.36	0.37	0.16						
Queue Length 95th (ft)	1	0	5	0	40	13						
Control Delay (s)	0.3	0.0	1.6	0.0	32.6	44.5						
Lane LOS	A		A		D	E						
Approach Delay (s)	0.2		0.8		32.6	44.5						
Approach LOS					D	E						
<b>Intersection Summary</b>												
Average Delay			2.5									
Intersection Capacity Utilization			59.6%		ICU Level of Service			B				
Analysis Period (min)			15									

9: Massena St & East Causeway Approach

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↕			↕	
Traffic Volume (veh/h)	4	359	30	65	1103	5	31	2	26	2	2	3
Future Volume (Veh/h)	4	359	30	65	1103	5	31	2	26	2	2	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.91	0.91	0.91	0.78	0.78	0.78	0.44	0.44	0.44
Hourly flow rate (vph)	4	366	31	71	1212	5	40	3	33	5	5	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)					1035							
pX, platoon unblocked												
vC, conflicting volume	1217			397			1147	1748	198	1582	1762	608
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1217			397			1147	1748	198	1582	1762	608
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			94			71	96	96	92	94	98
cM capacity (veh/h)	569			1158			137	79	809	65	78	438
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	<b>SB 1</b>						
Volume Total	187	214	677	611	76	17						
Volume Left	4	0	71	0	40	5						
Volume Right	0	31	0	5	33	7						
cSH	569	1700	1158	1700	205	108						
Volume to Capacity	0.01	0.13	0.06	0.36	0.37	0.16						
Queue Length 95th (ft)	1	0	5	0	40	13						
Control Delay (s)	0.3	0.0	1.6	0.0	32.6	44.5						
Lane LOS	A		A		D	E						
Approach Delay (s)	0.2		0.8		32.6	44.5						
Approach LOS					D	E						
<b>Intersection Summary</b>												
Average Delay			2.5									
Intersection Capacity Utilization			59.6%		ICU Level of Service				B			
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	650	124	68	1415	5	12	1	21	1	2	11
Future Volume (Veh/h)	25	650	124	68	1415	5	12	1	21	1	2	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.93	0.93	0.93	0.82	0.82	0.82	0.67	0.67	0.67
Hourly flow rate (vph)	29	747	143	73	1522	5	15	1	26	1	3	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage (veh)					2							
Upstream signal (ft)		1160										
pX, platoon unblocked				0.86			0.86	0.86	0.86	0.86	0.86	
vC, conflicting volume	1527			890			1801	2550	445	2128	2618	764
vC1, stage 1 conf vol							876	876		1670	1670	
vC2, stage 2 conf vol							924	1673		458	948	
vCu, unblocked vol	1527			548			1607	2477	31	1987	2557	764
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			92			92	99	97	99	98	95
cM capacity (veh/h)	432			875			191	103	891	89	123	347
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	29	498	392	73	1015	512	42	20				
Volume Left	29	0	0	73	0	0	15	1				
Volume Right	0	0	143	0	0	5	26	16				
cSH	432	1700	1700	875	1700	1700	358	244				
Volume to Capacity	0.07	0.29	0.23	0.08	0.60	0.30	0.12	0.08				
Queue Length 95th (ft)	5	0	0	7	0	0	10	7				
Control Delay (s)	13.9	0.0	0.0	9.5	0.0	0.0	16.4	21.0				
Lane LOS	B			A			C	C				
Approach Delay (s)	0.4			0.4			16.4	21.0				
Approach LOS							C	C				
Intersection Summary												
Average Delay			0.9									
Intersection Capacity Utilization			58.4%		ICU Level of Service				B			
Analysis Period (min)			15									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	650	124	83	1415	5	12	1	48	1	2	11
Future Volume (Veh/h)	25	650	124	83	1415	5	12	1	48	1	2	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.93	0.93	0.93	0.82	0.82	0.82	0.67	0.67	0.67
Hourly flow rate (vph)	29	747	143	89	1522	5	15	1	59	1	3	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh					2							
Upstream signal (ft)		1160										
pX, platoon unblocked				0.86			0.86	0.86	0.86	0.86	0.86	
vC, conflicting volume	1527			890			1833	2582	445	2194	2650	764
vC1, stage 1 conf vol							876	876		1702	1702	
vC2, stage 2 conf vol							956	1705		491	948	
vCu, unblocked vol	1527			548			1644	2514	31	2063	2594	764
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			90			92	99	93	99	97	95
cM capacity (veh/h)	432			875			180	96	891	83	116	347
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	29	498	392	89	1015	512	75	20				
Volume Left	29	0	0	89	0	0	15	1				
Volume Right	0	0	143	0	0	5	59	16				
cSH	432	1700	1700	875	1700	1700	469	238				
Volume to Capacity	0.07	0.29	0.23	0.10	0.60	0.30	0.16	0.08				
Queue Length 95th (ft)	5	0	0	8	0	0	14	7				
Control Delay (s)	13.9	0.0	0.0	9.6	0.0	0.0	14.1	21.5				
Lane LOS	B			A			B	C				
Approach Delay (s)	0.4			0.5			14.1	21.5				
Approach LOS							B	C				
Intersection Summary												
Average Delay			1.0									
Intersection Capacity Utilization			59.8%		ICU Level of Service			B				
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗		↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	74	7	44	57	18	18	28	85	317	36	7
Future Volume (vph)	1	74	7	44	57	18	18	28	85	317	36	7
Peak Hour Factor	0.83	0.83	0.83	0.76	0.76	0.76	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	1	89	8	58	75	24	21	33	99	369	42	8
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	98	133	24	153	419							
Volume Left (vph)	1	58	0	21	369							
Volume Right (vph)	8	0	24	99	8							
Hadj (s)	-0.01	0.25	-0.67	-0.33	0.20							
Departure Headway (s)	5.8	6.4	5.5	5.0	5.1							
Degree Utilization, x	0.16	0.24	0.04	0.21	0.59							
Capacity (veh/h)	550	514	594	671	684							
Control Delay (s)	9.9	10.2	7.5	9.3	15.2							
Approach Delay (s)	9.9	9.8		9.3	15.2							
Approach LOS	A	A		A	C							
Intersection Summary												
Delay			12.4									
Level of Service			B									
Intersection Capacity Utilization			45.3%	ICU Level of Service	A							
Analysis Period (min)			15									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗		↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	93	7	93	71	18	18	28	85	393	36	7
Future Volume (vph)	1	93	7	93	71	18	18	28	85	393	36	7
Peak Hour Factor	0.83	0.83	0.83	0.76	0.76	0.76	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	1	112	8	122	93	24	21	33	99	457	42	8

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	121	215	24	153	507
Volume Left (vph)	1	122	0	21	457
Volume Right (vph)	8	0	24	99	8
Hadj (s)	0.00	0.32	-0.67	-0.33	0.20
Departure Headway (s)	6.5	7.0	6.0	5.7	5.6
Degree Utilization, x	0.22	0.42	0.04	0.24	0.78
Capacity (veh/h)	497	477	550	561	630
Control Delay (s)	11.3	13.6	8.0	10.5	25.7
Approach Delay (s)	11.3	13.1		10.5	25.7
Approach LOS	B	B		B	D

Intersection Summary				
Delay			18.7	
Level of Service			C	
Intersection Capacity Utilization		53.0%	ICU Level of Service	A
Analysis Period (min)		15		

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	331	1	25	223	22	98	689	118	23	138	167
Future Volume (veh/h)	163	331	1	25	223	22	98	689	118	23	138	167
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	201	409	1	29	262	26	105	741	127	24	145	176
Adj No. of Lanes	0	2	0	0	2	0	1	2	1	0	2	0
Peak Hour Factor	0.81	0.81	0.81	0.85	0.85	0.85	0.93	0.93	0.93	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	256	559	1	46	435	45	396	1428	636	78	345	324
Arrive On Green	0.22	0.22	0.22	0.14	0.14	0.14	0.10	0.40	0.40	0.22	0.22	0.22
Sat Flow, veh/h	1149	2512	6	321	3017	313	1774	3539	1577	112	1534	1441
Grp Volume(v), veh/h	316	0	295	167	0	150	105	741	127	169	0	176
Grp Sat Flow(s),veh/h/ln	1805	0	1862	1847	0	1804	1774	1770	1577	1646	0	1441
Q Serve(g_s), s	12.9	0.0	11.5	6.7	0.0	6.1	3.2	12.4	4.1	0.0	0.0	8.5
Cycle Q Clear(g_c), s	12.9	0.0	11.5	6.7	0.0	6.1	3.2	12.4	4.1	6.1	0.0	8.5
Prop In Lane	0.64		0.00	0.17		0.17	1.00		1.00	0.14		1.00
Lane Grp Cap(c), veh/h	402	0	415	266	0	260	396	1428	636	423	0	324
V/C Ratio(X)	0.79	0.00	0.71	0.63	0.00	0.58	0.26	0.52	0.20	0.40	0.00	0.54
Avail Cap(c_a), veh/h	622	0	641	683	0	667	396	1850	825	597	0	496
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.7	0.0	28.2	31.6	0.0	31.3	18.3	17.6	15.2	25.9	0.0	26.8
Incr Delay (d2), s/veh	3.6	0.0	2.3	2.4	0.0	2.0	0.4	0.3	0.2	0.6	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	0.0	6.2	3.6	0.0	3.2	1.6	6.0	1.8	3.2	0.0	3.5
LnGrp Delay(d),s/veh	32.3	0.0	30.4	34.0	0.0	33.3	18.6	17.9	15.3	26.5	0.0	28.2
LnGrp LOS	C		C	C		C	B	B	B	C		C
Approach Vol, veh/h		611			317			973				345
Approach Delay, s/veh		31.4			33.7			17.7				27.4
Approach LOS		C			C			B				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		37.6		23.5	14.0	23.6		17.3				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		41.0		27.0	8.0	27.0		29.0				
Max Q Clear Time (g_c+1), s		14.4		14.9	5.2	10.5		8.7				
Green Ext Time (p_c), s		8.0		2.0	0.1	6.6		1.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			25.2									
HCM 2010 LOS			C									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	425	1	74	292	36	147	689	156	42	138	167
Future Volume (veh/h)	163	425	1	74	292	36	147	689	156	42	138	167
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	201	525	1	87	344	42	158	741	168	44	145	176
Adj No. of Lanes	0	2	0	1	2	0	1	2	1	0	2	0
Peak Hour Factor	0.81	0.81	0.81	0.85	0.85	0.85	0.93	0.93	0.93	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	240	670	1	289	517	63	362	1346	600	97	270	312
Arrive On Green	0.25	0.25	0.25	0.16	0.16	0.16	0.09	0.38	0.38	0.22	0.22	0.22
Sat Flow, veh/h	969	2701	5	1774	3176	385	1774	3539	1577	208	1238	1431
Grp Volume(v), veh/h	376	0	351	87	190	196	158	741	168	188	0	177
Grp Sat Flow(s),veh/h/ln	1814	0	1862	1774	1770	1791	1774	1770	1577	1435	0	1443
Q Serve(g_s), s	16.9	0.0	15.0	3.7	8.7	8.8	5.6	14.1	6.4	3.2	0.0	9.4
Cycle Q Clear(g_c), s	16.9	0.0	15.0	3.7	8.7	8.8	5.6	14.1	6.4	8.7	0.0	9.4
Prop In Lane	0.53		0.00	1.00		0.21	1.00		1.00	0.23		0.99
Lane Grp Cap(c), veh/h	450	0	462	289	288	291	362	1346	600	364	0	314
V/C Ratio(X)	0.84	0.00	0.76	0.30	0.66	0.67	0.44	0.55	0.28	0.52	0.00	0.56
Avail Cap(c_a), veh/h	569	0	584	597	596	603	362	1685	751	484	0	452
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.7	0.0	30.0	31.7	33.8	33.9	21.9	20.9	18.5	29.4	0.0	30.0
Incr Delay (d2), s/veh	8.6	0.0	4.4	0.6	2.6	2.7	0.8	0.4	0.3	1.1	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	0.0	8.3	1.9	4.4	4.6	2.8	7.0	2.8	4.0	0.0	3.9
LnGrp Delay(d),s/veh	39.3	0.0	34.5	32.3	36.4	36.6	22.7	21.3	18.8	30.5	0.0	31.6
LnGrp LOS	D		C	C	D	D	C	C	B	C		C
Approach Vol, veh/h		727			473			1067				365
Approach Delay, s/veh		37.0			35.7			21.1				31.1
Approach LOS		D			D			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		38.8		27.4	14.0	24.8		20.0				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		41.0		27.0	8.0	27.0		29.0				
Max Q Clear Time (g_c+I1), s		16.1		18.9	7.6	11.4		10.8				
Green Ext Time (p_c), s		8.4		2.0	0.0	6.8		2.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			29.5									
HCM 2010 LOS			C									

2015 PM

1: Monroe & Cambronne St

11/4/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	9	438	19	18	231	5	15	1	21	4	7	4
Future Volume (Veh/h)	9	438	19	18	231	5	15	1	21	4	7	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.88	0.88	0.88	0.77	0.77	0.77	0.67	0.67	0.67
Hourly flow rate (vph)	11	515	22	20	263	6	19	1	27	6	10	6
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	269			537			865	857	526	882	865	266
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	269			537			865	857	526	882	865	266
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			98			93	100	95	98	96	99
cM capacity (veh/h)	1295			1031			259	287	552	248	284	773
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	548	289	47	22								
Volume Left	11	20	19	6								
Volume Right	22	6	27	6								
cSH	1295	1031	374	327								
Volume to Capacity	0.01	0.02	0.13	0.07								
Queue Length 95th (ft)	1	1	11	5								
Control Delay (s)	0.3	0.8	16.0	16.8								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.3	0.8	16.0	16.8								
Approach LOS			C	C								
<b>Intersection Summary</b>												
Average Delay			1.6									
Intersection Capacity Utilization			36.7%		ICU Level of Service				A			
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	9	551	19	18	314	19	15	1	21	23	7	4
Future Volume (Veh/h)	9	551	19	18	314	19	15	1	21	23	7	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.88	0.88	0.88	0.77	0.77	0.77	0.67	0.67	0.67
Hourly flow rate (vph)	11	648	22	20	357	22	19	1	27	34	10	6
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	379			670			1100	1100	659	1116	1100	368
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	379			670			1100	1100	659	1116	1100	368
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			98			89	100	94	80	95	99
cM capacity (veh/h)	1179			920			177	206	464	169	206	677
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	681	399	47	50								
Volume Left	11	20	19	34								
Volume Right	22	22	27	6								
cSH	1179	920	275	194								
Volume to Capacity	0.01	0.02	0.17	0.26								
Queue Length 95th (ft)	1	2	15	25								
Control Delay (s)	0.3	0.7	20.7	30.0								
Lane LOS	A	A	C	D								
Approach Delay (s)	0.3	0.7	20.7	30.0								
Approach LOS			C	D								
<b>Intersection Summary</b>												
Average Delay			2.5									
Intersection Capacity Utilization			43.0%		ICU Level of Service				A			
Analysis Period (min)			15									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Volume (veh/h)	3	424	238	3	4	3
Future Volume (Veh/h)	3	424	238	3	4	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	461	259	3	4	3
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	262				728	260
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	262				728	260
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				99	100
cM capacity (veh/h)	1302				390	778

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	464	262	7
Volume Left	3	0	4
Volume Right	0	3	3
cSH	1302	1700	496
Volume to Capacity	0.00	0.15	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.1	0.0	12.4
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	12.4
Approach LOS			B

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		34.7%	ICU Level of Service
Analysis Period (min)		15	A

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	17	457	26	17	273	1	19	14	17	1	19	1
Future Volume (Veh/h)	17	457	26	17	273	1	19	14	17	1	19	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	497	28	18	297	1	21	15	18	1	21	1
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	298			525			892	881	511	906	894	298
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	298			525			892	881	511	906	894	298
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			98			91	95	97	100	92	100
cM capacity (veh/h)	1263			1042			241	277	563	233	272	742
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	543	316	54	23								
Volume Left	18	18	21	1								
Volume Right	28	1	18	1								
cSH	1263	1042	311	277								
Volume to Capacity	0.01	0.02	0.17	0.08								
Queue Length 95th (ft)	1	1	15	7								
Control Delay (s)	0.4	0.7	19.0	19.2								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.4	0.7	19.0	19.2								
Approach LOS			C	C								
<b>Intersection Summary</b>												
Average Delay			2.0									
Intersection Capacity Utilization			46.9%		ICU Level of Service				A			
Analysis Period (min)			15									

2015 PM

3: Monroe & Kleber St

11/4/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	423	0	1	276	10	0	0	0	4	1	2
Future Volume (Veh/h)	7	423	0	1	276	10	0	0	0	4	1	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.92	0.92	0.92	0.58	0.58	0.58
Hourly flow rate (vph)	7	445	0	1	317	11	0	0	0	7	2	3
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	328			445			788	789	445	784	784	322
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	328			445			788	789	445	784	784	322
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			100			100	100	100	98	99	100
cM capacity (veh/h)	1232			1115			305	321	613	309	323	718
<b>Direction, Lane #</b>												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	452	329	0	12								
Volume Left	7	1	0	7								
Volume Right	0	11	0	3								
cSH	1232	1115	1700	364								
Volume to Capacity	0.01	0.00	0.00	0.03								
Queue Length 95th (ft)	0	0	0	3								
Control Delay (s)	0.2	0.0	0.0	15.2								
Lane LOS	A	A	A	C								
Approach Delay (s)	0.2	0.0	0.0	15.2								
Approach LOS			A	C								
<b>Intersection Summary</b>												
Average Delay			0.3									
Intersection Capacity Utilization			37.3%	ICU Level of Service		A						
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	7	468	40	16	313	34	29	14	11	4	20	2
Future Volume (Veh/h)	7	468	40	16	313	34	29	14	11	4	20	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.92	0.92	0.92	0.58	0.58	0.58
Hourly flow rate (vph)	7	493	42	18	360	39	32	15	12	7	34	3
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	399			535			964	963	514	963	964	380
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	399			535			964	963	514	963	964	380
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			98			84	94	98	97	86	100
cM capacity (veh/h)	1160			1033			206	250	560	216	249	667
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	542	417	59	44								
Volume Left	7	18	32	7								
Volume Right	42	39	12	3								
cSH	1160	1033	249	254								
Volume to Capacity	0.01	0.02	0.24	0.17								
Queue Length 95th (ft)	0	1	22	15								
Control Delay (s)	0.2	0.6	23.9	22.1								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.2	0.6	23.9	22.1								
Approach LOS			C	C								
<b>Intersection Summary</b>												
Average Delay			2.6									
Intersection Capacity Utilization			44.2%		ICU Level of Service				A			
Analysis Period (min)			15									

