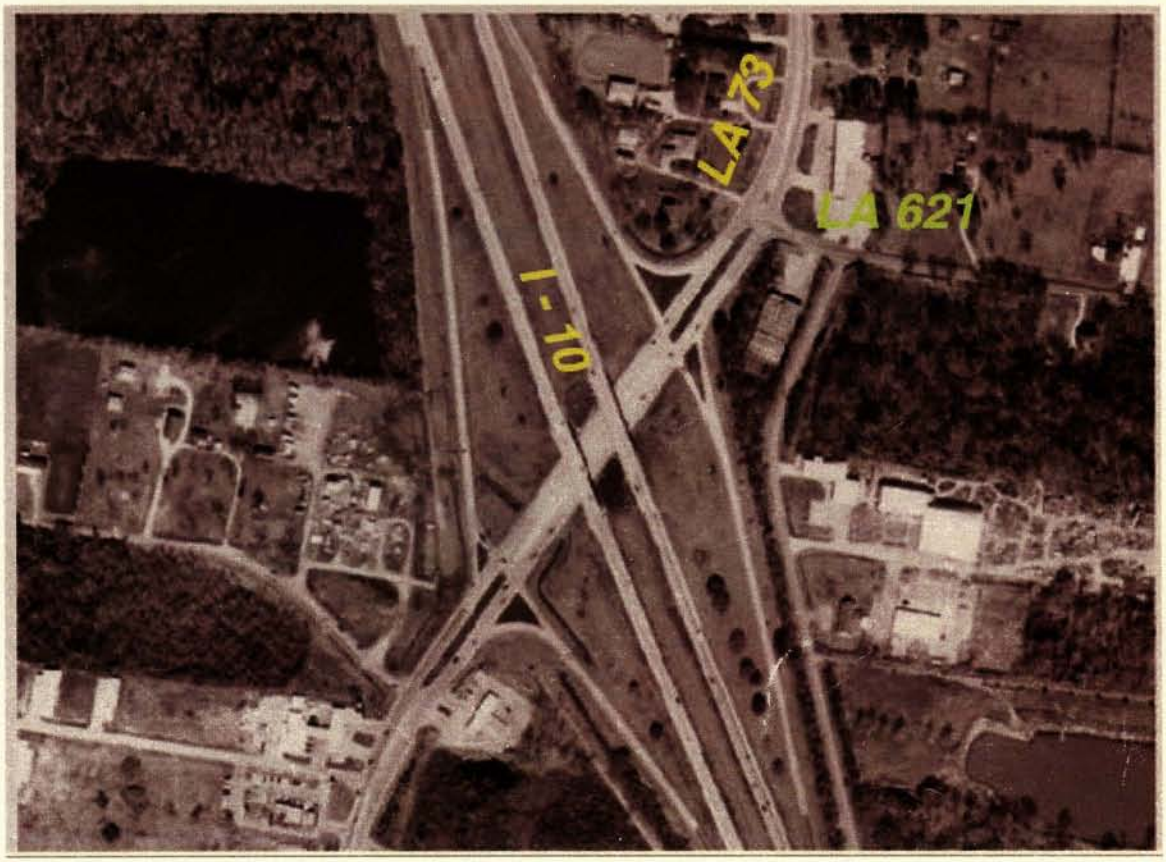
REPORT

ON

AIR QUALITY EMISSION ANALYSIS

FOR

INTERSECTION IMPROVEMENTS @ LA 621/LA 73 @ I-10



Parish of
ASCENSION, LOUISIANA

Prepared By

Capital Region Planning Commission

June 2005

Air Quality Analysis of Transportation Network Study for LA 73 @ LA 621 Ascensión Parish, Louisiana.

June 2005

1. Introduction

This report addresses the air quality analysis of Transportation Network Analysis Study for LA 73 @ LA 621 in Ascension Parish, Louisiana. The air quality analysis of this study project is a requirement for the use of **Congestion Mitigation for Air Quality (CMAQ)** funds.

The major sources of procedures used for the analysis of both individual intersections and complete network were based on the **SYNCHRO and VISSIM.** The other primary source of procedures and techniques used in this analysis was the **EPA Mobile Source Emission Factor Model (MOBILE6.2)**.

The existing transportation network in the vicinity of LA 73 and LA 621 is unable to meet existing traffic demand. In certain roadway segments investigated, roadway capacity has already been exceeded. The transportation network's inability to meet traffic demand is further exacerbated by projecting 2024 volumes.

A comprehensive inventory of the existing roadway network operations was developed and peak period traffic volume data and traffic signal data was collected by KLL Consultants. Existing and projected traffic conditions were evaluated at each study intersection. The first alternative denoted as Interim #1 proposes preliminary signal timing modifications resulting in temporary improvements that can be implemented today with minimal construction effort. The second alternative, denoted as Alternative #1, in addition to traffic signal modifications, proposes various roadway improvements through the addition of lanes. These alternatives have been developed in order to meet existing as well as projected 2024 traffic demand.

2. Method of Analysis

The above mentioned study is analyzed for the reduction in emissions that would result from proposed improvements. The procedures that were used in the analysis are explained in detail below.

