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DRAFT

# College Drive IMR

## Data Collection Report

### Introduction

This Data Collection Report (DCR) details the data collection for the Interchange Modification Report (IMR) for the Directional Ramp from Interstate 10 (I-10) westbound (WB) to College Drive in East Baton Rouge Parish, Louisiana. This IMR was conducted as a part of the I-10 LA 415 to Essen Lane on I-10 and I-12 Stage 1 Environmental Assessment (Stage 1) project (S.P. H.004100.2). The overall project proposes 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 only alternative moving forward for further analysis is a directional ramp from I-10 westbound (WB) to the exit at College Drive. Documentation from the Tier 1 is included in **DCR Appendix A**.

The study area limits for this IMR were I-10 WB from Essen Lane to College Drive and I-12 WB from the off ramp to I-10 eastbound (EB) to College Drive. The study area limits included the intersection of the I-10 WB ramp terminals at College Drive. The purpose and need of the proposed modification is to “reduce conflict points along I-10 WB from the I-10/I-12 merge to College Drive.” **DCR Figure 1** presents the study area.



**DCR Figure 1 Vicinity Map**  
**Aerial Source: Google Earth**

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**Existing Conditions**

Prior to the I-10/12 merge, the existing lane configuration of I-10 WB is two (2) lanes and I-12 WB is three (3) lanes. After the merge, I-10 WB is five (5) lanes and the outside lane from I-12 becomes an exit only lane for the College Drive ramp. Therefore, drivers from I-10 WB bound for the College Drive exit must complete at least three (3) lanes changes. Drivers in the outside lane on I-12 WB must complete one (1) lane change to continue on I-10 WB. The distance between the gore point of the I-10/12 merge and the College Drive exit is approximately 0.9 miles.

The existing I-10 WB entrance ramp from Essen Lane is a single lane that merges with the outside lane of I-10. This outside lane of I-10 WB then becomes the exit only lane for the ramp to I-12 EB. Drivers from Essen Lane bound for I-10 WB must merge onto I-10 WB and then complete one (1) lane change to avoid the exit only lane. The Essen Lane entrance ramp merge with I-10 WB and the gore at the I-12 EB exit are approximately 0.4 miles apart.

**Existing Volumes**

Count data including 7-day 24-hour, 48-hour and peak period turning movement counts were collected in October and November 2017 and provided by LADOTD. The peak hours were identified in the data provided for each intersection location. The peak hours for the signalized intersection in the study area (site 59) were 7:00-8:00 AM and 5:00-6:00 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**.