2015 PM

8: Monroe & Massena St

11/4/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	26	392	10	6	234	18	3	3	9	15	2	4
Future Volume (Veh/h)	26	392	10	6	234	18	3	3	9	15	2	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.80	0.80	0.80	0.42	0.42	0.42	0.69	0.69	0.69
Hourly flow rate (vph)	29	436	11	8	293	23	7	7	21	22	3	6
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	316			447			828	832	442	844	826	304
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	316			447			828	832	442	844	826	304
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	98			99			97	98	97	92	99	99
cM capacity (veh/h)	1244			1113			279	296	616	262	298	735
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	476	324	35	31								
Volume Left	29	8	7	22								
Volume Right	11	23	21	6								
cSH	1244	1113	423	303								
Volume to Capacity	0.02	0.01	0.08	0.10								
Queue Length 95th (ft)	2	1	7	8								
Control Delay (s)	0.7	0.3	14.3	18.2								
Lane LOS	A	A	B	C								
Approach Delay (s)	0.7	0.3	14.3	18.2								
Approach LOS			B	C								
<b>Intersection Summary</b>												
Average Delay			1.7									
Intersection Capacity Utilization			44.2%		ICU Level of Service				A			
Analysis Period (min)			15									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	26	425	23	36	280	18	13	3	31	15	2	4
Future Volume (Veh/h)	26	425	23	36	280	18	13	3	31	15	2	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.80	0.80	0.80	0.42	0.42	0.42	0.69	0.69	0.69
Hourly flow rate (vph)	29	472	26	45	350	23	31	7	74	22	3	6
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	373			498			1002	1006	485	1072	1008	362
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	373			498			1002	1006	485	1072	1008	362
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	98			96			85	97	87	86	99	99
cM capacity (veh/h)	1185			1066			206	225	582	160	225	683
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	527	418	112	31								
Volume Left	29	45	31	22								
Volume Right	26	23	74	6								
cSH	1185	1066	363	195								
Volume to Capacity	0.02	0.04	0.31	0.16								
Queue Length 95th (ft)	2	3	32	14								
Control Delay (s)	0.7	1.3	19.3	27.0								
Lane LOS	A	A	C	D								
Approach Delay (s)	0.7	1.3	19.3	27.0								
Approach LOS			C	D								
<b>Intersection Summary</b>												
Average Delay			3.6									
Intersection Capacity Utilization			39.1%		ICU Level of Service				A			
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	19	371	15	0	191	4	7	3	2	8	17	24
Future Volume (Veh/h)	19	371	15	0	191	4	7	3	2	8	17	24
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.80	0.80	0.80	0.50	0.50	0.50	0.94	0.94	0.94
Hourly flow rate (vph)	22	426	17	0	239	5	14	6	4	9	18	26
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	244			443			755	722	434	727	728	242
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	244			443			755	722	434	727	728	242
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	98			100			95	98	99	97	95	97
cM capacity (veh/h)	1322			1117			298	347	622	329	344	797
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	465	244	24	53								
Volume Left	22	0	14	9								
Volume Right	17	5	4	26								
cSH	1322	1117	339	472								
Volume to Capacity	0.02	0.00	0.07	0.11								
Queue Length 95th (ft)	1	0	6	9								
Control Delay (s)	0.5	0.0	16.4	13.6								
Lane LOS	A		C	B								
Approach Delay (s)	0.5	0.0	16.4	13.6								
Approach LOS			C	B								
<b>Intersection Summary</b>												
Average Delay			1.7									
Intersection Capacity Utilization			45.1%		ICU Level of Service				A			
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	47	399	15	0	229	4	7	3	2	8	17	62
Future Volume (Veh/h)	47	399	15	0	229	4	7	3	2	8	17	62
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.80	0.80	0.80	0.50	0.50	0.50	0.94	0.94	0.94
Hourly flow rate (vph)	54	459	17	0	286	5	14	6	4	9	18	66
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	291			476			939	866	468	871	872	288
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	291			476			939	866	468	871	872	288
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	96			100			93	98	99	96	93	91
cM capacity (veh/h)	1271			1086			205	279	595	257	276	751
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	530	291	24	93								
Volume Left	54	0	14	9								
Volume Right	17	5	4	66								
cSH	1271	1086	248	494								
Volume to Capacity	0.04	0.00	0.10	0.19								
Queue Length 95th (ft)	3	0	8	17								
Control Delay (s)	1.2	0.0	21.0	14.0								
Lane LOS	A		C	B								
Approach Delay (s)	1.2	0.0	21.0	14.0								
Approach LOS			C	B								
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			51.9%	ICU Level of Service		A						
Analysis Period (min)			15									



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↘		↕
Traffic Volume (veh/h)	0	11	732	9	0	0
Future Volume (Veh/h)	0	11	732	9	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.55	0.55	0.80	0.80	0.92	0.92
Hourly flow rate (vph)	0	20	915	11	0	0
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage (veh)			4			4
Upstream signal (ft)						1064
pX, platoon unblocked						
vC, conflicting volume	920	463			926	
vC1, stage 1 conf vol	920					
vC2, stage 2 conf vol	0					
vCu, unblocked vol	920	463			926	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	348	546			734	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	20	610	316	0	0
Volume Left	0	0	0	0	0
Volume Right	20	0	11	0	0
cSH	546	1700	1700	1700	1700
Volume to Capacity	0.04	0.36	0.19	0.00	0.00
Queue Length 95th (ft)	3	0	0	0	0
Control Delay (s)	11.8	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.8	0.0		0.0	
Approach LOS	B				

<b>Intersection Summary</b>			
Average Delay		0.3	
Intersection Capacity Utilization		30.5%	ICU Level of Service
Analysis Period (min)		15	A



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↘		↕
Traffic Volume (veh/h)	0	60	779	104	0	164
Future Volume (Veh/h)	0	60	779	104	0	164
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.55	0.55	0.80	0.80	0.92	0.92
Hourly flow rate (vph)	0	109	974	130	0	178
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised		Raised	
Median storage (veh)			4		4	
Upstream signal (ft)					1064	
pX, platoon unblocked						
vC, conflicting volume	1128	552		1104		
vC1, stage 1 conf vol	1039					
vC2, stage 2 conf vol	89					
vCu, unblocked vol	1128	552		1104		
tC, single (s)	6.8	6.9		4.1		
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3		2.2		
p0 queue free %	100	77		100		
cM capacity (veh/h)	301	477		628		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	109	649	455	89	89
Volume Left	0	0	0	0	0
Volume Right	109	0	130	0	0
cSH	477	1700	1700	1700	1700
Volume to Capacity	0.23	0.38	0.27	0.05	0.05
Queue Length 95th (ft)	22	0	0	0	0
Control Delay (s)	14.8	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	14.8	0.0		0.0	
Approach LOS	B				

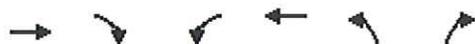
Intersection Summary			
Average Delay		1.2	
Intersection Capacity Utilization		35.2%	ICU Level of Service
Analysis Period (min)		15	A

2015 PM  
25: Cambronne St & East Causeway Approach

11/4/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	929	3	13	375	151	2	12	16	320	12	10
Future Volume (veh/h)	3	929	3	13	375	151	2	12	16	320	12	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1976	1937	1976	1976	1937	1937	1976	1937	1976	1976	1937	1937
Adj Flow Rate, veh/h	3	1044	3	15	436	176	3	21	28	395	15	12
Adj No. of Lanes	0	2	0	0	2	1	0	1	0	0	1	1
Peak Hour Factor	0.89	0.89	0.89	0.86	0.86	0.86	0.58	0.58	0.58	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	91	1473	4	110	1395	659	104	316	379	731	21	659
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	2	3683	11	36	3487	1647	23	790	949	1386	53	1647
Grp Volume(v), veh/h	550	0	500	238	213	176	52	0	0	410	0	12
Grp Sat Flow(s),veh/h/ln	1935	0	1761	1848	1675	1647	1762	0	0	1438	0	1647
Q Serve(g_s), s	0.0	0.0	9.5	0.0	3.5	2.9	0.0	0.0	0.0	8.7	0.0	0.2
Cycle Q Clear(g_c), s	9.5	0.0	9.5	3.4	3.5	2.9	0.7	0.0	0.0	9.4	0.0	0.2
Prop In Lane	0.01		0.01	0.06		1.00	0.06		0.54	0.96		1.00
Lane Grp Cap(c), veh/h	864	0	704	835	670	659	800	0	0	752	0	659
V/C Ratio(X)	0.64	0.00	0.71	0.29	0.32	0.27	0.07	0.00	0.00	0.55	0.00	0.02
Avail Cap(c_a), veh/h	864	0	704	835	670	659	800	0	0	752	0	659
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.1	0.0	10.1	8.2	8.2	8.1	7.4	0.0	0.0	10.0	0.0	7.3
Incr Delay (d2), s/veh	3.6	0.0	6.0	0.9	1.2	1.0	0.2	0.0	0.0	2.8	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	0.0	5.8	2.0	1.8	1.5	0.4	0.0	0.0	4.3	0.0	0.1
LnGrp Delay(d),s/veh	13.6	0.0	16.0	9.1	9.5	9.1	7.6	0.0	0.0	12.8	0.0	7.3
LnGrp LOS	B		B	A	A	A	A			B		A
Approach Vol, veh/h		1050			627			52			422	
Approach Delay, s/veh		14.8			9.2			7.6			12.6	
Approach LOS		B			A			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		20.0		20.0		20.0		20.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0				
Max Q Clear Time (g_c+I1), s		2.7		11.5		11.4		5.5				
Green Ext Time (p_c), s		2.5		3.2		1.2		6.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			12.6									
HCM 2010 LOS			B									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	967	12	22	375	151	9	12	23	320	12	10
Future Volume (veh/h)	3	967	12	22	375	151	9	12	23	320	12	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1976	1937	1976	1976	1937	1937	1976	1937	1976	1976	1937	1937
Adj Flow Rate, veh/h	3	1087	13	26	436	176	16	21	40	395	15	12
Adj No. of Lanes	0	2	0	0	2	1	0	1	0	0	1	1
Peak Hour Factor	0.89	0.89	0.89	0.86	0.86	0.86	0.58	0.58	0.58	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	91	1275	15	114	1055	576	109	131	141	410	9	576
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	2	3644	44	37	3014	1647	0	373	404	667	25	1647
Grp Volume(v), veh/h	578	0	525	212	250	176	77	0	0	410	0	12
Grp Sat Flow(s),veh/h/ln	1934	0	1755	1377	1675	1647	777	0	0	692	0	1647
Q Serve(g_s), s	0.1	0.0	11.1	0.6	4.6	3.1	0.0	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	11.1	0.0	11.1	11.6	4.6	3.1	14.0	0.0	0.0	14.0	0.0	0.2
Prop In Lane	0.01		0.02	0.12		1.00	0.21		0.52	0.96		1.00
Lane Grp Cap(c), veh/h	768	0	614	583	586	576	381	0	0	419	0	576
V/C Ratio(X)	0.75	0.00	0.85	0.36	0.43	0.31	0.20	0.00	0.00	0.98	0.00	0.02
Avail Cap(c_a), veh/h	768	0	614	583	586	576	381	0	0	419	0	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.0	0.0	12.1	9.7	9.9	9.5	9.6	0.0	0.0	15.9	0.0	8.5
Incr Delay (d2), s/veh	6.8	0.0	14.1	1.8	2.3	1.4	1.2	0.0	0.0	39.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.0	7.7	2.0	2.5	1.6	0.7	0.0	0.0	9.0	0.0	0.1
LnGrp Delay(d),s/veh	18.8	0.0	26.1	11.4	12.2	10.8	10.8	0.0	0.0	54.8	0.0	8.6
LnGrp LOS	B		C	B	B	B	B			D		A
Approach Vol, veh/h		1103			638			77			422	
Approach Delay, s/veh		22.3			11.6			10.8			53.5	
Approach LOS		C			B			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		20.0		20.0		20.0		20.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		14.0		14.0		14.0		14.0				
Max Q Clear Time (g_c+I1), s		16.0		13.1		16.0		13.6				
Green Ext Time (p_c), s		0.0		0.8		0.0		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			24.7									
HCM 2010 LOS			C									



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	
Traffic Volume (veh/h)	1330	6	9	552	10	9
Future Volume (Veh/h)	1330	6	9	552	10	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.89	0.89	0.72	0.72
Hourly flow rate (vph)	1565	7	10	620	14	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	950					
pX, platoon unblocked				0.76	0.76	0.76
vC, conflicting volume				1572	1898	786
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				1128	1556	98
tC, single (s)				4.1	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				98	82	98
cM capacity (veh/h)				469	77	717

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	1043	529	217	413	27
Volume Left	0	0	10	0	14
Volume Right	0	7	0	0	13
cSH	1700	1700	469	1700	135
Volume to Capacity	0.61	0.31	0.02	0.24	0.20
Queue Length 95th (ft)	0	0	2	0	18
Control Delay (s)	0.0	0.0	0.9	0.0	38.1
Lane LOS	A			E	
Approach Delay (s)	0.0			38.1	
Approach LOS	E				

Intersection Summary					
Average Delay	0.5				
Intersection Capacity Utilization	47.0%		ICU Level of Service		A
Analysis Period (min)	15				

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	
Traffic Volume (veh/h)	1358	15	18	561	17	16
Future Volume (Veh/h)	1358	15	18	561	17	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.89	0.89	0.72	0.72
Hourly flow rate (vph)	1598	18	20	630	24	22
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	950					
pX, platoon unblocked						
vC, conflicting volume				1616	1962	808
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				1086	1564	0
tC, single (s)				4.1	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				96	66	97
cM capacity (veh/h)				461	71	784
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	1065	551	230	420	46	
Volume Left	0	0	20	0	24	
Volume Right	0	18	0	0	22	
cSH	1700	1700	461	1700	125	
Volume to Capacity	0.63	0.32	0.04	0.25	0.37	
Queue Length 95th (ft)	0	0	3	0	38	
Control Delay (s)	0.0	0.0	1.7	0.0	49.6	
Lane LOS	A			E		
Approach Delay (s)	0.0			49.6		
Approach LOS				E		
<b>Intersection Summary</b>						
Average Delay				1.2		
Intersection Capacity Utilization	48.0%			ICU Level of Service		A
Analysis Period (min)	15					

2015 PM

7: Lambert St & East Causeway Approach

11/5/2015



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Volume (veh/h)	1307	7	0	556	0	4
Future Volume (Veh/h)	1307	7	0	556	0	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.90	0.90	0.50	0.50
Hourly flow rate (vph)	1485	8	0	618	0	8
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			1493	1798	746	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1493	1798	746	
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	98	
cM capacity (veh/h)			446	71	356	

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	990	503	309	309	8
Volume Left	0	0	0	0	0
Volume Right	0	8	0	0	8
cSH	1700	1700	1700	1700	356
Volume to Capacity	0.58	0.30	0.18	0.18	0.02
Queue Length 95th (ft)	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	15.4
Lane LOS					C
Approach Delay (s)	0.0		0.0		15.4
Approach LOS					C

Intersection Summary					
Average Delay			0.1		
Intersection Capacity Utilization			46.4%	ICU Level of Service	A
Analysis Period (min)			15		

