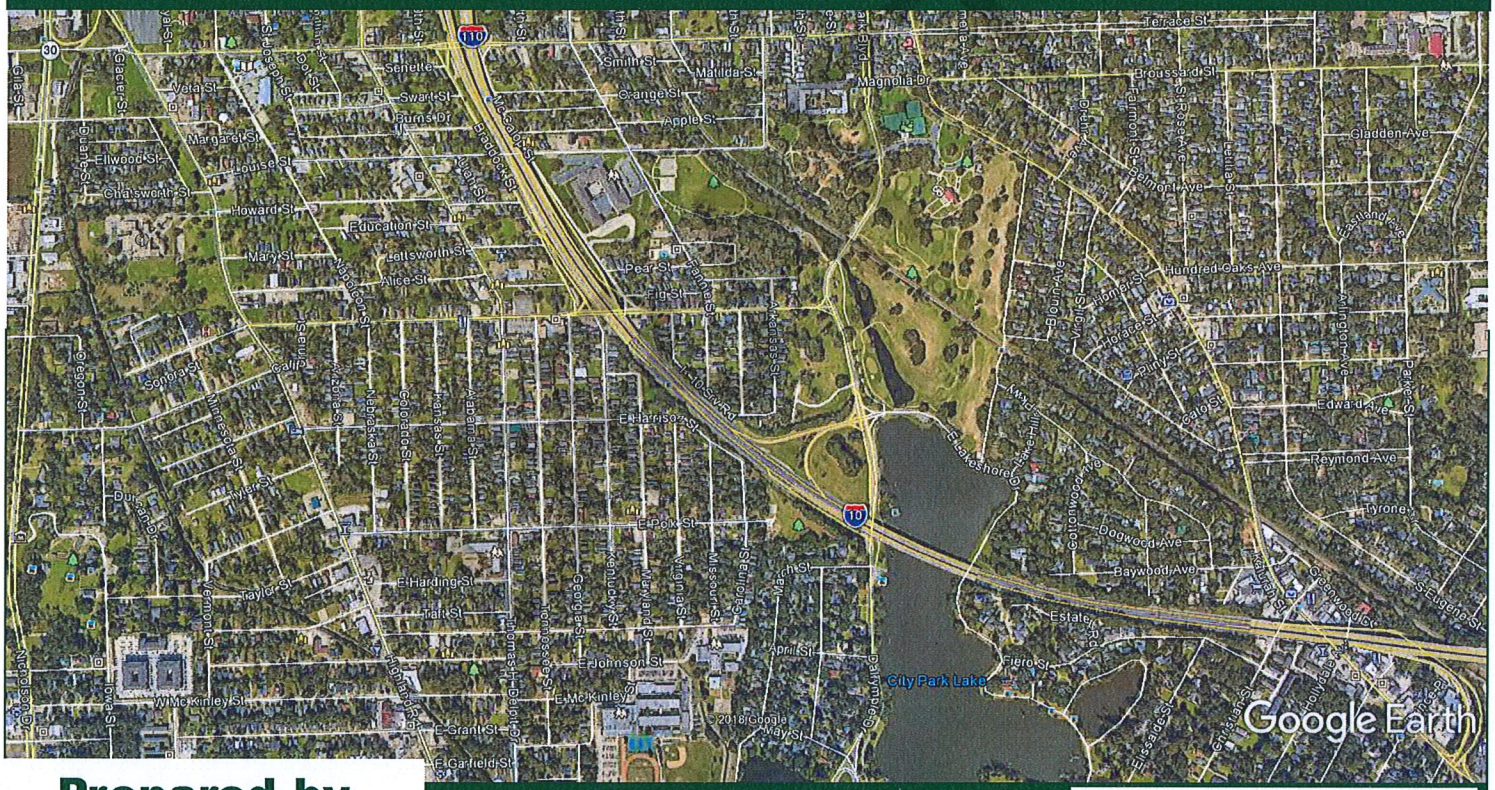
Data Collection Report

March 2018

IMR Data Collection Report
Washington / Dalrymple

East Baton Rouge Parish, Louisiana



Prepared by

URBAN SYSTEMS inc.