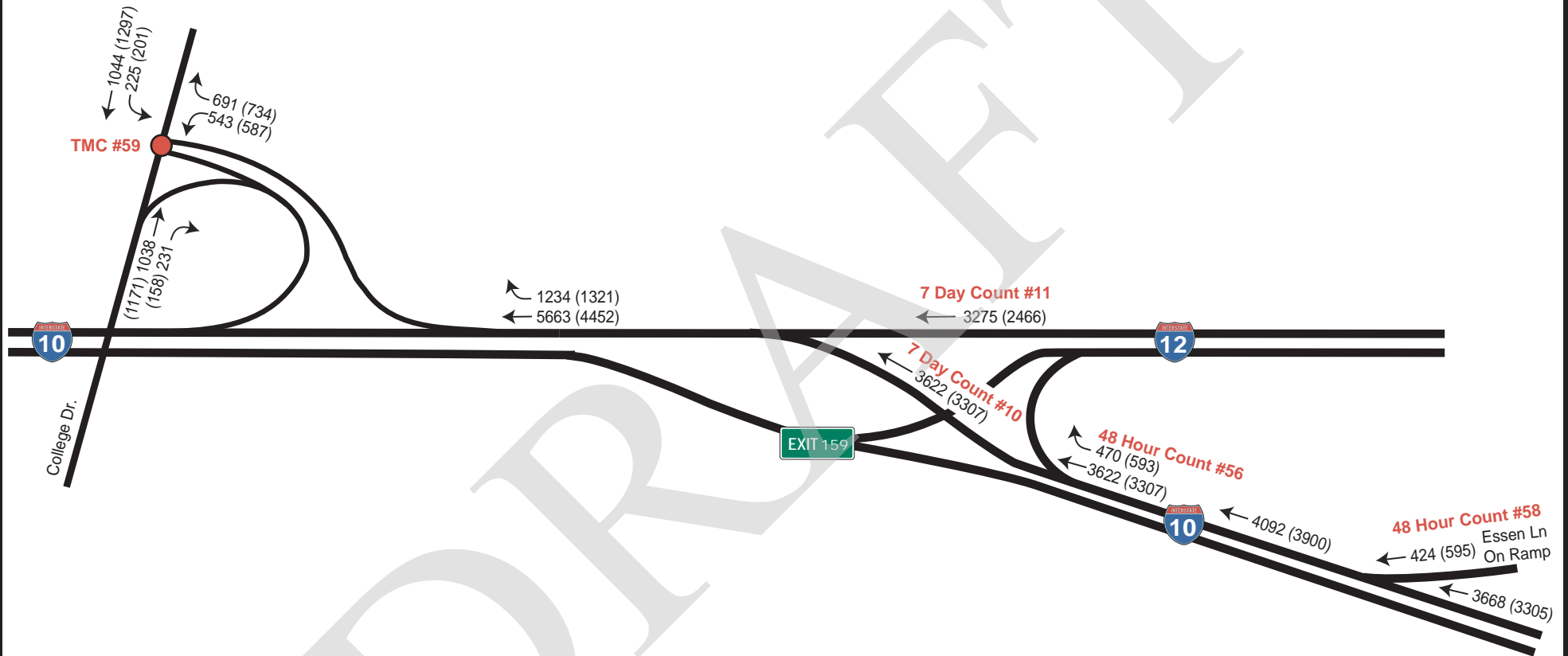
The data collected included classification which is needed for capacity analysis. **DCR Table 1** presents the heavy vehicle percentages for the study area. The heavy vehicle data used is also presented in **DCR Appendix C**.

**DCR Table 1 – Heavy Vehicle Percentages**

Intersection	Approach	Movement	Heavy Vehicle %	
			Base Conditions	
			AM	PM
<b>I-12 WB</b>	Westbound	Thru	6.0%	11.0%
<b>I-10 WB</b>	Westbound	Thru	7.0%	6.0%
<b>I-10 WB between merge and College off-ramp</b>	Westbound	Thru	6.0%	8.0%
<b>I-10 WB at College Dr</b>	Northbound	Thru	1.5%	1.4%
		Right	0.8%	0.0%
	Southbound	Left	1.6%	0.0%
		Thru	3.1%	2.4%
	Westbound	Left	2.3%	1.4%
		Right	1.9%	1.6%
<b>I-10 WB Essen on-ramp</b>	Westbound	Thru	2.0%	3.0%
<b>I-10 WB to I-12 EB ramp</b>	Westbound	Thru	10.0%	6.0%

**LEGEND:**

- X AM Peak Hour Volume (7:00 - 8:00 AM)
- (X) PM Peak Hour Volume (5:00 - 6:00 PM)
- #X Data Source
- Signalized Intersection



**Figure 2**

2017 Peak Hour Volumes

**IMR Data Collection**  
**Directional Ramp from I-10 WB to College Drive**  
**East Baton Rouge Parish, LA**

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**Growth Rate**

The Capitol Region Planning Commission’s (CRPC) regional transportation TransCAD model 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 I-10, I-12, College Drive, the I-10 WB to I-12 EB ramp and the I-10 WB on ramp from Essen Ln 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	2040
		Growth Factor over 23 years
<b>I-12 Mainline</b>	0.35%	1.08
<b>I-10 Mainline</b>	1.19%	1.31
<b>College Drive</b>	0.30%	1.07
<b>I-10 WB Off Ramp to I-12 EB (using I-12 EB)</b>	0.40%	1.10
<b>I-10 WB On Ramp from Essen Ln</b>	0.99%	1.25

**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 Essen Lane and College Drive interchanges, and the I-12 mainline from Drusilla Drive to the I-10/12 Split 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 statewide average crash rate is 1.66 crashes per million vehicle-miles (MVM) for a six-lane urban interstate. **DCR Table 3** presents the crash rate calculation variables and results compared to the statewide average. As shown, the existing crash rate on all three segments is below the statewide average.