2025 PM

Scheme 3 / 5% reduction

7: Lambert St. & East Causeway Approach

12/6/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↕			↕	
Traffic Volume (veh/h)	0	1307	16	9	575	0	7	0	11	4	2	4
Future Volume (Veh/h)	0	1307	16	9	575	0	7	0	11	4	2	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1421	17	10	625	0	8	0	12	4	2	4
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	625			1438			1767	2074	719	1368	2083	312
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	625			1438			1767	2074	719	1368	2083	312
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			84	100	97	96	96	99
cM capacity (veh/h)	952			468			50	52	371	101	51	683
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	<b>SB 1</b>						
Volume Total	710	728	322	312	20	10						
Volume Left	0	0	10	0	8	4						
Volume Right	0	17	0	0	12	4						
cSH	952	1700	468	1700	105	118						
Volume to Capacity	0.00	0.43	0.02	0.18	0.19	0.08						
Queue Length 95th (ft)	0	0	2	0	17	7						
Control Delay (s)	0.0	0.0	0.7	0.0	47.4	38.2						
Lane LOS			A		E	E						
Approach Delay (s)	0.0		0.4		47.4	38.2						
Approach LOS					E	E						
<b>Intersection Summary</b>												
Average Delay			0.7									
Intersection Capacity Utilization			46.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1220	21	35	512	16	40	0	43	4	3	15
Future Volume (Veh/h)	8	1220	21	35	512	16	40	0	43	4	3	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.97	0.97	0.97	0.67	0.67	0.67	0.52	0.52	0.52
Hourly flow rate (vph)	9	1419	24	36	528	16	60	0	64	8	6	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					1035							
pX, platoon unblocked												
vC, conflicting volume	544			1443			1817	2065	722	1400	2069	272
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	544			1443			1817	2065	722	1400	2069	272
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			92			0	100	83	90	88	96
cM capacity (veh/h)	1021			466			40	49	369	77	49	726
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	<b>SB 1</b>						
Volume Total	718	734	300	280	124	43						
Volume Left	9	0	36	0	60	8						
Volume Right	0	24	0	16	64	29						
cSH	1021	1700	466	1700	73	162						
Volume to Capacity	0.01	0.43	0.08	0.16	1.69	0.27						
Queue Length 95th (ft)	1	0	6	0	267	25						
Control Delay (s)	0.2	0.0	2.7	0.0	456.1	35.1						
Lane LOS	A		A		F	E						
Approach Delay (s)	0.1		1.4		456.1	35.1						
Approach LOS					F	E						
<b>Intersection Summary</b>												
Average Delay			26.8									
Intersection Capacity Utilization			58.6%		ICU Level of Service				B			
Analysis Period (min)			15									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	1650	42	30	883	9	15	0	22	2	1	11
Future Volume (Veh/h)	34	1650	42	30	883	9	15	0	22	2	1	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.99	0.99	0.99	0.71	0.71	0.71	0.54	0.54	0.54
Hourly flow rate (vph)	42	2037	52	30	892	9	21	0	31	4	2	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage (veh)					2							
Upstream signal (ft)		1160										
pX, platoon unblocked				0.65			0.65	0.65	0.65	0.65	0.65	
vC, conflicting volume	901			2089			2674	3108	1044	2090	3130	450
vC1, stage 1 conf vol							2147	2147		956	956	
vC2, stage 2 conf vol							527	961		1134	2173	
vCu, unblocked vol	901			1602			2500	3166	0	1604	3199	450
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			89			63	100	96	98	96	96
cM capacity (veh/h)	750			264			57	82	707	213	54	556
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	42	1358	731	30	595	306	52	26				
Volume Left	42	0	0	30	0	0	21	4				
Volume Right	0	0	52	0	0	9	31	20				
cSH	750	1700	1700	264	1700	1700	127	283				
Volume to Capacity	0.06	0.80	0.43	0.11	0.35	0.18	0.41	0.09				
Queue Length 95th (ft)	4	0	0	10	0	0	44	8				
Control Delay (s)	10.1	0.0	0.0	20.4	0.0	0.0	51.8	19.0				
Lane LOS	B			C			F	C				
Approach Delay (s)	0.2			0.7			51.8	19.0				
Approach LOS							F	C				
Intersection Summary												
Average Delay				1.3								
Intersection Capacity Utilization			58.5%		ICU Level of Service				B			
Analysis Period (min)			15									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	1650	42	68	883	9	15	0	50	2	1	11
Future Volume (Veh/h)	34	1650	42	68	883	9	15	0	50	2	1	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.99	0.99	0.99	0.71	0.71	0.71	0.54	0.54	0.54
Hourly flow rate (vph)	42	2037	52	69	892	9	21	0	70	4	2	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage (veh)					2							
Upstream signal (ft)		1160										
pX, platoon unblocked				0.84			0.84	0.84	0.84	0.84	0.84	
vC, conflicting volume	901			2089			2752	3186	1044	2207	3208	450
vC1, stage 1 conf vol							2147	2147		1034	1034	
vC2, stage 2 conf vol							605	1039		1172	2173	
vCu, unblocked vol	901			1921			2706	3220	683	2061	3246	450
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			73			56	100	79	96	82	96
cM capacity (veh/h)	750			257			48	72	331	106	11	556
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>EB 3</b>	<b>WB 1</b>	<b>WB 2</b>	<b>WB 3</b>	<b>NB 1</b>	<b>SB 1</b>				
Volume Total	42	1358	731	69	595	306	91	26				
Volume Left	42	0	0	69	0	0	21	4				
Volume Right	0	0	52	0	0	9	70	20				
cSH	750	1700	1700	257	1700	1700	139	102				
Volume to Capacity	0.06	0.80	0.43	0.27	0.35	0.18	0.65	0.26				
Queue Length 95th (ft)	4	0	0	26	0	0	89	23				
Control Delay (s)	10.1	0.0	0.0	24.1	0.0	0.0	69.7	52.1				
Lane LOS	B			C			F	F				
Approach Delay (s)	0.2			1.7			69.7	52.1				
Approach LOS							F	F				
<b>Intersection Summary</b>												
Average Delay			3.0									
Intersection Capacity Utilization			67.0%		ICU Level of Service			C				
Analysis Period (min)			15									

9: Massena St & East Causeway Approach

12/9/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↕			↕	
Traffic Volume (veh/h)	8	1220	21	35	512	16	40	0	43	4	3	15
Future Volume (Veh/h)	8	1220	21	35	512	16	40	0	43	4	3	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.97	0.97	0.97	0.67	0.67	0.67	0.52	0.52	0.52
Hourly flow rate (vph)	9	1419	24	36	528	16	60	0	64	8	6	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)					1035							
pX, platoon unblocked												
vC, conflicting volume	544			1443			1817	2065	722	1400	2069	272
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	544			1443			1817	2065	722	1400	2069	272
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			92			0	100	83	90	88	96
cM capacity (veh/h)	1021			466			40	49	369	77	49	726
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	<b>SB 1</b>						
Volume Total	718	734	300	280	124	43						
Volume Left	9	0	36	0	60	8						
Volume Right	0	24	0	16	64	29						
cSH	1021	1700	466	1700	73	162						
Volume to Capacity	0.01	0.43	0.08	0.16	1.69	0.27						
Queue Length 95th (ft)	1	0	6	0	267	25						
Control Delay (s)	0.2	0.0	2.7	0.0	456.1	35.1						
Lane LOS	A		A		F	E						
Approach Delay (s)	0.1		1.4		456.1	35.1						
Approach LOS					F	E						
<b>Intersection Summary</b>												
Average Delay			26.8									
Intersection Capacity Utilization			58.6%		ICU Level of Service				B			
Analysis Period (min)			15									

**To:** Planning & Zoning Commissions  
City Council  
Department Heads  
**From:** David Cressy, Special Counsel  
Port Marigny Development  
**Subject:** Ord. 15-17  
Proposed Amendments  
**Date:** May 12, 2016.final

# MEMORANDUM

City of Mandeville  
Department of Planning

## SUMMARY

The purpose of this document is to discuss the ordinance as it is presently drafted (introduced) and to highlight the recommended changes to proposed Ordinance No. 15-17. As you know, the proposed ordinance, as introduced, has nine "sections" and three "BE IT FURTHER ORDAINED" sections.

There have been some recommended changes to the title of the Ordinance and some of the "WHEREAS" paragraphs. Additionally, there are recommended amendments to the various sections and two new sections as well as an additional "Be it further Ordained" paragraph, all as indicated below.

The Prestressed site is required to be developed in accordance with the Planned District Zoning procedures and following the Traditional Neighborhood Development regulations. Because of the complex nature of these provisions, the proposed ordinance includes language, and an addendum, that specifies the procedure in which this property will be developed.

## ORDINANCE 15-17 – Recommended changes:

### TITLE:

Page 1, line 29 - the phrase "site plan" has been deleted as that approval will have to be considered later in the process in the Special Use Permit procedure.

Page 1, line 32 references amendments to the original Master Plan and Guiding Principles.

Page 1, line 34, after the phrase, "MASTER PLAN" - add, "WHICH SERVES AS THE CONCEPTUAL PLAN FOR THE PORT MARIGNY PLANNED COMBINED USE DISTRICT; APPROVING THE DEVELOPMENT AGREEMENT;

Page 2 lines 7-9 - delete "GRANTING VARIANCES AS NEEDED TO GIVE FULL EFFECT TO THE MASTER PLAN".

### WHEREAS CLAUSES:

Page 4, lines 2 and 27 – Replace "DISTRICT" with "DEVELOPMENT"

Page 5, lines 5-7, after CLURO, insert "and is amended by this ordinance and the Development Agreement to require Special Use Permit approval for certain uses

Page 5, lines 9 and 10 after the phrase "Master Plan" - delete, "on a form entitled, 'City of Mandeville Conditional Use Application'".

Page 5, line 10-11 after "Boundary Survey" - delete the phrase "the site plan".

Page 5, line 11-13 - delete the word "proposed" and insert the word, "conceptual". After the word, "study" insert the phrase, "a Development Agreement, a Conceptual Lot Layout".

Page 5, lines 14-15 delete "conditional use" and insert the phrase, "conceptual plan for the Planned Combined Use District".

Page 5, lines 20 and 21 delete the following after the acronym CLURO - " and the Special Marina Use Criteria contained in Subsection 8.2.3.7";

Page 5, line 29 - add a new WHEREAS clause: "WHEREAS, the City has made additional specific requirements for Planned Combined Use District approval of Port Marigny as set forth in a contract between and among the City of Mandeville, Port Marigny and Pittman Assets setting certain parameters for the development of Port Marigny as authorized under the provisions of LSA-RS 33-4721 and following; and"

Page 6, line 2 – add "Whereas, the City"

Page 6, line 3 - delete the phrase "Conditional Use" and replace "Planned District submitted" with "Planned Combined Use District approval submitted".

Page 6, line 3 – delete "Conditional Use and"

Page 6, lines 9-12, after the word approval - add "on July 23, 2015, August 18, 2015, September 1, 2015, September 29, 2015, October 29, 2015, November 10, 2015, December 17, 2015, January 20, 2016, February 17, 2016, March 15, 2016, March 30, 2016, April 20, 2016 and May 4, 2016

## **SECTIONS:**

### **Section 1 Classification of Prestressed Concrete Site**

No Changes to Section 1.

### **Section 2 Approval of Certain Uses**

Pages 6-7 - delete and Replace with the following language:

**Section 2.** *Approval of Certain Uses.* That the uses identified on the Master Plan and Guiding Principles, prepared by Architects Southwest, Inc., dated June 25, 2015, revised through \_\_\_\_\_, 2016, entitled "Port Marigny TND", including the regulations and restrictions set forth therein, which were submitted in connection with the application of Owner for a Planned District permit, as same were supplemented and amended during the course of the public

hearings conducted by the Planning Commission, be and the same are hereby approved as uses, regulations and restrictions applicable to and within the Port Marigny PCUD, subject to such other terms and conditions as may be set forth in this Ordinance. (Hereinafter, the uses, regulations and restrictions approved in this Section 2 shall be referred to as the “Port Marigny Use Regulations and Covenants”). Specifically, by approving the Master Plan for the Port Marigny PCUD, the City agrees and hereby approves that the categories of land uses and the number of units allowed for each land use in connection with the Port Marigny PCUD are as follows:

Table 1: Authorized Land Uses

Land Use	# of Units (maximum unless noted)	Type of Approval Required
Marina Boat Slips	117	S
Residential Uses:		
Single Family Detached, including the following Building Types: Cottage Houses, Neighborhood Houses, and Large Neighborhood Houses	162	P
Apartments, including the following Building Types: Mixed Use and Attached Residential	204	S
Mansion Condominiums (1 Building at 4 Units per Building)	4	P
Townhouses	52	P
Sub-total:	422	
Commercial Uses:		
Hotel	120 rooms	S
High Turnover Restaurant (As defined in the ITE but excluding restaurants with drive-through service)	4,000 sf	S
Quality Restaurant (As defined in the ITE)	7,000 sf	S
Other Retail/Commercial, including the space below Apartments in Mixed Use buildings	60,000 sf	S
Civic Uses	Not less than 2.85 acres	S
Parks and Open Spaces	Not less than 15.3 Acres	P

\*P- A use defined by Ord. 15-17 is Permitted by-right within the Port Marigny Development.

\*\*S – A use permitted in the Port Marigny Development by this Ordinance but requiring the issuance of a Special Use Permit by the Zoning Commission in accordance with the procedures and standards provided in Addendum A; and, further requiring consideration by the Zoning Commission of the compatibility of the proposed use and other conditions on the adjacent Land Uses.

Each of the Building Types listed above (except Civic Uses, Parks and Open Spaces) reflects the maximum number of units or square footage per Land Use. Land Uses are listed in the Urban Regulation Instructions included in the Master Plan and are more particularly defined in the list of Definitions shown in the Master Plan. The Definitions in the CLURO shall control in the event of a conflict with the definitions in the Master Plan, except that the definitions of "Alley Zone" and "Porch" as shown in the Master Plan shall have application in all proceedings for approval of the Port Marigny Development and in connection with the issuance of construction/building permits for structures erected in the Port Marigny Development. The arrangement of lots and uses as are depicted in the Master Plan and on the Conceptual Lot Layout prepared by Kelly J. McHugh & Associates, Civil Engineers and Land Surveyors, dated January 16, 2016, revised through \_\_\_\_\_, 2016 ("Conceptual Lot Layout") may be modified during the Review Procedure for Special Use Permit established in Addendum A, which is attached hereto and made part of this Ordinance, to accommodate parking and traffic within the Port Marigny neighborhoods not addressed at this time and to assure that traffic generated by Port Marigny Land Uses, as calculated in Section 4 of the Development Agreement, is maintained within the Milestone limits established in Section 6 of the Development Agreement.

**SECTION 3: (line 26 page 6) Approval of Development Concept:**

**Page 8 - delete and Replace with the following language:**

**Section 3.** *Approval of Development Concept.* That the development of Port Marigny PCUD in accordance with the Port Marigny Use Regulations and Covenants, and the Conceptual Lot Layout (formerly referred to as the preliminary Tentative Plan of Subdivision, dated July 30, 2015, prepared by Kelly J. McHugh & Associates, Civil Engineers & Land Surveyors, and submitted as Exhibit 11 on September 29, 2015 as a supplement to the original application), as modified on January 16, 2016, and further revised and renamed "Conceptual Lot Layout" on \_\_\_\_\_, 2016, as same may be subsequently modified through the Master Plan approval process to accommodate the realignment of proposed street, be and the same are hereby approved.

**SECTION 4: Ratification of Street Revocation and Revocation of Sewerage Servitude:**

No changes

**SECTION 5: Revocation of Temporary Construction Servitude**

No changes

**SECTION 6: Approval of Fill and Grading Plan:**

**Page 9 - Delete and Replace with the following language:**

**Section 6.** *Approval of Fill and Grading Plan.* Present Site Conditions are unusual and create practical difficulties and a hardship for the Owner to implement the development of the Prestressed Concrete Site, such that strict application of the City's rules and regulations with respect to the placement and grading of fill on the Port Marigny PCUD are hereby modified to the extent required to permit fill and grading of the Prestressed Concrete Site in accordance with the conceptual Grading Plan (Cut + Fill) prepared by Kelly J. McHugh, dated September 25, 2015, Dwg. No. 13-136 –GP, revised February 16, 2016, attached hereto as Exhibit "E-1". This approval is conditioned upon Owner submitting a detailed grading plan to the City Engineer for his review and approval prior to Owner commencing grading or filling of the site.

**SECTION 7 Grant of Servitude of Passage:**

Page 10, line 18 delete the word "Site" and insert the word "Master".

**SECTION 8 Rules, Restrictions and Covenants for Governance of Port Marigny:**

Page 10, lines 26 and 27, insert after the Exhibit G, the following, " as modified by the revised CC&Rs with compendium of Definitions, submitted September 29, 2015 as Exhibit 'G-1'".

Page 10, line 29 insert the following, "and, applicable, the Review Procedure for grant of a Special Use Permit.

**SECTION 9 Use of Leased Property:**

**Pages 10 - 12 - delete and replace with following language:**

**Section 9.** *Use of Leased Property.*

The State of Louisiana, first through the Department, of Natural Resources (1986) and later through the Division of Administration (1992), granted the City of Mandeville the non-exclusive right to use a portion of State owned land described below (the "State Leased Property"). The City's non-exclusive rights with respect to the use of the State Leased Property are more particularly set forth in the act of lease between the City and State, which is recorded in the official records of St. Tammany Parish, Louisiana, at COB 1516, folio 832, CIN 826372, attached hereto as Exhibit "H" (the "State Lease").

The State Leased Property is generally located south of the Prestressed Concrete Site, and includes "Sunset Point". A portion of the State Leased Property originally described in the State Lease, namely the two parcels that are now designated Parcel A and Parcel B on the Boundary Survey, are parcels that are adjacent to, and part of the Property owned by Owner, Pittman Assets, LLC, whose title to these two parcels was recognized by the State of Louisiana by act entitled "Boundary Agreement and Recognition of Title", dated December 15, 1998, recorded in

the official records of St. Tammany Parish, Louisiana, as Instrument No. 1159770, and by act entitled "*Proces Verbal of Agreement of Settlement*", dated December 15, 1998, recorded as Instrument No. 1159774 in the official records of St. Tammany Parish, Louisiana.

The City has not used or improved that portion of the State Leased Property that is owned by Pittman Assets, LLC described on the Boundary Survey as Parcels A and B. However, Owner's proposed use of Parcels A and B, as described in the Port Marigny Use Regulations and Covenants, are hereby determined to be consistent with, and in furtherance of, the uses of such property envisioned by the City, as set forth in the City's Comprehensive Plan.

Accordingly, the City hereby consents to modifying and amending the State Lease in two particulars: (a) to change the purpose of the State Lease from construction of a landfill on State lands (but not water bottoms) to construction of and use of State lands (but not water bottoms) as a public park; and (b) to revise the description of the State Leased Land as described in the State Lease, to eliminate Parcels A and B (as shown on the Boundary Survey), while reserving the City's use rights with respect to the remaining State owned land subject to the State Lease, as amended and modified, all subject to concurrence and approval by the State. The State land that will remain subject to the State Lease with the City shall include the isolated parcel lying south of and contiguous to Parcel B (herein designated as the "Park Area") and Sunset Point. Owner has offered and agreed to provide the public with physical access to the Park Area through the Port Marigny street system, to improve the Park Area in conformity with the Master Plan, and to maintain the Park Area, in accordance with the terms and conditions of a Cooperative Endeavor Agreement.