USI

2000 Tulane Ave, Suite 200
New Orleans, Louisiana 70112
504.523.5511

PROVIDENCE

Prepared for

U.S. Department of Transportation
Federal Highway Administration

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

JONATHAN M. GAMBINO
License No. 41496
Jonathan M Gambino
3/27/18

USI Project #: 10-085-2

Table of Contents

INTRODUCTION **1**

EXISTING CONDITIONS **2**

EXISTING VOLUMES **2**

GROWTH RATE **5**

SAFETY ANALYSIS **5**

E Washington Street and Dalrymple Drive IMR
Data Collection Report

Introduction

This Data Collection Report (DCR) details the data collection for the Interchange Modification Report (IMR) for E Washington Street and Dalrymple Drive at Interstate 10 (I-10) in East Baton Rouge Parish, Louisiana. This IMR was conducted as a part of the I-10 LA 415 to Essen Stage 1 Environmental Assessment (Stage 1) project (S.P. H.004100.2). The overall project is to add a lane in both directions to the I-10 mainline with interchange improvements at locations selected in the Stage 0 Feasibility Study (Stage 0).

A high-level interchange analysis (Tier 1) was completed during the Stage 0 Study which determined feasible interchange alternatives. As a result, the Tier 1 analysis recommended two alternatives for the Washington/Dalrymple interchange for continued analysis: a Terrace Street left exit on I-110 and a consolidated interchange with Washington Street and Dalrymple Drive on I-10. Documentation from the Tier 1 is included in **DCR Appendix A**.

The study area limits for this IMR are listed below:

- I-10 EB and WB – from Nicholson Drive just east of City Park Lake
- I-110 NB and SB to Government Street
- Washington Street – from Thomas H. Delpit Drive to Fannie Street
- Dalrymple Drive – from E. Lakeshore Drive to the I-10 EB off ramp
- Braddock Street – from Louise Street to E. Washington Street
- McCalop Street – from Louise Street to E. Washington Street

The purpose and need of the interchange modifications is to "complete the interchange at I-10 and Washington Street/ Dalrymple Drive". **DCR Figure 1** presents the study area.

DCR Figure 1 Vicinity Map
Aerial Source: Google Earth

Existing Conditions

The existing lane configuration of I-10 is a six-lane section in the project area. The Dalrymple Drive interchange at I-10 provides a signalized eastbound and westbound off ramp and a signalized westbound on ramp only. This requires motorists to access I-10 EB by travelling through neighborhoods to utilize either the Acadian Thruway interchange or the Washington Street interchange. The Washington Street interchange includes a system of ramps which access I-10 via service roads running parallel to I-10. The I-10 EB right lane coming off of the Mississippi River Bridge ends at the Washington Street exit, which acts as a trap lane because unless vehicles traveling in this lane merge into the adjacent lane, they are forced to exit.

Existing Volumes

Count data including 7-day 24-hour, 48-hour, and peak period turning movement counts was collected in October and November 2017 and provided by LADOTD. The peak hours based on the signalized intersections and mainline volume data were 7:00-8:00 AM and 4:30-5:30 PM. The raw count data is included in **DCR Appendix B**. **DCR Figure 2** presents the resulting 2017 peak hour volumes including the data sources. The specific peak volume data used is presented in **DCR Appendix C**.

The data collected included classification which is needed for capacity analysis. **DCR Table 1** presents the heavy vehicle percentages for the study area. The heavy vehicle data used is also presented in **DCR Appendix C**.