**DCR Table 3 - Interstate Mainline Crash Rates**

Segment Number	Description	AADT Threshold	Number of Crashes	Segment Length (Miles)	AADT (Veh/Day)	Crash Rate (Crash/MVM)	Statewide Average
1	I-10 from College to I-10/12 Split	High	391	1.21	178,800	1.65	1.66
2	I-10 from I-10/12 Split to Essen	Medium	254	1.25	125,800	1.48	1.66
3	I-12 from I-10/12 Split to Essen	Low	162	1.35	98,700	1.11	1.66

*Mainline Crash Types*

Crash type percentages were calculated using a three-year average (2013-2015) of the reported crash data. **DCR Tables 4-6** present the crash type percentages and corresponding comparisons to the statewide averages for I-10 from College to the I-10/12 Split, I-10 from I-10/12 Split to Essen and I-12 from I-10/12 Split to Essen. The highlighted crash types are above the statewide average.

DCR Table 4 – I-10 from College to I-10/12 Split

Category	Observed Percentage	Statewide Average Percentage
A: Non-collision w/ Motor Vehicle	15.60%	9.72%
B: Rear-end	56.52%	61.98%
C: Head-on	0.00%	0.12%
D: Right angle	0.00%	1.41%
E: Left Turn Angle	0.00%	0.12%
F: Left Turn Opp Dir	0.26%	0.12%
G: Left Turn Same Dir	0.26%	0.18%
H: Right Same Dir	0.26%	0.06%
I: Right turn Opp Dir	0.00%	0.00%
J: Side Swipe Same Dir	27.11%	22.85%
K: Side Swipe Opp Dir	0.00%	0.18%
Z: Other	0.00%	3.22%

DCR Table 5 – I-10 from I-10/12 Split to Essen

Category	Observed Percentage	Statewide Average Percentage
A: Non-collision w/ Motor Vehicle	16.93%	12.77%
B: Rear-end	66.14%	53.88%
C: Head-on	0.00%	0.50%
D: Right angle	0.39%	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	16.54%	22.69%
K: Side Swipe Opp Dir	0.00%	0.22%
Z: Other	0.00%	8.31%

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DCR Table 6 – I-12 from I-10/12 Split to Essen