**BE IT FURTHER ORDAINED**, that the City consents to the following: (a) amending the State Lease, more particularly to change the purpose for the State Lease and to modify the description of the State Leased Land to that portion of the property described in the State Lease that is owned by Pittman Assets pursuant to the Boundary Agreement and Recognition of Title, substantially in accordance with the terms and conditions of the "Amendment to Lease", a copy of which is attached hereto and made part hereof as Exhibit "I"; (b) executing a Cooperative Endeavor Agreement with Port Marigny, LLC, subject to approval by the State, for the use, development and maintenance of the Park Area in substantially the form of the attached Exhibit "J"; (c) including in the Cooperative Endeavor Agreement a covenant prohibiting the construction of any improvements on Sunset Point above the height of the buildings and structures presently constructed on Sunset Point or on other State Leased Property, in any way unreasonably obstructing the vistas of/from Port Marigny PCUD, and constructing or installing any improvements or devices, other than aids in navigation, in the main navigational channel and other channels serving as access to Port Marigny from Lake Pontchartrain.

**Add New SECTION 10:**

**Subsequent Approvals Required:**

*Subsequent Approvals Required.* All Land Uses designated Mansion Condo, Cottage House, Townhouse, Neighborhood House and Large Neighborhood House on the Lot Type Plan of the Master Plan, are permitted uses having received approval pursuant to this Ordinance, however, these Land Uses shall require subdivision review and approval by the City Planning Commission in accordance with Division III of the CLURO without further proceedings before the City Council. All other Land Uses identified in Table 1, Section 3 C of the Development Agreement, including attached residential units designated as Attached Residential Use and Mixed-Use on the Density Plan of the Master Plan, Commercial Use, Hotel Use, and Marina Boat Slip Use shall be subject to subdivision review and approval in accordance with Division III of the CLURO, as well as Special Use Permit review and approval in accordance with the Review Procedure established in Addendum A attached to this Ordinance and made a part of this Ordinance and the Development Agreement. The Review Procedure established in Addendum A shall have application to all Land Uses that require a Special Use Permit as set forth in Table 1, Section 3 C of the Development Agreement. Marina development shall comply with the special Marina Use Criteria of Section 8.2.3.7 Special Use Criteria, except that no permanent residential occupancy of boats or other permanent residential uses shall be established within areas designated for marina use and no on-site provisions shall be made for dry boat storage or major boat repairs shall be authorized.

**Add New SECTION 11:**

**Approval of Development Agreement:**

*Approval of Development Agreement.* In order to assure the orderly development of Port Marigny and to assure that the City's infrastructure is adequate to accommodate the approved categories of Land Uses and approved number of Units within a Land Use Category in Port Marigny, as set forth in the approved Master Plan and documents supplemental thereto, as same may be modified in accordance with the Review Procedure (Addendum A) for a Special Use Permit, and approved for subdivision development in accordance with Article 12 of the CLURO; and as phases of the Port Marigny Development are constructed in accordance with the City's permitting processes, the City, Pittman Assets and Port Marigny have agreed to enter into a development agreement as permitted by LSA-R.S. 33:4780.21 *et seq.* contemporaneously with the adoption of this Ordinance.

**Following Section 11, add a new additional "Ordained" paragraph to approve the Development Agreement as follows:**

**BE IT FURTHER ORDAINED**, that pursuant to the provisions of LSA-R.S.33:4780.29 a development agreement in the form and substance of the Development Agreement, attached hereto as Exhibit "K", is

hereby approved. Said Development Agreement may only be amended or cancelled in accordance with the provisions of LSA-R.S.33:4780.30

Page 13, line 23 - Add a new heading as **“Section 12. Authority to Execute and Sign Agreements, Recording of Same.”**

Page 13, lines 30 and 31 after (Exhibit “J”), and – insert **“the Development Agreement (Exhibit “K”), together with**

Page 14, line 5- replace “and the Cooperative Endeavor” with “the Cooperative Endeavor Agreement and the Development”

Page 14, line 9, after “4.3.3.13” – add “and Section 8.3.1.3.c.”

1 [Revised 3/30/2016.mlauer](#)

2 [Revised 4-19-16 rlmuller](#)

3 [Revised 4-29-16 RLM](#)

4 [Revised 5-4-16 RLM: 5.12.16.lls](#)

5 **THE FOLLOWING ORDINANCE WAS MOVED FOR INTRODUCTION BY**  
6 **COUNCIL MEMBER \_\_\_\_\_; SECONDED FOR INTRODUCTION**  
7 **BY COUNCIL MEMBER \_\_\_\_\_; MOVED FOR ADOPTION BY**  
8 **COUNCIL MEMBER \_\_\_\_\_; AND SECONDED FOR ADOPTION**  
9 **BY COUNCIL MEMBER \_\_\_\_\_.**

10  
11 **ORDINANCE NO. 15-17**

12 **AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF**  
13 **MANDEVILLE WITH RESPECT TO ARPENT LOTS 14, 15, 16, 17,**  
14 **18, 20, 21, A PORTION OF ARPENT LOT 19, (NOT INCLUDING**  
15 **THE SUBDIVIDED LOTS DESIGNATED AS LOTS 1-14,**  
16 **INCLUSIVE, FORMING THE SOUTHWEST CORNER OF KLEBER**  
17 **STREET AND MONROE STREET), PARCELS A AND B, AND A**  
18 **PORTION OF KLEBER STREET, LOCATED IN SECTIONS 46 & 47-**  
19 **T8S-R11E, CITY OF MANDEVILLE, ST. TAMMANY PARISH,**  
20 **LOUISIANA, MORE PARTICULARLY DESCRIBED ON THE PLAT**  
21 **AND SURVEY PREPARED BY KELLY J. MCHUGH &**  
22 **ASSOCIATES, INC., CIVIL ENGINEERS & LAND SURVEYORS,**  
23 **DATED 12/03/13, REVISED THROUGH JUNE 30, 2015, DWG. NO.**  
24 **13-136-BS, CONTAINING 76.648 ACRES (THE “PRESTRESSED**  
25 **CONCRETE SITE”); AMENDING THE OFFICIAL ZONING MAP**  
26 **AND COMPREHENSIVE LAND USE REGULATION ORDINANCE**  
27 **(CLURO) OF THE CITY TO CLASSIFY THE FORMER**  
28 **PRESTRESSED CONCRETE SITE AS A PLANNED COMBINED**  
29 **USE DISTRICT (“PCUD”); APPROVING THE ~~SITE PLAN,~~**  
30 **MASTER PLAN AND GUIDING PRINCIPLES PREPARED BY**  
31 **ARCHITECTS SOUTHWEST, INC., DATED JUNE 25, 2015,**  
32 **AMENDED THROUGH MAY \_\_, 2016, ENTITLED “PORT**  
33 **MARIGNY TND” (COLLECTIVELY THE “MASTER PLAN”);**  
34 **WHICH SERVES AS THE CONCEPTUAL PLAN FOR THE PORT**  
35 **MARIGNY PLANNED COMBINED USE DISTRICT; APPROVING**  
36 **THE DEVELOPMENT AGREEMENT; REQUIRING THAT THE**



1 conform to current nomenclature and land use regulations proscribed by the  
2 CLURO; and

3  
4 **WHEREAS**, the Prestressed Concrete Site has been identified in the City of  
5 Mandeville Comprehensive Plan, dated 2007 (“Comprehensive Plan”), as  
6 “vacant” property (see Map 11 - Existing Land Use) and has in fact been vacant  
7 for many years, except for its use as a temporary storage site for debris following  
8 Hurricane Katrina and for the storage of building materials and equipment during  
9 various public street and drainage projects; and

10  
11 **WHEREAS**, the Comprehensive Plan identifies the Prestressed Concrete Site for  
12 future use as a “Planned/Marina District” (see Comprehensive Plan – Map 2); and

13  
14 **WHEREAS**, the Comprehensive Plan establishes as a goal of the City the  
15 development of the Prestressed Concrete Site as a “vibrant, walkable, mixed-use,  
16 waterfront development that provides strong fiscal benefits for the City” (see  
17 Comprehensive Plan - Goal 12, page 36); and

18  
19 **WHEREAS**, in order to accomplish Goal 12, the Comprehensive Plan  
20 incorporates certain policy considerations for the development of the Prestressed  
21 Concrete Site, including:

- 22 | A. Coordinate with the Owner of the Prestressed Concrete Site to mitigate  
23 | traffic from the mixed uses within the site without introducing  
24 | unacceptable levels of congestion into Old Mandeville;
- 25 | B. Provide primary access through Mariners Village and Monroe Street
- 26 | C. Limit the height of structures along the waterfront to 60 feet and step  
27 | heights down to 35 feet along the edges of the property;
- 28 | D. Encourage street level activity;
- 29 | E. Afford public access along the waterfront;
- 30 | F. Retain key vistas of the Lake within the development;
- 31 | G. Facilitate bike and pedestrian circulation;
- 32 | H. Allow low to medium density residential uses along Monroe Street;
- 33 | I. Require that the property comply with new urbanist design standards and  
34 | incorporate local architectural elements; and
- 35 | J. Promote the redevelopment of Mariner’s Village in conjunction with the  
36 | development of the Prestressed Concrete Site; and

1       **WHEREAS**, Section 8.5 of the CLURO, entitled “Traditional Neighborhood  
2       District Development”, codifies new urbanism design standards as referenced in  
3       the policy considerations for achieving Goal 12 mentioned above; and  
4

5       **WHEREAS**, Section 8.2 of the CLURO, entitled “Special Uses Criteria”, more  
6       specifically, Subsection 8.2.3.7, entitled “Special Marina Use Criteria” provide  
7       for the development and use of a development site as a marina; and  
8

9       **WHEREAS**, the City owns a strip of land, approximately 50 feet in width, that  
10       runs from Monroe Street to the Lake, lying between the eastern property line of  
11       Mariner’s Village and the western boundary line of the Prestressed Concrete Site  
12       which presently serves as a primary drainage canal for the City drainage system  
13       (the “Drainage Canal”); and  
14

15       **WHEREAS**, the Drainage Canal was acquired by the City from Brown and Root,  
16       Inc. contemporaneously with the revocation of a portion of Kleber Street, by act  
17       dated August 7, 1967, recorded with the Clerk of Court as Instrument # 246757  
18       on August 10, 1967; and  
19

20       **WHEREAS**, in order for Port Marigny to access Mariner’s Boulevard, as set  
21       forth in the Comprehensive Plan, a predial servitude for passage and for utilities is  
22       needed at one or more locations -across the Drainage Canal; and  
23

24       **WHEREAS**, the Master Plan submitted by the Owner, which- regulates the  
25       development of the Prestressed Concrete Site, includes new urbanist design  
26       principles which are in substantial accord with the requirements of the Traditional  
27       Neighborhood District Development and the Special Marina Use Criteria; and  
28

29       **WHEREAS**, the Owner has requested that the City approve the development of -  
30       the Prestressed Concrete Site as a Planned Combined Use District in accordance  
31       with the Master Plan to be known as “Port Marigny”; and  
32

33       **WHEREAS**, under Article 7, Section 7.5.15.2 of the CLURO, all uses permitted  
34       in a Planned Combined Use District are conditional uses which must be approved  
35       in accordance with the procedure for obtaining conditional use permits and  
36       Planned District Zoning.; and

1       **WHEREAS**, the procedure for obtaining conditional use permits and Planned  
2       Districts is set forth in Article 4 of the CLURO; and\_

3  
4       **WHEREAS**, in conformity with procedure established in Article 4 of the  
5       CLURO, and is amended by this ordinance and the Development Agreement to  
6       require Special Use Permit approval for certain uses, the duly authorized  
7       representative of the Owner, namely Port Marigny, L.L.C., has submitted an  
8       application for approval of the use of the Prestressed Concrete Site in accordance  
9       with the Master Plan ~~on a form entitled “City of Mandeville Conditional Use-~~  
10      ~~Application”~~ and provided pursuant to said application the Boundary Survey, the  
11      ~~Site Plan, the~~ Master Plan, a Topographic Survey, a ~~proposed~~ conceptual Fill and  
12      Drainage Plan, a traffic study, a Development Agreement, a Conceptual Lot  
13      Layout, and other information and documents required by the City to be  
14      submitted in connection with the Owner’s application for ~~a Conditional Use;~~  
15      ~~and~~ conceptual plan approval for the planned combined use district; and

16  
17      **WHEREAS**, in connection with the application, the Owner has represented that  
18      the Master Plan was developed by Architects Southwest, Inc. and approved by the  
19      Owner to substantially comply in all material respects with the new urbanist  
20      design standards and principles contained in Section 8.5 of the CLURO ~~and the~~  
21      ~~Special Marina Use Criteria contained in Subsection 8.2.3.7; and; and~~

22  
23      **WHEREAS**, the Master Plan substantially fulfills, in all material respects, the  
24      policy considerations set out under Goal 12 of the Comprehensive Plan for the  
25      development of the Prestressed Concrete Site, excepting those matters for which a  
26      variance or special consideration is specifically requested herein, and other  
27      matters over which the Owner has no control; and

28  
29      **WHEREAS**, the City has made additional specific requirements for site  
30      development approval of certain Land Uses within the Port Marigny Development  
31      through a Special Use Permit review procedure as set forth in this Ordinance and  
32      the Development Agreement between and among the City, Port Marigny and  
33      Pittman Assets setting forth certain parameters for the development of Port  
34      Marigny as authorized under the provisions of LSA-R.S. 33:4708.21 et seq.; and

1  
2 WHEREAS, the City Planner has advised the City Council that the application  
3 for ~~Conditional Use and~~ Planned Combined Use District approval submitted in  
4 connection with the application by Port Marigny, LLC substantially complies  
5 with the procedure and requirements set forth in Article 4 of the CLURO; and  
6

7 **WHEREAS**, the City of Mandeville Planning Commission, after giving proper notice,  
8 conducted public hearings on the application of Owner for Conditional Use and Planned  
9 District approval on July 23, 2015, August 18, 2015; September 1, 2015, September 29,  
10 2015, October 14, 2015, October 29, 2015, November 10, 2015, December 17, 2015,  
11 January 20, 2016, February 17, 2016, March 15, 2016, March 30, 2016, April 20, 2016,  
12 and May 4, 2016 and reported its findings and recommendations to the City Council; and  
13

14 **WHEREAS**, all applicable procedural requirements for the adoption of this Ordinance  
15 have been met;  
16

17 **NOW THEREFORE, BE IT ORDAINED**, by the City Council of the City of  
18 Mandeville, acting as the governing authority thereof, as follows:  
19

20 **Section 1.** *Classification of the Prestressed Concrete Site.* That the Official Zoning Map  
21 and CLURO be and they are hereby amended to classify Arpent Lots 14, 15, 16, 17, 18,  
22 20, 21 and a portion of Arpent Lot 19 (not including the subdivided lots designated as  
23 lots 1-14, inclusive, forming the southwest corner of Kleber Street and Monroe Street),  
24 Parcels A and B, and the revoked portion of Kleber Street, ~~located~~ located in Sections 46 & 47-  
25 T8S-R11E, City of Mandeville, St. Tammany Parish, Louisiana, more particularly  
26 described on the Boundary Survey prepared by Kelly J. McHugh & Associates, Inc.,  
27 Civil Engineers & Land Surveyors, dated 12/03/13, revised through June 30, 2015, Dwg.  
28 No. 13-136- BS, containing 76.648 acres, attached hereto as Exhibit "A" and in the  
29 *process verbal* -attached hereto as Exhibit "B, as a "Planned Combined Use District",  
30 subject to the land use regulations contained in the CLURO. (Hereinafter, the property  
31 described in this Section 1 shall be referred to as the "Port Marigny PCUD".)  
32

33 **Section 2.** *Approval of ~~Conditional~~ Certain Uses.* That the uses identified on ~~the Site~~  
34 ~~Plan, and in~~ the Master Plan and Guiding Principles, prepared by Architects Southwest,  
35 Inc., dated June 25, 2015, revised through \_\_\_\_\_, 2016, entitled "Port Marigny TND",  
36 including the regulations and restrictions set forth therein, which were submitted in

1 connection with the application of Owner for a ~~Conditional Use and~~ Planned District  
 2 permit, as same were supplemented and amended during the course of the public hearings  
 3 conducted by the Planning Commission, be and the same are hereby approved as uses,  
 4 regulations and restrictions applicable to and within the Port Marigny PCUD, subject to  
 5 such other terms and conditions as may be set forth in this Ordinance. (Hereinafter, the  
 6 uses, regulations and restrictions approved in this Section 2 shall be referred to as the  
 7 “Port Marigny Use Regulations and Covenants”). Specifically, by approving the Master  
 8 Plan for the Port Marigny PCUD, the City agrees and hereby approves the categories of  
 9 land uses and the number of units allowed for each land use in connection with the Port  
 10 Marigny PCUD to be, as follows:

11  
 12 Table 1: Authorized Land Uses

Land Use	# of Units (maximum unless noted)	Type of Approval Required
Marina Boat Slips	117	S
Residential Uses:		
Single Family Detached, including the following Building Types: Cottage Houses, Neighborhood Houses, and Large Neighborhood Houses	162	P
Apartments, including the following Building Types: Mixed Use and Attached Residential	204	S
Mansion Condominiums (1 Building at 4 Units per Building)	4	P
Townhouses	52	P
Sub-total:	422	
Commercial Uses:		
Hotel	120 rooms	S
High Turnover Restaurant (As defined in the ITE but excluding restaurants with drive-through service)	4,000 sf	S
Quality Restaurant (As defined in the ITE)	7,000 sf	S
Other Retail/Commercial, including the space below Apartments in Mixed Use buildings	60,000 sf	S
Civic Uses	Not less than 2.85 acres	S
Parks and Open Spaces	Not less than 15.3 Acres	P