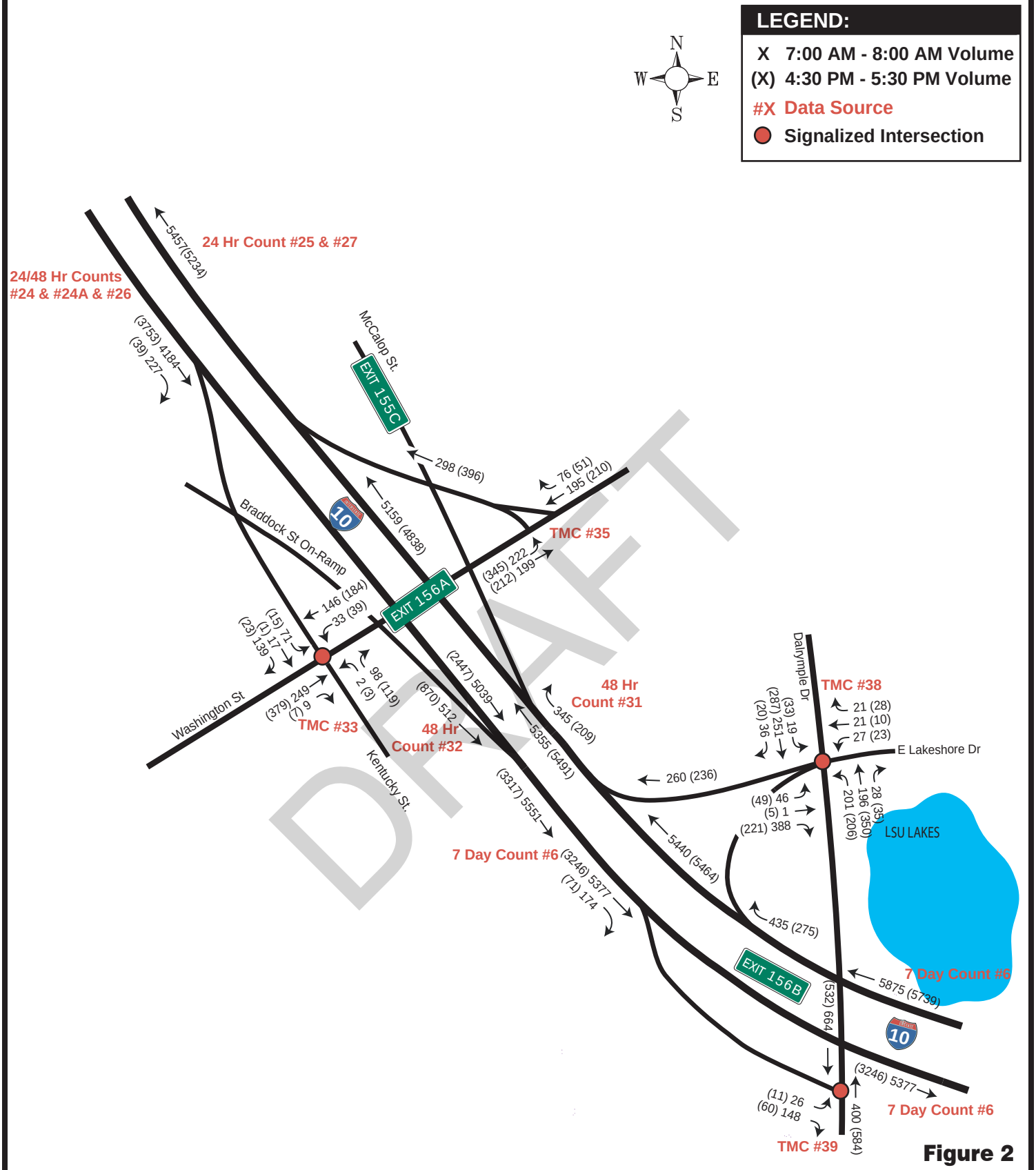


Figure 2

2017 Volumes
Washington/Dalrymple IMR

URBAN SYSTEMS inc.

I-10 Stage 1 Feasibility Study
East Baton Rouge Parish, LA

Last revised March, 2018

Project # 10-085-2

DCR Table 1 – Heavy Vehicle Percentages

Intersection	Approach	Movement	Heavy Vehicle % Base Conditions	
			AM	PM
I-10 EB	Eastbound	Thru	13.0%	11.0%
I-10 WB	Westbound	Thru	6.0%	8.0%
I-10 EB at Dalrymple	Northbound	Thru	1.8%	0.9%
	Southbound	Thru	0.8%	0.4%
	Eastbound	Left	3.7%	0.0%
		Right	2.8%	0.0%
I-10 WB at Dalrymple	Northbound	Left	1.0%	1.5%
		Thru	3.1%	0.6%
		Right	3.6%	0.0%
	Southbound	Left	0.0%	0.0%
		Thru	1.2%	0.7%
		Right	0.0%	0.0%
	Eastbound	Left	2.2%	2.0%
		Thru	0.0%	0.0%
		Right	0.3%	0.0%
	Westbound	Left	0.0%	0.0%
		Thru	0.0%	0.0%
		Right	0.0%	0.0%
I-10 EB at Washington	Northbound	Left	0.0%	0.0%
		Right	9.3%	0.8%
	Southbound	Left	5.1%	0.0%
		Thru	0.0%	0.0%
		Right	2.0%	0.0%
	Eastbound	Thru	7.0%	2.3%
		Right	16.7%	0.0%
	Westbound	Left	0.0%	0.0%
		Thru	6.3%	2.6%
I-10 WB at Washington	Eastbound	Left	10.0%	0.3%
		Thru	0.9%	0.0%
	Westbound	Thru	3.8%	1.9%
		Right	6.1%	3.9%