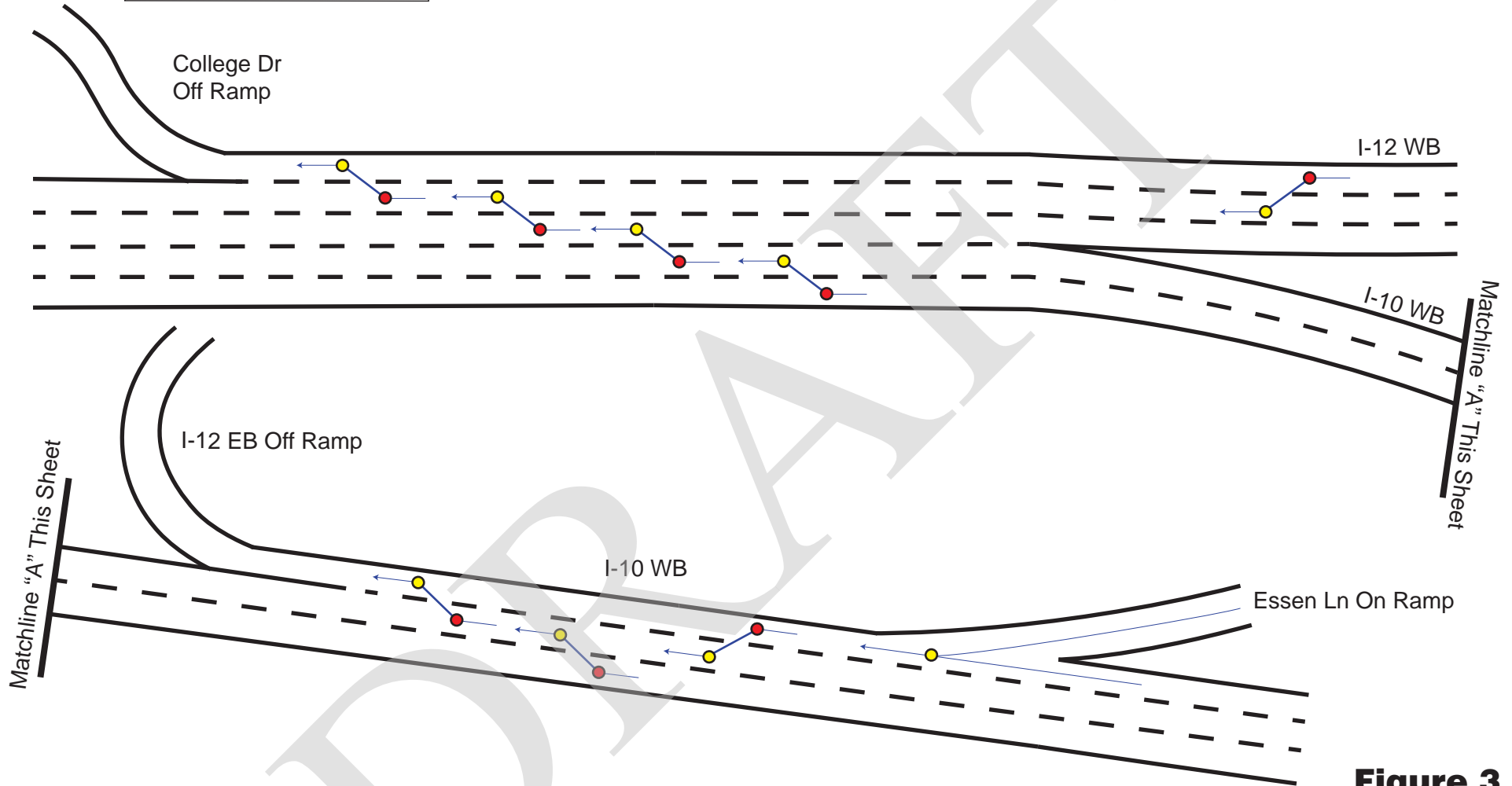
Category	Observed Percentage	Statewide Average Percentage
A: Non-collision w/ Motor Vehicle	11.73%	19.54%
B: Rear-end	53.09%	47.54%
C: Head-on	0.62%	0.71%
D: Right angle	1.23%	1.00%
E: Left Turn Angle	0.00%	15.00%
F: Left Turn Opp Dir	0.00%	13.00%
G: Left Turn Same Dir	0.00%	16.00%
H: Right Same Dir	0.00%	24.00%
I: Right turn Opp Dir	0.00%	4.00%
J: Side Swipe Same Dir	28.40%	21.30%
K: Side Swipe Opp Dir	0.00%	25.00%
Z: Other	4.94%	8.92%

*Conflict Points*

The number and type of conflict points were determined for the existing condition on I-10 WB between College Drive and Essen Lane and at the College Dr at I-10 WB terminal intersection. This will be compared to the Build condition conflict points to determine any reduction in conflict points. DCR Figures 3 and 4 present the existing conflict points.