1 \*P- A use defined by Ord. 15-17 is Permitted by-right within the Port Marigny Development.  
2 \*\*S – A use permitted in the Port Marigny Development by this Ordinance but requiring the issuance of a  
3 Special Use Permit by the Zoning Commission in accordance with the procedures and standards  
4 provided in Addendum A; and, further requiring consideration by the Zoning Commission of the  
5 compatibility of the proposed use and other conditions on the adjacent Land Uses.  
6

7 ach of the Building Types listed above (except Civic Uses, Parks and Open Spaces)  
8 reflects the maximum number of units or square footage per Land Use. Land Uses are  
9 listed in the Urban Regulation Instructions included in the Master Plan and are more  
10 particularly defined in the list of Definitions shown in the Master Plan. The Definitions in  
11 the CLURO shall control in the event of a conflict with the definitions in the Master Plan,  
12 except that the definitions of “Alley Zone” and “Porch” as shown in the Master Plan shall  
13 have application in all proceedings for approval of the Port Marigny Development and in  
14 connection with the issuance of construction/building permits for structures erected in the  
15 Port Marigny Development. The arrangement of lots and uses as are depicted in the  
16 Master Plan and on the Conceptual Lot Layout prepared by Kelly J. McHugh &  
17 Associates, Civil Engineers and Land Surveyors, dated January 16, 2016, revised through  
18 \_\_\_\_\_ , 2016 (“Conceptual Lot Layout”) may be modified during the Review  
19 Procedure for Special Use Permit established in Addendum A, which is attached hereto  
20 and made part of this Ordinance, to accommodate parking and traffic within the Port  
21 Marigny neighborhoods not addressed at this time and to assure that traffic generated by  
22 Port Marigny Land Uses, as calculated in Section 4 of the Development Agreement, is  
23 maintained within the Milestone limits established in Section 6 of the Development  
24 Agreement.  
25

26 Section 3. Approval of Development Concept. That the development of Port Marigny  
27 PUCDPCUD in accordance with the Port Marigny Use Regulations and Covenants-~~be~~  
28 ~~and the,~~ and the Conceptual Lot Layout (formerly referred to as the preliminary Tentative  
29 Plan of Subdivision, dated July 30, 2015, prepared by Kelly J. McHugh & Associates,  
30 Civil Engineers & Land Surveyors, and submitted as Exhibit 11 on September 29, 2015  
31 as a supplement to the original application), as modified on January 16, 2016, and further  
32 revised and renamed “Conceptual Lot Layout” on \_\_\_\_\_ , 2016, as same is may be  
33 subsequently modified through the Master Plan approval process to accommodate the  
34 realignment of proposed street, be and the same are hereby approved. The issuance of  
35 permits for the construction of Port Marigny is reserved until such time as Port Marigny-  
36 is approved as a subdivision in accordance with the provisions of Article 11 of the  
37 CLURO, entitled “Subdivisions and Public Improvements Regulations of the City of  
38 Mandeville”.

1        **Section 4.** *Ratification of Street Revocation and Revocation of Sewerage Line Servitude.*  
2        By Ordinance enacted by the Town Council of the Town of Mandeville on August 8,  
3        1967 and signed by then Mayor Paul Cordes that same date, a portion of Kleber Street as  
4        depicted on the Boundary Survey, commencing at a point 730 feet from its intersection  
5        with the southern right of way line of Monroe Street to its southern terminus near Lake  
6        Pontchartrain, was revoked, reserving to the City a 20 foot servitude for a sewerage line  
7        which was never constructed, has never been used, and is no longer needed for public  
8        purposes. Accordingly, the revocation of Kleber Street commencing at a point 730 feet  
9        from its intersection with the southern right of way line of Monroe Street to its southern  
10       terminus near Lake Pontchartrain, as shown on the Boundary Survey, be and the same is  
11       hereby ratified and affirmed; and, the sewerage line servitude that had been reserved to  
12       the City of Mandeville, pursuant to the August 8, 1967 Ordinance over that revoked  
13       portion of Kleber Street, as hereinbefore recited and as shown on the Boundary Survey, is  
14       declared no longer needed for public purposes, and it is hereby revoked. The form of the  
15       Act of Ratification of Revocation and Revocation of Sewer Servitude, attached hereto as  
16       Exhibit "C", is hereby authorized and approved.

17  
18       **Section 5.** *Revocation of Temporary Construction Servitude.* By Act entitled "Grant and  
19       Dedication of Temporary Construction Servitude", dated October 2, 1990, recorded at  
20       COB 1440, folio 106, CIN 764376 of the official records of St. Tammany Parish,  
21       Louisiana, the Owner's ancestor in title granted a temporary construction servitude over a  
22       twenty foot strip of land located ten feet on either side of a center line running from  
23       Kleber Street westerly to the City's 50 foot drainage canal, all as more particularly  
24       described in said Act, and as shown on the March, 1990 map by Dyer & Moody #32-163-  
25       110-51 referenced in said Act, for the construction of subsurface drainage improvements,  
26       which temporary construction servitude was never used and which subsurface drainage  
27       improvements were never constructed. Accordingly, the temporary construction servitude  
28       granted to the City over that portion of the Prestressed Concrete Site more particularly  
29       described in the Act and shown on the Boundary Survey, and any and all servitudes,  
30       rights and obligations granted or contained in said Act, are declared no longer needed for  
31       public purposes, and it is hereby revoked. The form of the Act of Revocation of  
32       Temporary Construction Servitude, attached hereto as Exhibit "D", is hereby authorized  
33       and approved.

34  
35       **Section 6.** *Approval of Fill and Grading Plan.* Present Site Conditions are unusual and  
36       create practical difficulties and a hardship for the Owner to implement the development

1 of the Prestressed Concrete Site, such that strict application of the City’s rules and  
2 regulations with respect to the placement and grading of fill on the ~~Prestressed Concrete-~~  
3 ~~Site~~Port Marigny PCUD are hereby ~~waived and~~ modified to the extent required to permit  
4 fill and grading of the Prestressed Concrete Site in accordance with the ~~Fill and~~  
5 ~~conceptual~~ Grading Plan (Cut + Fill) prepared by Kelly J. McHugh, dated ~~June-~~  
6 ~~30~~September 25, 2015, Dwg. No. 13-136 –~~FP~~GP, revised February 16, 2016, attached  
7 hereto as Exhibit “E”-1”. This approval is conditioned upon Owner submitting a detailed  
8 grading plan to the City Engineer for his review and approval prior to Owner  
9 commencing grading of the site.

10  
11 **Section 7.** *Grant of Servitude for Passage and Utilities.* City acknowledges that the  
12 Comprehensive Plan contemplates primary access to and from Port Marigny will be  
13 through the existing Mariners Boulevard and Monroe Street; and that, in order for the  
14 Port Marigny street system and public utilities to connect with Mariners Boulevard  
15 permission from the City to cross the Drainage Canal and construct improvements is  
16 needed. Accordingly, a non-exclusive servitude for passage and for the construction of  
17 utilities be the same is hereby granted to Owner over and across the Drainage Canal at the  
18 location shown on the ~~Site~~Master Plan and at such other locations for vehicular, bicycle  
19 and pedestrian traffic, and utilities, all as more specifically set forth in the act entitled  
20 ~~”~~“Act Granting Non-Exclusive Servitude of Passage and for Utilities”, a copy of which is  
21 attached hereto and made part hereof as Exhibit “F”.

22  
23 **Section 8.** *Rules, Restrictions and Covenants for Governance of Port Marigny.* The rules,  
24 restrictions and covenants for the governance of the Port Marigny development, which  
25 are in addition to the Port Marigny Use Regulations and Covenants, shall be substantially  
26 in accordance with the attached Exhibit “G”, as modified by the Revised CC&Rs with  
27 compendium of Definitions, submitted September 29, 2015 as Exhibit “G-1”. but subject  
28 to further modification as Port Marigny applies for and proceeds through the City’s  
29 subdivision approval process and, as applicable, the Review Procedure for grant of a  
30 Special Use Permit (the “Restrictive Covenants”).

31  
32 **Section 9.** *Use of Leased Property.*

33 The State of Louisiana, first through the Department, of Natural Resources (1986) and  
34 later through the Division of Administration (1992), granted the City of Mandeville the  
35 non-exclusive right to use a portion of State owned land described below (the “State  
36 Leased Property”). The City’s non-exclusive rights with respect to the use of the State

1 Leased Property are more particularly set forth in the act of lease between the City and  
2 State, which is recorded in the official records of St. Tammany Parish, Louisiana, at COB  
3 1516, folio 832, CIN 826372, attached hereto as Exhibit “H” (the “State Lease”).  
4

5 The State Leased Property is generally located south of the Prestressed Concrete Site, and  
6 includes “Sunset Point”. A portion of the State Leased Property originally described in  
7 the State Lease, namely ~~Parcel~~the two parcels that are now designated Parcel A and  
8 Parcel B described on the Boundary Survey, ~~was acquired~~are parcels that are adjacent to,  
9 and part of the Property owned by the Owner’s ancestor in Owner, Pittman Assets,  
10 LLC, whose title from to these two parcels was recognized by the State of Louisiana  
11 pursuant to an act entitled “Boundary Agreement and Recognition of Title”, dated  
12 December 15, 1998, recorded in the official records of St. Tammany Parish, Louisiana, as  
13 Instrument No. 1159770, and an act entitled “*Proces Verbal* of Agreement of  
14 Settlement”, dated December 15, 1998, recorded as Instrument No. 1159774 in the  
15 official records of St. Tammany Parish, Louisiana.  
16

17 ~~Since the commencement of the State Lease, the~~The City has not used or improved that  
18 portion of the State Leased Property that is owned by Pittman Assets, LLC described on  
19 the Boundary Survey as Parcels A and B. However, Owner’s proposed use of Parcels A  
20 and B, as described in the Port Marigny Use Regulations and Covenants, are hereby  
21 determined to be consistent with, and in furtherance of, the uses of such property  
22 envisioned by the City, as set forth in the City’s Comprehensive Plan.  
23

24 Accordingly, the City hereby consents to modifying and amending the ~~description of the~~  
25 ~~State Leased Land, subject to concurrence and approval by the State~~State Lease in two  
26 particulars: (a) to change the purpose of the State Lease from construction of a landfill on  
27 State lands (but not water bottoms) to construction of and use of State lands (but not  
28 water bottoms) as a public park; and (b) to revise the description of the State Leased  
29 Land as described in the State Lease, to eliminate Parcels A and B (as shown on the  
30 Boundary Survey), while reserving the City’s use rights with respect to the remaining  
31 ~~State Leased Property, including owned land subject to the State Lease, as amended and~~  
32 modified, all subject to concurrence and approval by the State. The State land that will  
33 remain subject to the State Lease with the City shall include the isolated parcel lying  
34 south of and contiguous to Parcel B (herein designated as the “Park Area”) and Sunset  
35 Point. Owner has offered and agreed to ~~afford~~provide the public with physical access to  
36 the Park Area through the Port Marigny street system, to improve the Park Area in

1 conformity with the Master Plan, and to maintain the Park Area, in accordance with the  
2 terms and conditions of a Cooperative Endeavor Agreement.

3  
4 **BE IT FURTHER ORDAINED**, that the City consents to the following: (a)  
5 amending the State Lease, more particularly to change the purpose for the State Lease  
6 and to modify the description of the State Leased Land to eliminatethat portion of the  
7 property aequiireddescribed in the State Lease that is owned by the Owner's ancestor in-  
8 titlePittman Assets pursuant to the Boundary Agreement and Recognition of Title,  
9 substantially in accordance with the terms and conditions of the "Amendment to Lease",  
10 a copy of which is attached hereto and made part hereof as Exhibit "I"; (b) executing a  
11 Cooperative Endeavor Agreement with Port Marigny, LLC, subject to approval by the  
12 State, for the use, development and maintenance of the Park Area in substantially the  
13 form of the attached Exhibit "J"; (c) including in the Cooperative Endeavor Agreement a  
14 covenant prohibiting the construction of any improvements on Sunset Point above the  
15 height of the buildings and structures presently constructed on Sunset Point or on other  
16 State Leased Property, in any way unreasonably obstructing the vistas of/from Port  
17 Marigny PCUD, and constructing or installing any improvements or devices, other than  
18 aids in navigation, in the main navigational channel and other channels serving as access  
19 to Port Marigny from Lake Pontchartrain.

20  
21 Section 10. Subsequent Approvals Required. All Land Uses designated Mansion Condo,  
22 Cottage House, Townhouse, Neighborhood House and Large Neighborhood House on the  
23 Lot Type Plan of the Master Plan, are permitted uses having received approval for such  
24 uses pursuant to this Ordinance, however, these Land Uses shall require subdivision  
25 review and approval by the City Planning Commission in accordance with Division III of  
26 the CLURO without further proceedings before the City Council. All other Land Uses  
27 identified in Table 1, Section 3 C of the Development Agreement, including attached  
28 residential units designated as Attached Residential Use and Mixed-Use on the Density  
29 Plan of the Master Plan, Commercial Use, Hotel Use, and Marina Boat Slip Use shall be  
30 subject to subdivision review and approval in accordance with Division III of the  
31 CLURO, as well as Special Use Permit review and approval in accordance with the  
32 Review Procedure established in Addendum A attached to this Ordinance and made a  
33 part of this Ordinance and the Development Agreement. The Review Procedure  
34 established in Addendum A shall have application to all Land Uses that require a Special  
35 Use Permit as set forth in Table 1, Section 3 C of the Development Agreement. Marina  
36 development shall comply with the special Marina Use Criteria of Section 8.2.3.7 Special

1 Use Criteria, except that no permanent residential occupancy of boats or other permanent  
2 residential uses shall be established within areas designated for marina use and no on-site  
3 provisions shall be made for dry boat storage or major boat repairs shall be authorized.  
4

5 **Section 11. Approval of Development Agreement.** In order to assure the orderly  
6 development of Port Marigny and to assure that the City's infrastructure is adequate to  
7 accommodate the approved categories of Land Uses and approved number of Units  
8 within a Land Use Category in Port Marigny, as set forth in the approved Master Plan  
9 and documents supplemental thereto, as same may be modified in accordance with the  
10 Review Procedure (Addendum A) for a Special Use Permit, and approved for  
11 subdivision development in accordance with Article 12 of the CLURO; and as phases of  
12 the Port Marigny Development are constructed in accordance with the City's permitting  
13 processes, the City, Pittman Assets and Port Marigny have agreed to enter into a  
14 development agreement as permitted by LSA-R.S. 33:4780.21 et seq. contemporaneously  
15 with the adoption of this Ordinance.  
16

17 **BE IT FURTHER ORDAINED,** that pursuant to the provisions of LSA-R.S.  
18 33:4780.29 a development agreement in the form and substance of the Development  
19 Agreement, attached hereto as Exhibit "K", is hereby approved. Said Development  
20 Agreement may only be amended or cancelled in accordance with the provisions of LSA-  
21 R.S. 33:4780.30 and the terms of the Development Agreement.  
22

23 **Section 12. Authority to Execute and Sign Agreements, Recording of Same.**  
24

25 **BE IT FURTHER ORDAINED,** that the Mayor be and he is hereby authorized,  
26 empowered and directed for and on behalf of the City to execute the aforescribed Act  
27 of Ratification of Revocation and Revocation of Sewer Servitude (Exhibit "C"), the Act  
28 of Revocation of Temporary Construction Servitude (Exhibit "D"), the Grant of  
29 Servitude for Passage and Utilities (Exhibit "F"), Amendment to Lease (Exhibits "I")  
30 ~~and~~), the Cooperative Endeavor Agreement (Exhibit "J"), and the Development  
31 Agreement (Exhibit "K"), together with any other documents, containing such other  
32 terms and conditions, necessary or required, to give effect to the matters addressed in this  
33 Ordinance,  
34

35 **BE IT FURTHER ORDAINED,** that the Clerk of Council be and she is hereby  
36 authorized, empowered and directed to record this Ordinance, the Boundary Survey and

1 *proces verbal* of the Port Marigny property, the Port Marigny Site Plan and Master Plan,  
2 the Port Marigny Restrictive Covenants (when finalized), the Act of Ratification of  
3 Revocation and Revocation of Sewer Servitude, the Act of Revocation of Temporary  
4 Construction Servitude, the Grant of Servitude of Passage and Utilities, the Amendment  
5 to Lease, ~~and~~ the Cooperative Endeavor Agreement, and the Development Agreement, in  
6 the conveyance records of the Clerk of Court for St. Tammany Parish, Louisiana, as  
7 covenants running with the land comprising the Port Marigny PCUD, to be modified,  
8 expanded or changed only in accordance with the procedure proscribed in Section  
9 4.3.3.13 and Section 8.3.1.3.c. of the CLURO.

10  
11 The ordinance having been submitted to a vote, the vote thereon was as follows:

12 AYES:

13 NAY:

14 ABSTENTIONS:

15 ABSENT:

16 and the Ordinance was declared adopted this \_\_ day of \_\_\_\_\_, ~~2015~~2016.

17  
18  
19 \_\_\_\_\_  
20  
21 Clerk of Council

\_\_\_\_\_

Mayor Pro-Tem

22  
23 **SUBMITTAL TO MAYOR**

24 The foregoing Ordinance was **SUBMITTED** by me to the Mayor of the City  
25 of Mandeville this \_\_ day of \_\_\_\_\_, ~~2015~~2016 at 9:00 o'clock a.m.