Growth Rate

The Capitol Region Planning Commission's (CRPC) regional transportation model in TransCAD was used to estimate projected future growth in the study area. Output from the 2010 base condition and the 2037 no build condition models was used to calculate growth percentages for the I-10 mainline and surface streets within the study area based on the Average Daily Traffic (ADT) volumes. The growth rate factors are shown in **DCR Table 2**. The TransCAD output sheets and growth rate calculations are included in **DCR Appendix D**.

DCR Table 2 – Growth Rate Factor

Location	Percent Growth Rate per year	2017 - 2040 Growth Factor over 23 years
I-10 Mainline	0.86%	1.22
Washington St	0.65%	1.16
Dalrymple Dr	0.13%	1.03

Safety Analysis

A safety analysis was conducted of the crash history on the I-10 mainline to compare to similar roadway types in the state. The safety analysis included calculating the crash rate, presenting a summary of all crash types, comparing this data to the LADOTD statewide averages, and identifying conflict points.

Crash data on the I-10 mainline between the LA 30 interchange to east of the City Park Lakes was used with the LADOTD Roadway Safety Triage to calculate crash rate and crash type percentages and is included in **DCR Appendix E**.

Crash Rate

The crash rate and manner of collision (crash type) analysis for I-10 was conducted in segments based on differences in number of lanes and AADT thresholds. The statewide average crash rate for a four-lane urban interstate is 0.95 crashes per million vehicle-miles (MVM) and for a six-lane urban interstate it is 1.66. The AADT thresholds in the safety triage are Low, Medium, and High. The statewide averages of crash type percentages are different for each AADT threshold. For this study area four (4) segments were identified. **DCR Table 3** presents the crash rate calculation variables and results compared to the statewide average. As shown, the existing crash rate on all four segments is above the statewide average.

DCR Table 3 – Interstate Mainline Crash Rates

Segment Number	Description	Number of Lanes	AADT Threshold	Number of Crashes	Segment Length (Miles)	AADT (Veh/Day)	Crash Rate (Crash/MVM)	Statewide Average
1	I-10 from LA 30 to I-110 Interchange	6	Medium	173	0.40	108,700	**3.63**	**1.66**
2	I-10/I-110 ramps	4	High	123	0.28	92,100	**4.36**	**0.95**
3	I-10 from I-110 to Washington St	6	Medium	168	0.35	149,900	**2.29**	**1.66**
4	I-10 from Washington St to City Park Lakes	6	High	415	0.75	168,300	**3.00**	**1.66**

Mainline Crash Types

Crash type percentages were calculated using a three-year average (2013-2015) of the reported crash data. **DCR Tables 4-7** presents the crash type percentages and corresponding comparisons to the statewide averages for I-10 from LA 30 to the I-110 Interchange, I-10 on the I-10/I-110 ramps, I-10 from I-110 to Washington St Interchanges, and I-10 from Washington St interchange to the City Park Lakes. The highlights indicate the crash types that were above the statewide average.

DCR Table 4 - Crash Type Comparison
Segment 1: I-10 between LA 30 and the I-110 Interchange

Crash Type	Crash Type Percentage	Statewide Average Percentage
A: Non-collision w/ Motor Vehicle	7.51%	12.77%
B: Rear-end	63.58%	53.88%
C: Head-on	0.58%	0.50%
D: Right angle	0.00%	0.94%
E: Left Turn Angle	0.00%	0.09%
F: Left Turn Opp Dir	0.00%	0.18%
G: Left Turn Same Dir	0.00%	0.15%
H: Right Same Dir	0.00%	0.18%
I: Right turn Opp Dir	0.00%	0.07%
J: Side Swipe Same Dir	28.32%	22.69%
K: Side Swipe Opp Dir	0.00%	0.22%
Z: Other	0.00%	8.31%

DCR Table 5 - Crash Type Comparison
Segment 2: The I-10 to I-10 Ramps at the I-110 Interchange