● Diverging Conflict	8
● Merging Conflict	9
<b>TOTAL Conflicts</b>	<b>17</b>



**Figure 3**  
Existing Conflict Points  
I-10 WB College Drive to Essen Lane

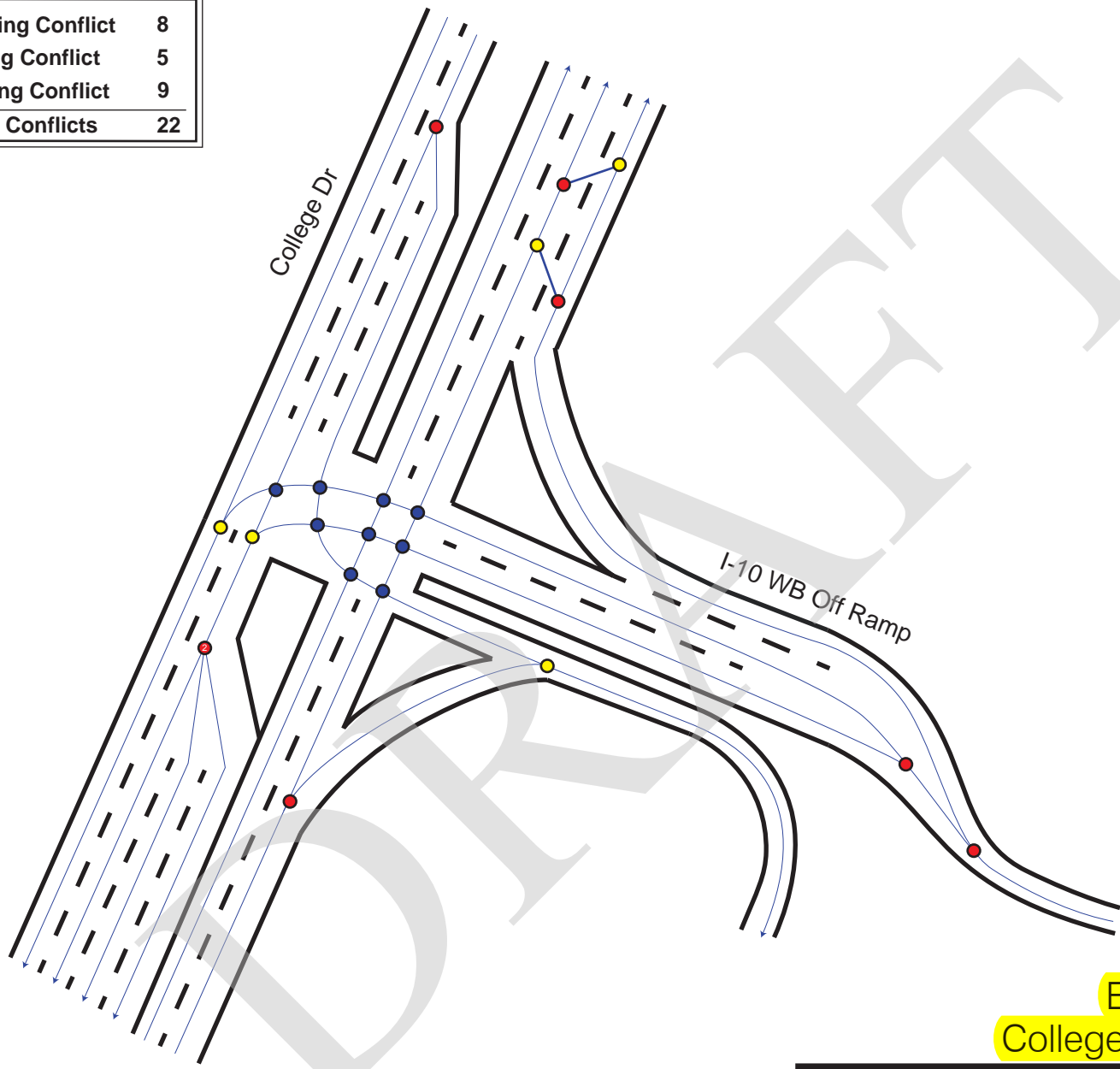
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● Diverging Conflict	8
● Merging Conflict	5
● Crossing Conflict	9
<b>TOTAL Conflicts</b>	<b>22</b>



**Figure 4**  
Existing Conflict Points  
College Dr at I-10 WB Ramps

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**Directional Ramp from I-10 WB to College Drive**  
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