26  
27 \_\_\_\_\_  
28 **CLERK OF COUNCIL**

29 **APPROVAL OF ORDINANCE**

30 The foregoing Ordinance is by me hereby **APPROVED**, this \_\_ day of \_\_\_\_\_,  
31 ~~2015~~2016 at \_\_ o'clock \_\_.m.

32  
33 \_\_\_\_\_  
34 **DONALD J. VILLERE, MAYOR**

35 **VETO OF ORDINANCE**

36 The foregoing Ordinance is by me hereby **VETOED**, this \_\_\_\_\_ day of  
37 \_\_\_\_\_, ~~2015~~2016, at \_\_ o'clock \_\_.m.

DONALD J. VILLERE, MAYOR

RECEIPT FROM MAYOR

The foregoing Ordinance was RECEIVED by me from the Mayor of the City of Mandeville this \_\_\_ day of \_\_\_\_\_, 20152016 at \_\_\_ o'clock \_m.

CLERK OF COUNCIL

CERTIFICATE

I, THE UNDERSIGNED Clerk of the City Council of the City of Mandeville do hereby certify that the foregoing is a true and correct copy of an ordinance adopted by the City Council of the City of Mandeville at a duly noticed, called and convened meeting of said City Council held on the \_\_ day of \_\_\_\_\_, 20152016 at which a quorum was present and voting. I do further certify that said Ordinance has not thereafter been altered, amended, rescinded, or repealed.

WITNESS MY HAND and the seal of the City of Mandeville this \_\_\_ day of \_\_\_\_\_, 20152016.

CLERK OF COUNCIL

## **Addendum A: Port Marigny Review Procedure**

### **Attachment to Ordinance No 15-17 and the Development Agreement By and Among the City of Mandeville, Louisiana, Port Marigny, LLC and Pittman Assets, LLC**

- (a) **Purpose.** The purpose of this procedure is to provide for review and evaluation of site development and design features of selected uses, and to afford a procedure for mitigation of potentially unfavorable effects on adjacent land uses.
- (b) **Applicability and Jurisdiction.** The Zoning Commission shall be responsible for review, evaluation and action on all site plans submitted as required for Special Use Permits in the Port Marigny Development. All Land Uses identified in Table 1 of the Development Agreement as Land Uses requiring Special Use Permits shall follow the procedure in this Addendum A. Complete applications for Land Uses requiring Special Use Permits shall automatically be forwarded by the Planning Director to the Zoning Commission for review at the first meeting following the required public notice as specified herein.
- (c) **Application.** Applications for special use permit approvals shall be filed with the Planning Director. The application shall include the following unless certain materials are determined to be unnecessary by the Planning Director:
1. Completed application form provided to the applicant by the Planning Director.
  2. Name, signature and address of the owner and applicant, if agent of owner on the application clearly stating the requested action.
  3. Address, legal description and boundary survey of the property, including any existing structures.
  4. If the applicant is not the legal owner of the property, a sworn statement by the owner that the applicant is the authorized agent of the owner of the property.
  5. The municipal address or lot, square and subdivision and the name and mailing address of owner of each lot abutting or opposite the subject property.
  6. A statement describing the nature and operating characteristics of the proposed use, including any data pertinent to the findings required for approval of the application. For uses involving public assembly, or uses potentially generating high volumes of vehicular traffic, the Planning Director may require specific information relative to the anticipated peak

loads and peak use periods, or substantiating the adequacy of proposed parking, loading, and circulation facilities and make reasonable requirements to accommodate same.

7. A site plan and the number of copies required by the Zoning Commission's Rules of Procedure a minimum of 8.5" x 11" inches and a maximum of 24" x 36" inches, drawn to scale and sufficiently dimensioned as required to show the following:
  - a. The date, scale, north point, title, name of owner, and name of person preparing the site plan.
  - b. The location and dimensions of boundary lines, with distances and bearings, easements, and required yards and setbacks, water courses, drainage features and location and size of existing and proposed streets and alleys, 100-year floodplains, as well as areas of periodic inundation.
  - c. The location, height, bulk, percent of impervious site surface, general appearance, and intended use of existing and proposed buildings on the site, and the approximate location of existing buildings and their existing uses on abutting sites within fifty (50) feet.
  - d. The location and dimensions of existing and proposed site improvements including parking and loading areas, pedestrian and vehicular access, landscaped areas, utility or service areas, fencing and screening, signs, and lighting.
  - e. The center line of existing water course, drainage features and location and size of existing and proposed streets and alleys, the 100-year floodplain, and any areas of periodic inundation.
  - f. A conceptual landscape plan showing the location and size of the existing and proposed landscaped areas and the number and location of Class A and B trees proposed or required to be preserved.
  - g. The number of existing and proposed off-street parking and loading spaces, and a calculation of applicable minimum requirements.
  - h. A conceptual drainage plan showing existing and proposed topography and grading and proposed subsurface drainage structures and retention and water quality enhancement facilities.
  - i. The relationship of the site and the proposed use to surrounding uses, including pedestrian and vehicular circulation, current use of nearby parcels, and any proposed off-site improvements to be made.

- j. The number of dwelling units, lot areas and density of dwelling units of any residential areas and the lot sizes and locations of any other uses within the phase of Port Marigny Development (the "Phase") for which Special Use Permit approval is being requested.
  - k. The locations and the non-residential floor area of all non-residential and mixed-use buildings
  - l. Areas proposed to be conveyed, dedicated or reserved for parks, parkways, playgrounds, school sites, public buildings and similar public and semipublic uses.
  - m. A plan for the location of all public utilities.
  - n. A copy of the Conditions, Covenants and Restrictions, and other provisions or covenants that are proposed to govern the use, maintenance and continued protection of the development and any of its common open space.
  - o. A representation of the general use and character of land adjacent to the proposed development area within two hundred (200) feet.
  - p. A landscape plan along the boundary of a Planned Development to a depth of one hundred (100) horizontal feet. However, exact building locations need not be dimensioned on the site plan for a Planned Development so long as all areas within which buildings may be constructed or maintained are specifically delineated by building setback lines.
8. **Fees for Special Use Permit Requests.** The fees for special use permit application shall be \$400 plus \$10 for every acre in excess of 10 acres within each application.
- (d) **Report of the Planning Director.** The Planning Director shall review the application or proposal and shall prepare a report thereon which shall be filed with the Zoning Commission and available to the applicant at least five (5) days prior to the public hearing.
- (e) **Public Hearing and Notice.** Not fewer than five (5) days before the work session or twenty (20) days before a hearing at which the Zoning Commission will vote on a Special Use Permit, the Planning Director shall:
- 1. Post the site as required for zoning amendments including a brief description of the nature of the application and a statement of how and where information regarding the application may be obtained.

2. Provide notice regarding the application including the same information to be published in the official journal of the City at least seven (7) days prior to the meeting of the Zoning Commission.

**(f) Action by the Zoning Commission.**

1. Not more than thirty (30) days after official acceptance of a complete application by the Planning Director, the Zoning Commission shall consider the application for a Special Use Permit at a regularly scheduled meeting and approve, approve with modifications or disapprove said application. Within ten (10) days of the decision of the Zoning Commission, the Planning Director shall prepare a report to the Building Inspector and the applicant regarding the approval, approval with modifications, or disapproval of the Special Use Permit and site plans by the Zoning Commission.
2. Any person or persons, or any officer, department, board, bureau or any other agency of the community jointly or severally aggrieved by any decision of the Zoning Commission may present to the Civil District Court of the parish, within thirty (30) days after filing of the decision in the office of the Board, a writ of certiorari asking for such relief and under such rules and regulations as are provided for such matters in appropriate legislation of the State.

**(g) Review and Evaluation Criteria.**

1. Applications for uses subject to the Special Use Criteria as provided in Article 8 shall be reviewed and evaluated for consistency with such standards except as specifically modified by the Development Agreement between the City of Mandeville, Port Marigny, LLC and Pittman Assets, LLC. In deciding on an application for a Special Use Permit hereunder, the Zoning Commission shall consider the following:
  - a. The City Ordinance approving Port Marigny Development (Ordinance No. 15-17 – the “Ordinance”);
  - b. The City’s Comprehensive Plan adopted by the City Council in 2007;
  - c. The City’s Comprehensive Land Use Regulations Ordinance (CLURO);
  - d. The Development Agreement to which this Addendum A is attached;
  - e. The guiding principles and details of the Master Plan for the development of Port Marigny Developed approved by the City Council in the Ordinance;

- f. The Conceptual Lot Layout in Port Marigny Development, with the understanding that the details of lot and parcel layouts for Land Uses requiring a Special Use Permit under the Development Agreement, including the location of parking spaces, utilities, ingress, egress, lot configuration and the like are to be considered during this Special Use Permit Review Procedure and in Subdivision Review; and
    - g. The Port Marigny Covenants, Conditions and Regulations (“CC&R’s”) for the governance and implementation of the Port Marigny Master Plan filed of record, as same may be supplemented as required for the Special Use Permit application under review.
2. Applications shall be reviewed and evaluated for consistency with all applicable regulations of this Comprehensive Land Use Regulations Ordinance.
  - a. Uses specified in this Development Agreement and arranged in conformance with the Urban Regulating Standards of the Master Plan shall be considered internally and externally compatible and consistent with the Comprehensive Plan and CLURO;
  - b. Densities, intensities, maximum numbers of units of uses that comply with the provisions of this Development Agreement and the urban Regulating Standards of the Master Plan shall be considered consistent with the Comprehensive Plan and CLURO;
  - c. Peak AM trip generation that complies with the terms of the Development Agreement shall be considered consistent with the CLURO; and
  - d. Setbacks and heights of buildings that are located and arranged in substantial conformance with the Urban Regulating Standards of the Master Plan shall be considered to comply with the standards of the CLURO and to be consistent with the Comprehensive Plan.
3. In the event that a proposed site plan does not satisfy the applicable criteria established for review by this Section, modifications to the site plan by the applicant that would result in increased compatibility or would mitigate unfavorable impacts or would cause the site plan to conform to applicable requirements may be considered.
4. The Zoning Commission may require modification of a site plan as a condition for approval when required by the Special Use Criteria of Article 8 or Special District Criteria for the district in which the use is proposed, or other provisions of these regulations or other City, state or federal regulations. Such modifications may include, but shall not be limited to:

- a. Provision for, open spaces, buffers, fences, walls, and screening; for installation and maintenance of landscaping and drainage control measures; improvements of access and circulations; rearrangements of structures, site improvements or activities within the site; provision of adequate parking; compliance with stormwater management requirements; location and character of signs; and such other site plan features as necessary to ensure compatibility with surrounding uses and to support the findings required by this Section.
- b. Required modifications may exceed the minimum standards established in these regulations to achieve these regulations' purposes except as specifically modified by this agreement.

**(h) Findings for Special Use Permit Approvals.** The Zoning Commission shall make the following findings before approving a special use permit:

1. The proposed plan is consistent with the Comprehensive Plan and the purposes of the applicable zoning district.
2. That the special use permit application and site plan comply with the standards of the CLURO except as specifically modified by this Agreement.
3. That any required modifications to the site plan are reasonable and are the minimum necessary to minimize potentially unfavorable impacts and protect the public health, safety and welfare as follows:
  - a. That the proposed site development, together with any modifications applicable thereto, will be compatible with existing conforming or permitted uses on adjacent sites or sites across from the proposed development site in terms of open spaces, lighting, signage, landscaping, parking, access and circulation.
  - b. The site development provides for the safe and convenient circulation of pedestrians, motorists and bicyclists and adequately addresses the volume and traffic and other transportation impacts of the proposed development.
  - c. Proposed parking is designed to minimize negative impacts on surrounding property and provide safe and convenient access to the site.
  - d. The proposed design and use of the development adequately protects people and property from the negative impacts of erosion, flood or water damage, fire, odors, noise and glare anticipated to be generated by the proposed development.

(i) **Effective Date.** The decision of the Zoning Commission shall take effect immediately, unless appealed. ~~The decision of the City Council shall be effective immediately subject to modification provisions of the site plan.~~

(j) **Lapse of Approval for Site Plans for Special Use Permits**

1. Unless a longer time shall be specifically established as a condition of approval, a special use permit approval shall lapse and become void two (2) years following the date on which such approval became effective, unless prior to the expiration of two (2) years a building permit is issued and construction is commenced and diligently pursued toward completion, or a certificate of occupancy is issued for the use, or the site is occupied if no building permit or certificate of occupancy is required.
2. A site plan approval for a special use permit that is subject to lapse may be renewed by the Zoning Commission for an additional period of one (1) year, provided that prior to the expiration date, a written request for renewal is filed with the Planning Director.

(k) **Amendments to Special Use Permit Approvals.** The procedural requirements for Special Use Permit Approval as specified in this Section 4.3 et seq. shall apply to an application for modification, expansion, or other change in an approved Site Plan, provided that minor revisions or modifications may be approved by the Planning Director if he determines that the circumstances or conditions applicable at the time of original approval remain valid, and that changes would not affect the findings prescribed in this Section. The Planning Director shall report to the Zoning Commission on a quarterly basis the number and kinds of modifications being approved.

(l) **Suspension and Revocation**

1. Upon violation of any applicable provision of these regulations, or, if granted subject to conditions, upon failure to comply with conditions, a special use permit approval shall be suspended upon notification by the Planning Director to the owner of a use or property subject to the special use permit.
2. The Zoning Commission shall give notice as required for Special Use Permits and hold a public hearing within forty (40) days of such notification, and upon a finding that the regulation, general provision, or condition is not being complied with, may revoke the special use permit approval or take such action as the Zoning Commission deems necessary to ensure compliance with the regulation, general provision, or condition.

3. The decision of the Zoning Commission to revoke a site plan approval shall be effective immediately.

(m) **Approval to Run with the Land.** The approved Special Use Permit shall be signed by the approving official and recorded with the Clerk of Court of the Parish. A Special Use Permit approval pursuant to these provisions shall run with the land and shall continue to be valid upon a change of ownership of the site or structure which was the subject of the application, subject to the lapse of approval provisions regarding lapse of approval provided herein. Cost of recordation shall be borne by the applicant.

(n) **Amendment of Review Procedure.** The Review Procedure established herein may not be amended except by the mutual consent of the City, Port Marigny, LLC and Pittman Assets, LLC. The Development Agreement may only be amended as therein provided.

**DEVELOPMENT AGREEMENT****BY AND AMONG THE CITY OF MANDEVILLE, LOUISIANA,  
PORT MARIGNY, LLC AND PITTMAN ASSETS, LLC**

This agreement ("Development Agreement") is made and entered into, effective the \_\_\_ day of \_\_\_\_\_, 2016, by and among:

THE CITY OF MANDEVILLE, a municipal corporation of the State of Louisiana, located in St. Tammany Parish, Louisiana appearing herein through its Mayor, Hon. Donald J. Villere, pursuant to Ordinance No. 15-17, adopted by the City Council of the City of Mandeville at a meeting of the City Council, duly noticed, called and convened, at which a quorum of its members were present and voting, held on the \_\_\_ day of \_\_\_\_\_, 2016, a copy of said Ordinance being attached hereto and made a part hereof, the address of the said City of Mandeville being Mandeville City Hall, 3101 East Causeway Approach, Mandeville, LA 70448 (hereinafter referred to as "City"); and

PORT MARIGNY, LLC, a limited liability company organized under the laws of the State of Louisiana, whose principal place of business is located in St. Tammany Parish, Louisiana, represented herein by Michael N. Pittman, M.D., its duly authorized Member, pursuant to an Authorization to Act executed by all of its members., a certified copy of which is attached hereto and made a part hereof, whose present mailing address is 328 East Boston St., Covington, LA 70433 (hereinafter referred to as "Port Marigny"); and

PITTMAN ASSETS, LLC, a limited liability company organized under the laws of the State of Louisiana, whose principal place of business is located in St. Tammany Parish, Louisiana, represented herein by Michael N. Pittman, M.D., its duly authorized Member, pursuant to an Authorization to Act executed by all of its members, a certified copy of which is attached hereto and made a part hereof, whose present mailing address is 328 East Boston St., Covington, LA 70433 (hereinafter referred to as "Pittman Assets"); who declare as follows:

**RECITALS:**

**WHEREAS**, Pittman Assets is the owner of certain immovable property located in the City of Mandeville, State of Louisiana ("City"), known as the Prestressed Concrete Site (the "Property"), more particularly described on the survey prepared by Kelly J. McHugh & Associates, Civil Engineers and Land Surveyors, dated December 3, 2013, revised through June 30, 2015 (the "McHugh Survey"), filed of record with the Clerk of Court of St. Tammany Parish, Louisiana; and

**WHEREAS**, Pittman Assets authorized Port Marigny to seek from the City a Conditional Use Permit and Planned Combined Use District zoning approval for the development of the Property as a Traditional Neighborhood Development with a Marina to be named "Port Marigny" (the "Port Marigny Development") in accordance with the application and attachments thereto, submitted to the City on July 1, 2015, as revised through date hereof; and

**WHEREAS**, Louisiana Revised Statute 33:4780.21 authorizes the City to enter into development agreements with the owners of land within its jurisdiction in order to avoid waste of resources, promote mitigation of housing costs, strengthen the public planning process, encourage land owners to participate in a comprehensive plan for the development of their land, and reduce the economic costs of development (*Azalea Lakes Partnership and Oak Harbor Investment Properties, LLC v. Parish of St. Tammany*, No. 2002 CA 0050 (La 1<sup>st</sup> Cir July 2, 2003); and

**WHEREAS**, a development agreement shall specify a plan for development of the land; the term of the development agreement's effectiveness, an enumeration of specified uses; a limitation on the number of units within each use; and may include requirements for subsequent discretionary actions, provided that such requirements for subsequent discretionary actions shall

not prevent development of the land for the uses and to the density or intensity of development set forth in the development agreement; and