Crash Type	Crash Type Percentage	Statewide Average Percentage
A: Non-collision w/ Motor Vehicle	33.33%	12.31%
B: Rear-end	36.59%	58.41%
C: Head-on	0.81%	0.69%
D: Right angle	0.00%	0.72%
E: Left Turn Angle	0.00%	0.14%
F: Left Turn Opp Dir	0.00%	0.20%
G: Left Turn Same Dir	0.00%	0.29%
H: Right Same Dir	0.00%	0.29%
I: Right turn Opp Dir	0.00%	0.00%
J: Side Swipe Same Dir	29.27%	21.97%
K: Side Swipe Opp Dir	0.00%	0.20%
Z: Other	0.00%	4.77%

DCR Table 6 -Crash Type Comparison
Segment 3: I-10 between the I-110 and Washington St Interchanges

Crash Type	Crash Type Percentage	Statewide Average Percentage
A: Non-collision w/ Motor Vehicle	11.90%	12.77%
B: Rear-end	38.10%	53.88%
C: Head-on	0.60%	0.50%
D: Right angle	0.00%	0.94%
E: Left Turn Angle	0.00%	0.09%
F: Left Turn Opp Dir	0.00%	0.18%
G: Left Turn Same Dir	0.00%	0.15%
H: Right Same Dir	0.00%	0.18%
I: Right turn Opp Dir	0.00%	0.07%
J: Side Swipe Same Dir	49.40%	22.69%
K: Side Swipe Opp Dir	0.00%	0.22%
Z: Other	0.00%	8.31%

DCR Table 7 -Crash Type Comparison
Segment 4: I-10 between the Washington St Interchange and the City Park Lakes

Crash Type	Crash Type Percentage	Statewide Average Percentage
A: Non-collision w/ Motor Vehicle	9.40%	9.72%
B: Rear-end	60.96%	61.98%
C: Head-on	0.24%	0.12%
D: Right angle	0.00%	1.41%
E: Left Turn Angle	0.00%	0.12%
F: Left Turn Opp Dir	0.00%	0.12%
G: Left Turn Same Dir	0.00%	0.18%
H: Right Same Dir	0.00%	0.06%
I: Right turn Opp Dir	0.00%	0.00%
J: Side Swipe Same Dir	28.92%	22.85%
K: Side Swipe Opp Dir	0.24%	0.18%
Z: Other	0.24%	3.22%

Intersection Safety Triage

The Intersection Safety Triage was used to calculate crash type percentages for a three-year average (2013-2015) of the reported crash data for each intersection in the IMR study area that may be impacted by the proposed interchange modifications. The crash data is included in **DCR Appendix F**.

DCR Tables 8-13 present the crash type percentages and corresponding comparison to the statewide averages. The highlights indicate the crash types that were above the statewide average.

DCR Table 8 - I-10 EB Off Ramp at Dalrymple
Crash Type Comparison

Category	Observed %	Statewide Avg %
Non Coll	5.41%	7.56%
Rear End	62.16%	56.17%
Head On	0.00%	0.41%
Rt Angle	2.70%	5.58%
Left Turn-e	0.00%	0.76%
Left Turn-f	0.00%	1.48%
Left Turn-g	0.00%	0.86%
Right Turn-h	0.00%	0.74%
Right Turn-i	0.00%	0.07%
S Swipe(sd)	21.62%	16.70%
S Swipe(od)	0.00%	0.14%
Other	8.11%	9.52%

DCR Table 9 - I-10 WB Off and On Ramps at Dalrymple
Crash Type Comparison

Category	Observed %	Statewide Avg %
Non Coll	0.00%	7.56%
Rear End	44.44%	56.17%
Head On	0.00%	0.41%
Rt Angle	11.11%	5.58%
Left Turn-e	11.11%	0.76%
Left Turn-f	0.00%	1.48%
Left Turn-g	0.00%	0.86%
Right Turn-h	0.00%	0.74%
Right Turn-i	0.00%	0.07%
S Swipe(sd)	33.33%	16.70%
S Swipe(od)	0.00%	0.14%
Other	0.00%	9.52%

DCR Table 10 - I-10 EB Off Ramp at Washington St
Crash Type Comparison

Category	Observed %	Statewide Avg %
Non Coll	5.56%	7.56%
Rear End	33.33%	56.17%
Head On	1.85%	0.41%
Rt Angle	11.11%	5.58%
Left Turn-e	0.00%	0.76%
Left Turn-f	1.85%	1.48%
Left Turn-g	0.00%	0.86%
Right Turn-h	3.70%	0.74%
Right Turn-i	0.00%	0.07%
S Swipe(sd)	35.19%	16.70%
S Swipe(od)	0.00%	0.14%
Other	7.41%	9.52%