**WHEREAS**, a development agreement may also include terms and conditions relating to financing of necessary public facilities by the land owner and subsequent reimbursement of the land owner over time; and

**WHEREAS**, as required by Ordinance No. 15-17, which among other things, approved the Master Plan and Guiding Principles as the conceptual plan for the development of Port Marigny, the City, Port Marigny and Pittman Assets (the "Parties") desire to enter into a development agreement on the terms and conditions hereinafter set forth;

**NOW THEREFORE**, in consideration of the mutual benefits to be derived from the performance of the parties, each agreeing to be bound, the parties signatory hereto (hereinafter "Parties") agree as follows, to wit:

**Section 1. Property Description.** The immovable property that is subject to this Development Agreement is more particularly described, as follows:

All that certain parcel of ground being located in Sections 46 & 47, Township 8 South, Range 11 East, City of Mandeville, Greensburg Land District, ST. Tammany Parish, Louisiana, being more fully described as follows:

Commence at a  $\frac{3}{4}$  inch iron pipe located at intersection of the Southern right-of-way of Monroe Street and the Western right-of-way of Massena Street as the POINT OF BEGINNING and proceed South 30 degrees 00 minutes 00 seconds West a distance of 2,222.71 feet to a point; Thence North 17 degrees 25 minutes 54 seconds East a distance of 84.70 feet to a point; Thence North 73 degrees 51 minutes 29 seconds West a distance of 707.65 feet to a point; Thence North 53 degrees 35 minutes 39 seconds East a distance of 115.60 feet to a point; Thence North 67 degrees 19 minutes 36 seconds West a distance of 216.44 feet to a point; Thence South 53 degrees 19 minutes 05 seconds West a distance of 174.03 feet to a point; Thence North 66 degrees 50 minutes 44 seconds West a distance of 404.50 feet to a point; Thence North 00 degrees 09 minutes 17 seconds East a distance of 22.68 feet to a point; Thence North 30 degrees 42 minutes 47 seconds East a distance of 90.60 feet to a point; Thence North 50 degrees 09 minutes 48 seconds West a distance of 115.86 feet to a point; Thence North 62 degrees 43 minutes 57 seconds West a distance of 69.39 feet to a point; Thence North 30 degrees 00 minutes 00 seconds East a distance of 2,310.60 feet to a point located on the Southern right-of-way of Monroe Street; Thence along said Southern right-of-way, South 60 degrees 04 minutes 12 seconds East a distance of 333.68 feet to a point; Thence leaving said right-of-way, South 30 degrees 00 minutes 00 seconds West a distance of 730.00 feet to a point; Thence South 60 degrees 04 minutes 12 seconds East a distance of 245.14 feet to a point; Thence North 30 degrees 00 minutes 00 seconds East a distance of 730.00 feet to a point located on the Southern right-of-way of Monroe Street; Thence along said right-of-way, South 60 degrees 04 minutes 12 seconds East a distance of 959.20 feet to the POINT OF BEGINNING, and containing 76.648 acre(s) of land, more or less, all as per survey by Kelly J. McHugh & Associates dated 12-03-13, revised 6-22-15 and 6-30-15, job number 13-136-BS. (76.648 ACRES) (Hereinafter the "Property").

**Section 2. Relationship of Ordinance to Development Agreement.** This Development Agreement is intended by the Parties to be complementary to the terms and conditions of Ordinance No. 15 – 17, recorded at Conveyance Instrument No. \_\_\_\_\_ of the official records of St. Tammany Parish, Louisiana, adopted by the City Council of the City of Mandeville, Louisiana on \_\_\_\_\_, 2016 (the "Ordinance"). The Parties intend by this Development Agreement to establish mutual obligations, responsibilities, and limitations for the development of Port Marigny as a mixed-use, Traditional Neighborhood Development and Marina, as defined in the City's Comprehensive Land Use Regulations Ordinance (CLURO), with respect to the matters herein specifically addressed. The Ordinance and this Development Agreement are intended to

complement one another; however, in the event of a conflict between the provisions of the Ordinance and the Development Agreement the more specific provision shall apply.

**Section 3.** *Obligations of Developer with Respect to Land Use and Density.*

A. Relying on the representation by the City that it will fulfil its obligations and responsibilities hereunder, Pittman Assets and Port Marigny, their transferees, successors, and assigns (the "Developer") hereby agree and covenant to design, engineer, construct, and develop the Property in accordance with (a) the Port Marigny TND, Master Plan and Guiding Principles, prepared by Architects Southwest, Inc., dated June 25, 2015, amended through \_\_\_\_\_, 2016, as same may be further amended in certain particulars pursuant to the agreed upon Review Procedure established as part of this Agreement and more particularly set forth in Addendum A, attached hereto and made a part hereof. The Review Procedure may only be amended, supplemented and revised by written amendment of this Agreement executed by the parties signatory hereto, their successors and assigns. The Port Marigny TND, Master Plan and Guiding Principles, prepared by Architects Southwest, Inc., contains the following parts: A. Index; B. Guiding Principles of New Urbanism; C. Special Definitions – Urban; Special definitions – Building; D. Context Map; E. Existing Conditions; F. Design Vision; G. Urban Regulating Standards; and H. Thoroughfare Standards (hereinafter referred to as the "Master Plan"); (b) the Port Marigny Use Regulations and Covenants; (c) the Cooperative Endeavor Agreement, and (d) the Conceptual Lot Layout, prepared by Kelly J. McHugh & Associates, Civil Engineers & Land Surveyors, dated January 6, 2016, as same may be amended in accordance with the Review Procedure (the "Conceptual Lot Layout"), all as authorized and approved pursuant to the terms of the Ordinance, and the terms and conditions of this Development Agreement.

B. Developer acknowledges and agrees that it is authorized by the Ordinance to develop the Property for residential, commercial, civic, and park uses, as shown on the Master Plan, but only for those land uses and for the number of such land uses as specified in Paragraph 3 C hereof (collectively, "Land Uses" and singularly, "Land Use"), and then only in accordance with the procedure set forth in Paragraph 3 D hereof.

C. The categories of Land Uses permitted and the number of such units allowed in connection with the development of each Land Use (collectively, "Units", and singularly a "Unit") are limited to the categories of Land Uses and number of Units per Land Use set forth in Table 1, below. As further explained in Paragraph 3 D hereof, in addition to obtaining subdivision approval, the Developer of some of the permitted Land Uses is required to submit the proposed development of a lot or parcel for Site Plan Review and a Special Use Permit in accordance with the Review Procedure established in Addendum A, attached to this Development Agreement. (Hereinafter, the process of Site Plan Review and the issuance of a Special Use Permit shall be collectively referred to as a "Special Use Permit"). The Land Uses requiring a Special Use Permit are identified with the word "Yes" under the column headed "Site Plan Review" adjoining the identified Land Use. Some of the permitted Land Uses will not require a Special Use Permit because the development of these Land Uses is sufficiently detailed in the Master Plan and associated documents. The Land Uses that may be submitted directly for subdivision approval without the necessity of submitting for a Special Use Permit are identified with the word "No" under the column headed "Site Plan Review" adjoining the identified Land Use.

Table 1: Authorized Land Uses

Land Use	# of Units (maximum unless noted)	Type of Approval Required
Marina Boat Slips	117	S
Residential Uses:		
Single Family Detached, including the following Building Types: Cottage Houses, Neighborhood Houses, and Large Neighborhood Houses	162	P
Apartments, including the following Building Types: Mixed Use and Attached Residential	204	S
Mansion Condominiums (1 Building at 4 Units per Building)	4	P
Townhouses	52	P
Sub-total:	422	
Commercial Uses:		
Hotel	120 rooms	S
High Turnover Restaurant (As defined in the ITE but excluding restaurants with drive-through service)	4,000 sf	S
Quality Restaurant (As defined in the ITE)	7,000 sf	S
Other Retail/Commercial, including the space below Apartments in Mixed Use buildings	60,000 sf	S
Civic Uses	Not less than 2.85 acres	S
Parks and Open Spaces	Not less than 15.3 Acres	P

P- A use defined by Ord. 15-17 is Permitted by-right within the Port Marigny Development.

\*\*S – A use permitted in the Port Marigny Development by this Ordinance but requiring the issuance of a Special Use Permit by the Zoning Commission in accordance with the procedures and standards provided in Addendum A; and, further requiring consideration by the Zoning Commission of the compatibility of the proposed use and other conditions on the adjacent Land Uses.

Each of the Building Types listed above (except Civic Uses, Parks and Open Spaces) reflects the maximum number of units or square footage per Land Use. Land Uses are listed in the Urban Regulation Instructions included in the Master Plan and are more particularly defined in the list of Definitions shown in the Master Plan. The Definitions in the CLURO shall control in the event of a conflict with the definitions in the Master Plan, except that the definitions of “Alley Zone” and “Porch” as shown in the Master Plan shall have application in all proceedings for approval of the Port Marigny Development and in connection with the issuance of construction/building permits for structures erected in the Port Marigny Development. The arrangement of lots and uses as are depicted in the Master Plan and on the Conceptual Lot Layout may be modified during the Review Procedure to accommodate parking and traffic within the Port Marigny neighborhoods not addressed at this time and to assure that traffic generated by Port Marigny Land Uses, as calculated in Section 4 hereof, is maintained within the Milestone limits established in Section 6 this Agreement.

D. The Parties hereto further acknowledge and agree that:

(i) the Master Plan, the Conceptual Lot Layout, and other ancillary documents approved by the City Council in the Ordinance outline the essential elements required to develop the Property for the above Land Uses into a traditional neighborhood development, or TND, utilizing new urbanism principles, as identified by Goal 12, Policy 12.8 of the City’s Comprehensive Plan, adopted January 4, 2007;

(ii) the necessary elements for the development of the Property will be further refined by:

(a) Developer submitting an application to the City Zoning Commission in accordance with the Review Procedure established in Addendum A, hereto, for a Special Use Permit for those Land Uses requiring a Special Use Permit [see Table 1 above and subparagraph (iii) below]; and,

(b) Developer submitting an application to the City Planning Commission for subdivision approval in accordance with the Master Plan and Division III of the CLURO as each phase of the Port Marigny Development is proposed to be subdivided and developed. An application for subdivision approval shall satisfy applicable district regulations and criteria for the underlying land uses, including the regulations and criteria contained in Section 8.5 – TRADITIONAL NEIGHBORHOOD DEVELOPMENT and Section 8.2, subsection 8.2.3.9 – SPECIAL MARINA USE CRITERIA;

(iii) all Land Uses designated Mansion Condo, Cottage House, Townhouse, Neighborhood House and Large Neighborhood House on the Lot Type Plan of the Master Plan, are permitted uses that will require subdivision review and approval by the City Planning Commission in accordance with the Master Plan and Division III of the CLURO without the need for a Special Use Permit or other land use permitting. All other Land Uses, including attached residential (Condominiums and Apartments); mixed-use (Condominiums above with Commercial below) shown on the Density Plan of the Master Plan; commercial uses; restaurant uses; and marina uses (“Other Land Uses”) shall be subject to subdivision review and approval in accordance with the Master Plan and Division III of the CLURO, as well as a Special Use Permit in accordance with the Review Procedure set forth in Addendum A (cf. Table 1).

(iv) A proposed Site Plan submitted in connection with an application for a Special Use Permit, as required in Paragraph D (iii) above, shall be reviewed by the Planning and Zoning Commission pursuant to the Review Procedure to determine substantial compliance with the Port Marigny Criteria, defined in Addendum A, including the following:

- a. The terms of this Development Agreement;
- b. The approved Urban Regulatory Instructions of the Master Plan; and
- c. The Criteria established in Article 8 of the CLURO for Special Uses; more particularly, Section 8.5 for Traditional Neighborhood Development and Paragraph 8.2.3.9 for special Marina Use Criteria; except that, no permanent residential occupancy of boats or other permanent residential uses shall be established within areas designated for marina use and no on-site provisions shall be made for dry boat storage or major boat repairs shall be authorized.

In making the aforementioned determinations, the Planning and Zoning Commission shall be bound by the following presumptions:

- Uses specified in this Development Agreement and arranged in conformance with the Urban Regulating Standards of the Master Plan and Conceptual Lot Layout shall be considered internally and externally compatible and consistent with the Comprehensive Plan and CLURO;
- Densities, intensities and maximum numbers of units for Land Uses that comply with the provisions of this Development Agreement and the urban Regulating Standards of the Master Plan shall be considered consistent with the Comprehensive Plan and CLURO;
- Setbacks and heights of buildings that are located and arranged in substantial conformance with the Urban Regulating Standards of the Master Plan shall be

considered to comply with the standards of the CLURO and to be consistent with the Comprehensive Plan; and

- Thoroughfares and streetscapes (landscaping and plantings) as shown in the Master Plan are compliant with the thoroughfares and streetscapes required in the CLURO.

(v) The Parties further acknowledge and agree that to the extent the Master Plan does not specifically address components or requirements of the CLURO, or in the event there is a conflict in terminology arising because the Master Plan uses terms of art, such deficiencies or conflicts shall be resolved by reference to the CLURO which shall control. In the event there is a conflict between the Master Plan and the CLURO not apparent at this time or subsequently arising, the conflict will be addressed and resolved at the time that the Property or any Phase thereof is submitted for a Special Use Permit and/or for subdivision approval in accordance with Division III of the CLURO. After Special Use Permit approval and final subdivision approval, as applicable, have been granted and the final subdivision plat for a Phase of the Property has been filed in the public records of St. Tammany Parish, Louisiana, the Master Plan, as same may have been amended or supplemented during the Special Use Permit review or Subdivision Approval Procedure, together with any other requirements of the Planning Commission, shall control the development of that Phase and the implementation of the Land Uses.

E. The form of buildings within the Port Marigny Development shall be governed by the standards and architectural typologies set out in Exhibit 12, attached to the Application for Planned Development approval submitted by Port Marigny and made part of the Port Marigny Declaration of Covenants, Conditions and Restrictions (“CC&Rs (“Architectural Standards”). Design review of proposed structures to assure compliance with the Architectural Standards shall be first considered by the Port Marigny Design Review Board, whose approval must be first granted before a person may make application to the City for a Building Permit. The approval of the Port Marigny Design Review Board shall be evidenced on a form agreed upon by Port Marigny and the City before the first building permit is issued by the City.

F. Amendment to Approved Master Plan and Site Plans.

(i) Minor amendments to the approved Master Plan, the Conceptual Lot Layout and Site Plans approved in accordance with the Review Procedure may be authorized by the City’s planning director. For purposes of this section, a minor amendment shall include any of the following changes; all other changes shall be considered major amendments:

- a. Changes in location and species of landscaping and/or screening, as long as the approved character and intent is maintained.
- b. Changes in to parking lot, sidewalk or bike path locations and design, as long as the minimum number of spaces, buffering and setback requirements are maintained and the planning director finds that the proposed designs and alignments provide comparable function.
- c. Modification to architectural styles and building materials as set forth in the Architectural Standards.
- d. Changes to building separation or setbacks, as long as those changes do not exceed the standard by more than ten (10) percent and the planning director finds that they will not diminish compatibility between adjacent uses.
- e. Changes in the dimensions of open space areas as long as there is not a decrease in open space area and the planning director finds that the proposed open space achieve the design objectives of the approved open space.
- f. Shifts in parking space locations within the Neighborhood Center, as long as the planning director finds the proposed location adequately serves the same purposes as the approved location.

(ii) Major amendments to the Master Plan and Site Plans shall require approval of the planning and zoning commission.

**Section 4. Obligations of Developer with Respect to Traffic (Trip Generation).**

A. The Parties acknowledge that, based on actual traffic counts made at affected intersections designated by the City; data reported by the 9th edition of the *Trip Generation Information Report*, published by the Institute of Transportation Engineers; an agreed upon ITE correction factor, reflecting issues like internal capture, tested at 5%; procedures generally accepted in the Traffic Engineering profession to be reliable; and the collective judgment of Developer's traffic engineer and City's traffic engineers, that each Land Use will generate trips that will contribute to vehicular traffic on the City's street and road system during AM and PM peak hours as calculated in the Traffic Impact Analysis, prepared by Hall Planning & Engineering, Inc., Professional Traffic Engineers, dated December 9, 2015, as supplemented by the Addendum to Traffic Impact Analysis, dated December 14, 2015, which analyses were approved with comments and recommendations by the City's traffic consultants, Digital Engineering, by letter report dated December 16, 2015 and affirmed at a meeting of the City's Planning and Zoning Commission held December 17, 2015 (collectively, the "TIA").

B. In accordance with the collective findings and conclusions reported in the TIA, each of the Land Uses described in paragraph B above is estimated to generate traffic during AM and PM peak traffic times at rates shown in Table 1 of the TIA, entitled *Trip Generation Rates and Equations* (each a "Unit Rate"). Table 2A and 2B in the TIA show net new external vehicle trips after application of the 5% correction factor. For purposes of this Agreement, net new trips calculated in the TIA to be generated from the Port Marigny Development during the AM peak hour ("AM Net New Trips") are used to regulate the development of the Port Marigny Development because the AM Net New Trips are the trips that will likely cause a decline in the level of service ("LOS") at the Monroe Street/East Causeway Approach intersection, thereby necessitating implementation of the improvements to the street infrastructure, described herein below. For ease of calculation, the entering and exiting trips generated to and from the Port Marigny Development (net new external trips) during the A.M. peak hour have been added together in calculating the Effective Rates, set forth in the table below. The total AM Net New Trips, divided by the number of Units ascribed to each Land Use, yields an Effective Trip Rate for each Unit during the peak AM period as shown in Table 2 below:

**TABLE 2**

**AM Effective Trip Rates**

Land Use	Entering AM Trips	Exiting AM Trips	Total AM Net New Trips	Units	Effective Trip Rates
Marina	4	8	12	153	0.08
Single Family Detached	28	85	113	157	0.72
Apartments	19	74	93	192	0.48
Condos/Townhouse	7	34	41	80	0.51
Hotel	36	25	61	120	0.51
High Turnover Restaurant	23	18	41	4(k)	10.25
Quality Restaurant	3	3	6	7(k)	0.86
Other Retail/Commercial	25	15	40	60(k)	0.67
Totals	145	262	407		
Adjusted Totals*	144	263	407		

\*The Adjusted Totals in the Table above reflect the actual numbers which result from rounding.

C. As shown in the table above, the total number of AM Net New Trips generated by all Land Uses permitted by the Ordinance is 407 external vehicle trips, composed of 144 entering trips and 263 exiting trips (“Total AM Net New Trips”). Developer acknowledges and agrees that provided the only improvements made to the City’s street and road system are those improvements undertaken by the City as hereinafter described, Developer may not increase the number of Units within the Port Marigny Development beyond the total number of Units quantified in Section 3 B, Table 2, hereinabove, as approved by the Ordinance.

D. As a part (less than all) of the Port Marigny Development is developed (a Phase), the number of new trips attributed to that Phase is calculated by multiplying the number of Units to be developed within the Phase by the Effective Trip Rate applicable to the specific type of Unit, as set forth in the table above, and obtaining a product (“Phase Total AM Net New Trips”). For example, if 20 Single-Family Detached Units are to be developed in a Phase, the total number of new trips generated by these 20 units during AM peak hour is calculated to be 14.40 net new trips, determined by multiplying 20 (the number of Units) by .72 (the Effective Trip Rate shown in Table 2).

E. The total of AM Net New Trips generated during the phased development of the Port Marigny Development at any given time is calculated by adding the sum of all Phase Total AM Net New Trips. This sum shall equal the number of AM Net New Trips attributed to the development of the Port Marigny Development at that given time (hereinafter the “Present Total AM Net New Trips”).

F. The Total AM Net New Trips attributable to the Land Uses in the Port Marigny Development shall not exceed 407 Total AM Net New Trips, as calculated in accordance with the formula set forth above.

G. The Present Total AM Net New Trips shall not exceed the Milestone Limit defined in Section 6 hereof, until the Immediate Improvements to the City’s street and road system and the Developer Street Improvements, hereinafter described, have been completed.

H. City and Developer acknowledge and agree that the hereinafter Immediate Improvements and Developer Street Improvements are necessary to accommodate existing traffic and traffic that will be generated from the Port Marigny Development at a LOS compliant with the CLURO.

I. Developer acknowledges and agrees that it will pay its fair share of the costs, fees and expenses for the hereinafter described improvements to the City’s street and road system and additional services attributable to the development of the Port Marigny Development, as more specifically set forth in Section 7 hereof.

J. Developer shall dedicate all streets and roads (but not alleyways) constructed within each Phase of the Port Marigny Development to the public and City shall accept same in accordance with the requirements and procedures established in Division III (Subdivision Regulations) of the CLURO.

K. If at any time the number of Total AM Net New Trips generated by Land Uses in Port Marigny Development exceeds 407, as determined by scientific method (actual count and confirmation of source and destination), and the traffic intersections impacted by 20% or more of Port Marigny generated traffic have not been further modified and improved beyond the construction of the hereinbefore described Developer Improvements and Immediate Improvements in order to accommodate additional Total AM Net New Trips generated from Land Uses in Port Marigny in excess of 407, the City may withhold approval of further development of Land Uses within Port Marigny until the City and Developer agree on a plan to accommodate Total AM Net New Trips generated by Land Uses in Port Marigny Development.

**Section 5. Obligations of the City.**

A. Relying on the representation by Developer that it will fulfil its obligations and responsibilities hereunder and under the terms of the Ordinance, the City hereby agrees and covenants that it, whether acting alone or in conjunction with the Greater New Orleans

Expressway Commission, will construct improvements, in accordance with Public Bid Law, to the City's street and road system to satisfy its own needs and purposes; to satisfy Policy 12.1 of the City's Comprehensive Plan requiring the City to coordinate with Developer to mitigate traffic and other constraints to the Property, and to accommodate the development of the Port Marigny Development as herein provided and as provided in the Ordinance, in accordance with the following:

B. The City and Developer acknowledge and agree that based on the recommendations of the City's traffic engineers and with the concurrence of the Developer's traffic engineers, certain portions of the City's street and road system, identified below, must be improved to accommodate the vehicular traffic presently using the City's street and road system ("Existing Trips"), new trips generated from Land Uses within the Port Marigny Development, and/or future growth from other sources. The Parties agree that the construction of said improvements shall be done by the City, whether acting alone or in conjunction with the Greater New Orleans Expressway Commission, under the provisions of Public Bid Law; however, the costs, fees and expenses to acquire right-of-way and construct the street and road system improvements to a LOS required to accommodate Existing Trips, new trips generated by the Port Marigny Development and future growth shall be shared by City and Developer, as provided in Section 7 hereof.

C. The City acknowledges and agrees that, based on the recommendations of the City's traffic engineers, and notwithstanding the development of the Port Marigny Development, certain portions of the City's street and road system, identified below, must be improved from its present LOS (currently LOS "E") to accommodate the Existing Trips in order to obtain a LOS sufficient to accommodate present and future needs of the City, including development of the Port Marigny Development. These improvements (the "Immediate Improvements") are generally described as follows:

Design, engineer and construct a right-turn lane on southbound East Causeway Approach at its intersection with Monroe Street or other improvements having equivalent or greater capacity.

The costs, fees and expenses to design, engineer and construct the Immediate Improvements, sufficient to accommodate Existing Trips and future growth in vehicular, bicycle, and pedestrian traffic from all sources (including the Port Marigny Development) shall be the responsibility of the City, whether acting alone or in conjunction with the Greater New Orleans Expressway Commission.

The Immediate Improvements shall be engineered, designed and constructed within two years from the date that the Developer records in the public records a final subdivision plat for the first Phase of the Port Marigny Development accordance with Division III (subdivision regulations) of the CLURO. The Parties agree that time is of the essence in completing these improvements.

D. Contemporaneously with the design, engineering and construction of the Immediate Improvements by the City, the following described improvements to the City's street and road system shall be designed, engineered and constructed by the City, acting alone or in conjunction with the Greater New Orleans Expressway Commission, in accordance with Public Bid Law, the costs, fees, and expenses for which shall be paid by the Developer (the "Developer Street Improvements"). It is agreed by the Parties that the Developer Street Improvements shall include the following:

Design, engineer and construct a left-turn lane on southbound East Causeway Approach at its intersection with Monroe Street or other improvements having equivalent or greater capacity.

The Developer Street Improvements shall be engineered, designed and constructed within two years from the date that the Developer records in the public record a final subdivision plat for the first Phase of the Port Marigny Development in accordance with Division III (subdivision regulations) of the CLURO, and the Developer has made the cash payment required of it to be made under Section 7 A hereof. The Parties agree that time is of the essence in completing these improvements.

E. City shall make available to the Port Marigny Development all services presently available to residents of the City, including but not limited to sewerage collection and treatment facilities, potable drinking water, water for fire protection, garbage and trash collection and police protection. Some such services may be provided by third parties who will contract directly with the occupants of the Port Marigny Development under a business arrangement negotiated and approved by City. Developer shall be responsible for constructing at its expense sewerage collection lines, water distribution lines, fire hydrants, appurtenant equipment, and other facilities serving the Land Uses in the Port Marigny Development, as well as facilities external to the Port Marigny Development necessary to connect the Port Marigny Development sewerage collection lines and water distribution lines to the City's sewerage collection lines, lift stations, and water distribution lines. Port Marigny Development Users of City services shall be charged and billed directly by the City for such services in accordance with the tariff applicable to other users of the same classification within the City. Port Marigny Development Users of third party provided services made available by the City through a blanket agreement shall be charged and billed directly by the third party provider of such services in accordance with the tariff applicable to other users of the same classification within the City.

Section 6. Milestone Limit.

A. "Milestone Limit", as used in this Development Agreement, means the limit imposed by the City on the number of Present Total AM Net New Trips calculated to be generated from the Port Marigny Development, which limit shall remain in effect until the street and road improvements identified in Section 5 above are substantially completed as certified by the City engineer and Director of Public Works. By so limiting Present Total AM Net New Trips, the number of Units constructed in the Port Marigny Development is restricted until the City's street and road infrastructure is adequate to accommodate the Present Total AM Net New Trips.

B. The Milestone Limit applicable to the development of the Port Marigny Development is one hundred and two (102) Present Total Net New AM Trips as calculated in accordance with the formula set forth in Section 5 F hereof.

C. After the Immediate Improvements and the Developer Street Improvements (or other improvements providing equivalent or greater capacity) have been substantially completed, the maximum Present Total AM Net New Trips generated by Land Uses developed within the Port Marigny Development alone is 407.

Section 7. Financing of Improvements and Services.

A. City, acting alone or in conjunction with the Greater New Orleans Expressway Commission, shall pay the costs directly related to the design, engineering and construction of the Immediate Improvements and Developer Street Improvements.

B. Developer shall reimburse City for its fair share of the costs directly related to designing, engineering and constructing the Developer Street Improvements and for other costs and expenses associated with City providing services to the Port Marigny Development in accordance with Section 5 E hereof, as follows:

Payment by Developer of \$300,000.00 in immediately available funds prior to recordation of Final Subdivision Plat for the first Phase of the Port Marigny Development or sooner in the sole discretion of the Developer in order to expedite construction of the street improvements identified in Section 5 hereof.

Section 8. Default.

In the event either Party hereto breaches any term, condition or provision of this Development Agreement (a default), the non-defaulting Party shall give the defaulting Party written notice of the default, together with sufficient information to put a reasonable person on notice of the facts and reasons giving rise to the default. The defaulting party shall have thirty (30) days from the receipt of the written notice of default to cure same. If the nature of the

default is such that more than 30 days is required to cure the default, the non-defaulting party may allow reasonable additional time to cure the default provided that the defaulting Party has begun curing the default within the cure period and has demonstrated a good faith effort to cure the breach. In the event that a default has not been cured timely, as provided herein, the non-defaulting Party shall have the remedies prescribed in the following Section.

Section 9. Remedies.

Should either party to this Development Agreement fail to cure a default as hereinbefore provided or fulfill any of its obligations hereunder or under the terms of the Ordinance, or otherwise breach this Development Agreement, the non-breaching party shall have the right to immediately file suit in the 22<sup>nd</sup> Judicial District Court in and for the Parish of St. Tammany, State of Louisiana, in law and/or equity, for damages, substantial performance or both. If either party hereto seeks injunctive relief or a temporary restraining order, it may submit sworn affidavits and shall not be required to post bond.

Should the City default by failing to begin design, engineering and construction of the Immediate Improvements and the Developer Street Improvements in time to have same completed within the two year period specified above despite Developer having paid the cash payment required of it under Section 5 B. I hereof, through no fault of its own, Developer may be precluded from proceeding with development of the Port Marigny Development because of the Milestone Limit set forth in section 4 above. Therefore, in the event the Immediate Improvements and/or Developer Street Improvements are not begun in a timely manner, Developer may, after the 30 day default notice provided for above, commence design, engineering and construction of the Immediate Improvements and the Developer Street Improvements (including beginning the process or progressing the process during any phase of the design, engineering or construction of the improvements) and charge the cost of same to the City, plus an administration fee of 15%, less the cash contribution required to be made by Developer under Section 5 B I hereof. Alternatively, the City and Developer may agree to adjust the Milestone Limit to permit Developer to continue development of the Port Marigny Development until the City fulfills its obligations hereunder.

Section 10. Compliance Review and Proceedings.

A. Compliance by Developer with the limitation on the construction of new Units and generation of Net New AM Trips with the provisions of this Development Agreement shall be the responsibility of the City's Director of Public Works.

B. The Director of Public Works shall review at least annually the continued compliance of Developer with the provisions of this Development Agreement. Developer shall cooperate with such review and shall be required to demonstrate good faith compliance with the terms of this Development Agreement. The Director of Public Works shall have the right to make on premise inspections of the Port Marigny Development in the course of such review. If as a result of any such review the Director of Public Works should find reason to question, based on substantial evidence, that Developer has not complied in good faith with the terms or conditions of this Development Agreement, the Director of Public Works shall so report its findings of fact and conclusions of noncompliance to the Mayor of the City of Mandeville and the Clerk of the City Council of the City of Mandeville. At the direction of the Mayor, the Clerk of the Council shall serve notice on Developer that the City Council will, at the a regularly scheduled meeting of the City Council to be held not less than two weeks from the date of such notice, conduct a public hearing concerning the alleged non-compliance reported by the Director of Public Works. In conjunction with such hearing the City Council may, through its Mayor pro Tem or presiding officer, issue orders compelling the attendance of witnesses or production at that hearing of documents or other physical or tangible objects which the said Mayor Pro Tem or presiding officer has reason to believe may be of relevance to the alleged non-compliance reported by the Director of Public Works. Such orders shall identify the person compelled to attend and/or documents to be produced and shall be served via hand delivery or registered or certified mail to

the last address of such person or possessor of such records known to the City. Copies of such orders shall be provided on request to Developer. The hearing to be conducted by the City Council shall not be governed by the strict rules of evidence and procedure applicable to the District Courts of the State of Louisiana, and Developer shall be provided a reasonable opportunity to question all witnesses who appear at the hearing and to examine all records or objects presented to the Council in the course of the hearing. The Developer shall have the right to be heard and present evidence and testimony in the course of the hearing. If necessary due to constraints of time or in the interest of fairness, the City Council may adjourn the hearing one or more times, on the affirmative vote of the majority of its members. At the close of any such hearing, but not later than the adjournment of its next regularly scheduled meeting, the City Council shall determine by majority vote of its members whether the Developer is in good faith compliance with the terms and conditions of this Development Agreement. Should the City Council determine the Developer is not in good faith compliance with the terms of this Agreement, not later than the adjournment of its next regularly scheduled meeting, the City Council may by majority vote of its members, cause the Developer to cease and desist further construction activities that would result in a violation of this Development Agreement or in the alternative, make such modification of this Development Agreement as it determines is warranted to address the situation arising out of Developer's non-compliance with the terms and conditions of this Development Agreement. Any decision adverse to the Developer may be appealed, within 30 days from the promulgation of the City Council's decision directly to the 22<sup>nd</sup> Judicial District Court in and for the Parish of St. Tammany, State of Louisiana. The District Court shall consider the matter *de novo* and in accordance with Louisiana law relative to and controlling of contractual disputes.

Section 11. Term of Development Agreement. The term of this Development Agreement shall be fifteen (15) years commencing on the date the Ordinance is adopted and recorded in the public records of St. Tammany Parish, Louisiana, provided however, that if no subdivision plat within the Port Marigny development has been recorded within seven (7) years of the date the Ordinance is adopted and recorded in the public records of St. Tammany Parish, Louisiana, this agreement shall become null and void.

Section 12. Modifications of Development Agreement. Should any law or regulation of the State of Louisiana or the federal government be enacted or modified, after this Development Agreement has been executed by the Parties, that prevents or precludes compliance with one or more provisions of the Development Agreement, such provisions of this Development Agreement shall be modified or suspended in accordance with the provisions of LSA-R.S. 33:4780.32 as may be necessary to comply with such state or federal laws or regulations. This Development Agreement may also be modified by written consent of City and Developer at any time.

Section 13. General Provisions.

A. All notices required to be given under the terms of this Development Agreement shall be hand delivered or sent via registered or certified mail, postage prepaid, to the address of the party who is to receive this notice set forth in the appearance section of this Agreement. Any party may at any time, by notice given in compliance with the provisions of this paragraph, identify another address for the giving of notices. Any notice properly deposited in the U.S. Mail in accordance with the provisions of this paragraph shall be deemed to have been received on the date of delivery shown on the return receipt or, if the notice is unclaimed, refused or returned, on the second business day following its deposit in the mail.

B. Terms used herein that are not defined in this Agreement shall have the same meaning as ascribed to them in the TIA, the Master Plan, and Appendix A - Definitions.

C. In the event that it becomes necessary for one party hereto to institute legal proceedings against the other party to enforce any obligations or protect any rights arising under this Agreement, the party in whose favor judgment is rendered shall be entitled to recover from

the adverse party all costs incurred by it in the prosecution of such proceedings, including all reasonable attorneys' fees.

D. This Development Agreement shall be interpreted and applied under and in accordance with the laws of the State of Louisiana.

THUS DONE, READ AND SIGNED, in multiple originals by the parties hereto on the dates indicated below in the presence, respectively, of the below subscribing competent witnesses, after due reading of the whole.

WITNESSES:

\_\_\_\_\_

Print Name:

\_\_\_\_\_

Print Name:

CITY OF MANDEVILLE

\_\_\_\_\_

By: Donald J. Villere, Mayor

Date: \_\_\_\_\_

WITNESSES:

\_\_\_\_\_

Print Name:

\_\_\_\_\_

Print Name:

PORT MARIGNY, LLC

\_\_\_\_\_

By: Michael N. Pittman, M.D.,  
Manager/Member

Date: \_\_\_\_\_

\_\_\_\_\_

By: Marcus L. Pittman, M.D.,  
Manager/Member

Date: \_\_\_\_\_

WITNESSES:

\_\_\_\_\_

Print Name:

\_\_\_\_\_

Print Name:

PITTMAN ASSETS, LLC

\_\_\_\_\_

By: Michael N. Pittman, M.D.,  
Manager/Member

Date: \_\_\_\_\_

\_\_\_\_\_

By: Marcus L. Pittman, M.D.,  
Manager/Member

Date: \_\_\_\_\_