DCR Table 11 - Terrace St at Braddock St
Crash Type Comparison

Category	Obs %	State %
Non Coll	50.00%	2.15%
Rear End	0.00%	33.79%
Head On	0.00%	1.06%
Rt Angle	0.00%	22.52%
Left Turn-e	0.00%	2.67%
Left Turn-f	0.00%	14.52%
Left Turn-g	0.00%	2.09%
Right Turn-h	0.00%	2.84%
Right Turn-i	0.00%	0.39%
S Swipe(sd)	0.00%	10.26%
S Swipe(od)	0.00%	0.93%
Other	50.00%	6.78%

DCR Table 12 - Braddock St at Louise St
Crash Type Comparison

Category	Obs %	State %
Non Coll	0.00%	2.15%
Rear End	0.00%	33.79%
Head On	0.00%	1.06%
Rt Angle	90.91%	22.52%
Left Turn-e	0.00%	2.67%
Left Turn-f	0.00%	14.52%
Left Turn-g	3.03%	2.09%
Right Turn-h	3.03%	2.84%
Right Turn-i	0.00%	0.39%
S Swipe(sd)	0.00%	10.26%
S Swipe(od)	0.00%	0.93%
Other	3.03%	6.78%

DCR Table 13 - McCalop at Louise St
Crash Type Comparison

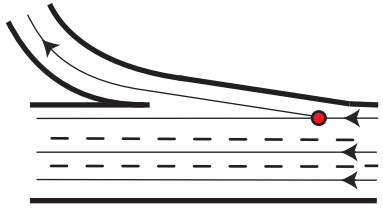
Category	Obs %	State %
Non Coll	0.00%	2.15%
Rear End	71.43%	33.79%
Head On	0.00%	1.06%
Rt Angle	0.00%	22.52%
Left Turn-e	0.00%	2.67%
Left Turn-f	0.00%	14.52%
Left Turn-g	0.00%	2.09%
Right Turn-h	0.00%	2.84%
Right Turn-i	0.00%	0.39%
S Swipe(sd)	23.81%	10.26%
S Swipe(od)	0.00%	0.93%
Other	4.76%	6.78%

Conflict Points

The number and type of conflict points were determined for the existing condition for the locations within the study area that may be impacted by the proposed interchange modifications. This will be compared to the conflict points in the proposed interchange modifications. **DCR Figures 3 and 4** presents the existing conflict points.

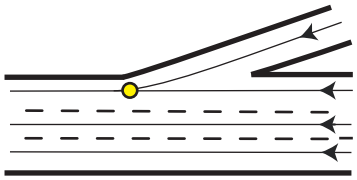
LEGEND:

- Diverging Conflict
- Merging Conflict
- Crossing Conflict



Typical Diverge

Diverging Conflict	1
Merging Conflict	0
Crossing Conflict	0
Typical Diverge Conflicts	1

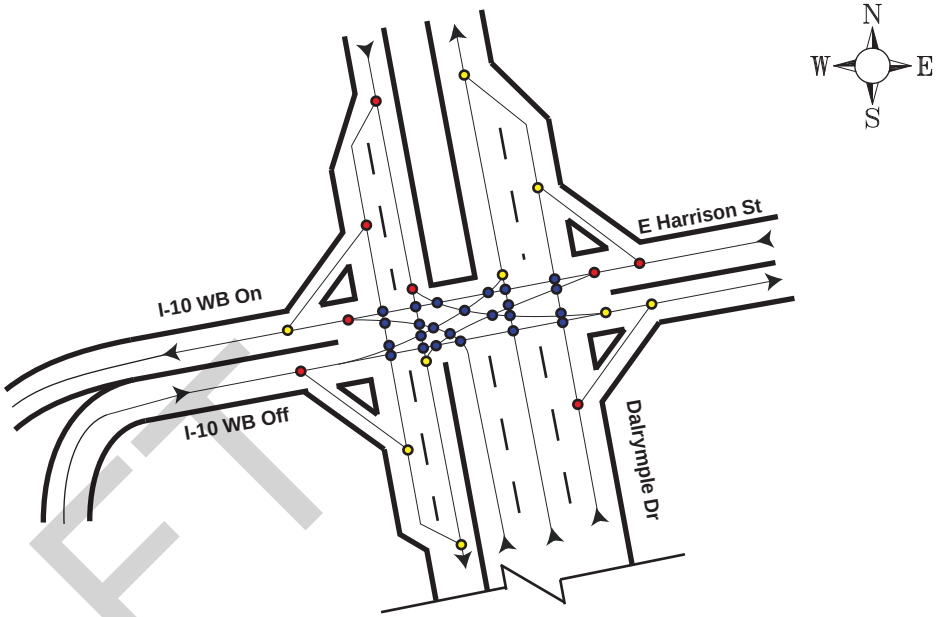


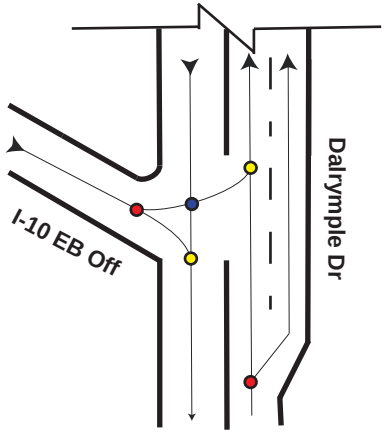
Typical Merge

Diverging Conflict	0
Merging Conflict	1
Crossing Conflict	0
Typical Merge Conflicts	1

Locations:	
I-10 EB at Washington St Off Ramp	1
I-10 EB at Dalrymple Dr Off Ramp	1
I-10 WB at Dalrymple Dr Off Ramp	1
I-10 WB at McCallop St Off Ramp	1
TOTAL Conflicts	4

Locations:	
I-10 EB at Braddock St On Ramp	1
I-10 WB at Dalrymple Dr On Ramp	1
TOTAL Conflicts	2

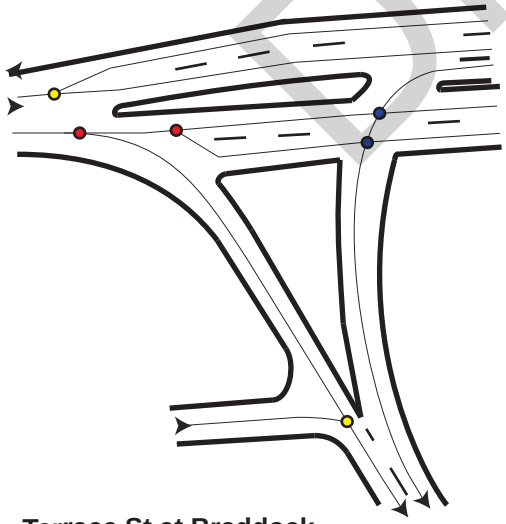




Dalrymple Dr at I-10 Ramps

Diverging Conflict	10
Merging Conflict	11
Crossing Conflict	25
TOTAL Conflicts	46

Diverging Conflict	2
Merging Conflict	2
Crossing Conflict	2
TOTAL Conflicts	6



Terrace St at Braddock

URBAN SYSTEMS inc.

Figure 3

Existing Conflict Points

Washginton / Dalrymple IMR

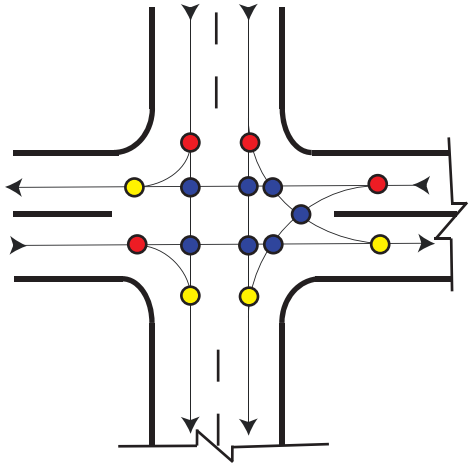
IMR Data Collection

East Baton Rouge Parish, LA

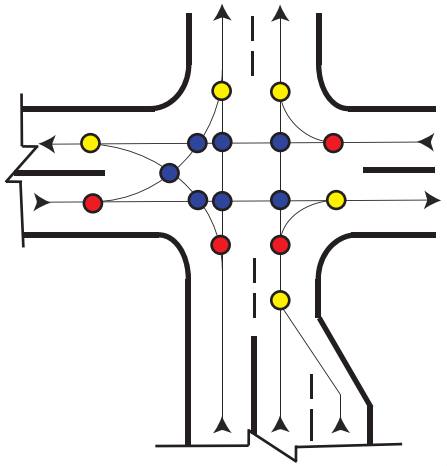
NOT TO SCALE

FOR PLANNING PURPOSES ONLY

Braddock St at Louise St



Mc Calop St at Louise St



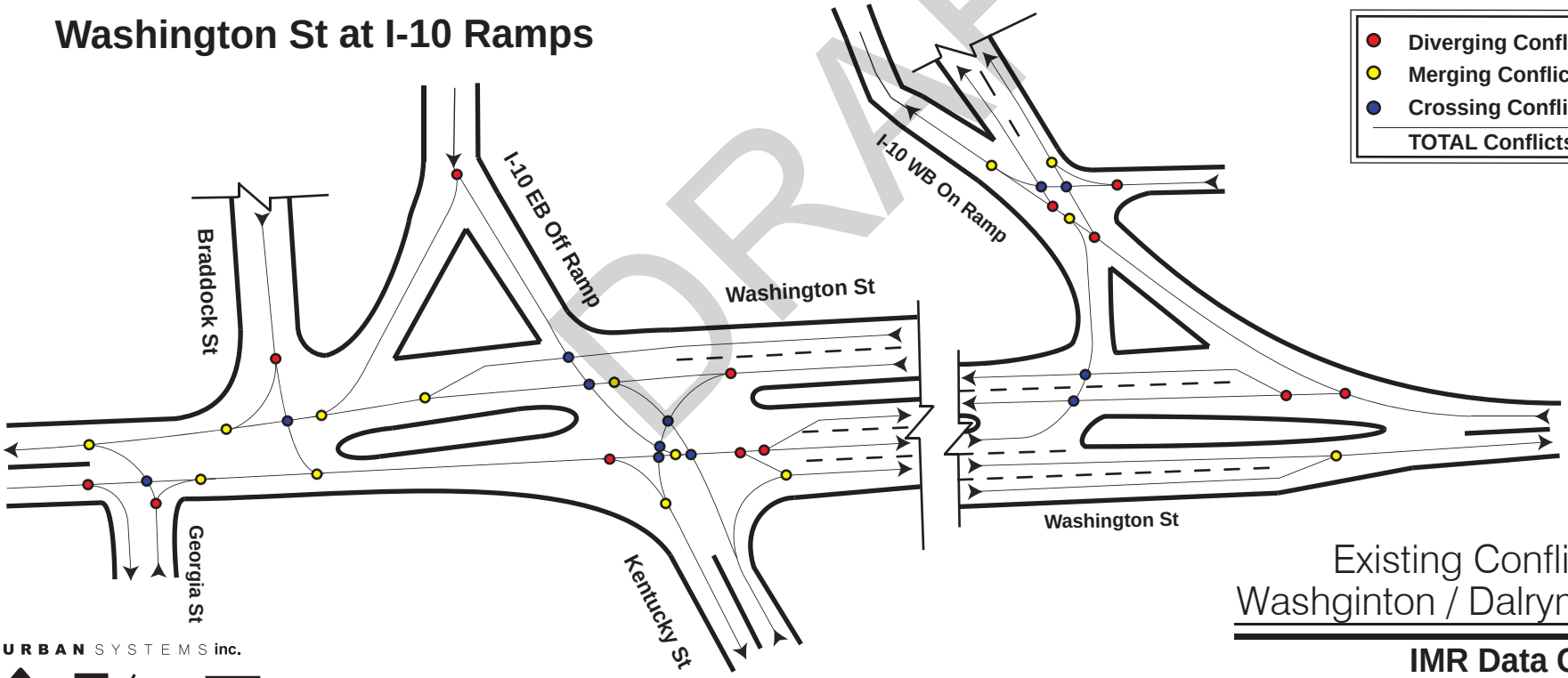
LEGEND:

- Diverging Conflict
- Merging Conflict
- Crossing Conflict

Diverging Conflict	8
Merging Conflict	9
Crossing Conflict	14
TOTAL Conflicts	31

Washington St at I-10 Ramps

Diverging Conflict	13
Merging Conflict	14
Crossing Conflict	12
TOTAL Conflicts	39



URBAN SYSTEMS inc.

Figure 4
Existing Conflict Points
Washginton / Dalrymple IMR

IMR Data Collection
East Baton Rouge Parish, LA

NOT TO SCALE
FOR PLANNING PURPOSES ONLY