1. Weekday turning movement counts were obtained at all eight study area intersections. The peak hour volumes were determined from the turning movement counts performed by Krebs, LaSalle, LeMieux Consultants (KLL). AM peak hour counts were conducted

SITE LOCATION

STUDY AREA INTERSECTIONS

between 6:00 AM – 9:00 AM. PM peak hour counts were conducted between 3:00 PM – 6:00 PM. Data was collected multiple times, on September 21st and the 23rd as well as October 20th and the 21st, 2004, in order to more accurately portray existing conditions. The AM peak hour was determined to be from 6:45 AM – 7:45 AM, while the PM peak hour was determined to be from 4:45 PM – 5:45 PM.

2. Both alternatives were analyzed using the SYNCHRO and VISSIM software for existing conditions. The information obtained from these runs was average delay in seconds per vehicle (sec/veh), and level of service (LOS).

3. The SYCNRHO output gave an average delay in seconds per vehicle for the each intersection in each system. Multiplying the intersection average delay by the hourly volume gave the total delay in vehicle-hours per hour. The calculations performed are as shown below.

   Total Delay (in veh-hrs per peak hour) = Peak Hour Volume * Average Delay in sec/veh/3600.

4. After calculating the delay, EPA's Mobile Source Emission Factor Model (MOBILE6) was used to obtain VOC and NOx emission factors for the different functional classifications. The MOBILE6 model was run using the 2.5 mph speed, which gives idling emission factors. The VOC and NOx emission factors were generated in the units of gm/mile. These units were multiplied by 2.5 to convert to gm/hr. These values were then converted to kg/hr and multiplied by the total delay in veh-hrs to obtain total emissions.

   For example, using MOBILE6 procedures, it is convenient to generate the following:

   Total emissions in Kg/hr = VOC emission factor * 2.5 * delay in veh-hrs/1000

The analysis showed that the proposed improvements would reduce significantly traffic delay through the network during the morning and the evening peak hours. Actually, the improvements will enhance traffic flow and reduce emissions during off-peak times as well, but the greatest benefits were observed to be during the peak hours.

3. Description of Existing Conditions and Improvements

The roadway system identified for investigation includes LA 73 between C. Braud Road on the southerly study area boundary, and LA 621 on the northerly boundary. LA 621 was also studied in detail from LA 73 on the westerly study area boundary to Tiggy Duplessis Road on the easterly study area boundary. Eight existing intersections were studied in detail, they include:

1. C. Braud Road/LA 73
2. I-10 Eastbound On/Off Ramps/LA 73

3. I-10 Westbound On/Off Ramps/LA 73
4. LA 73/LA 621
5. Eads Road/LA 621
6. L. Landry Road/LA 621
7. Duplessis Primary School Drive/LA 621
8. Tiggy Duplessis Road/LA 621

LA 73 is classified as a rural minor arterial roadway within the study area. In this section the highway generally consists of two travel lanes in each direction with exclusive left turn storage lanes at intersections. The posted speed limit on this section of LA 73 is 45 MPH.

LA 621 is classified as a rural minor collector roadway within the study area. In this section the highway generally consists of one travel lane in each direction. The posted speed limit on this section of LA 621 is 45 MPH.

C. Braud Road, Eads Road, L. Landry Road, and Tiggy Duplessis Road are all classified as local roads. The posted speed limit on C. Braud, L. Landry Road, and Tiggy Duplessis Road is 35 MPH, while the posted speed limit on Eads Road is 25 MPH.

Duplessis Primary School Drive is classified as a site access drive with a posted speed limit of 10 MPH.

Improvements

In order to better service the traffic demand under existing conditions as well as projected volumes for the year 2024 two alternatives have been developed. The first alternative denoted as Interim #1 provides temporary solutions (Primarily by means of signal timing modifications) that can be implemented today with minimal construction effort. The second alternative, denoted as Alternative #1, in addition to traffic signal modifications, proposes roadway improvements through the addition of lanes.

Interim #1 – Existing Volumes
This alternative was designed to be implemented with minimal construction and to most efficiently utilize the existing transportation network.

- C. Braud Road/LA 73
  - No improvements scheduled
- I-10 Eastbound On/Off Ramps/LA 73
  - Signal timing optimization based on existing volumes
- I-10 Westbound On/Off Ramps/LA 73
  - Signal timing optimization based on existing volumes
- LA 73/LA 621
  - Signal timing optimization based on existing volumes

- Stripe northbound right turn lane on existing shoulder
- Eads Road/LA 621
  - No improvements scheduled
- L. Landry Road/LA 621
  - No improvements scheduled
- Duplessis Primary School Drive/LA 621
  - No improvements scheduled
- Tiggy Duplessis Road/LA 621
  - No improvements scheduled

Interim #1 – 2024 Volumes

This alternative is used to illustrate the inability of the current transportation network to efficiently meet the projected traffic demand. The capacity analysis results of this alternative reinforce the need to upgrade the transportation network.

- C. Braud Road/LA 73
  - No improvements scheduled
- I-10 Eastbound On/Off Ramps/LA 73
  - Signal timing optimization, based on 2024 volumes.
- I-10 Westbound On/Off Ramps/LA 73
  - Signal timing optimization, based on 2024 volumes.
- LA 73/LA 621
  - Signal timing optimization, based on 2024 volumes.
  - Strip northbound right turn lane on existing shoulder.
- Eads Road/LA 621
  - No improvements scheduled
- L. Landry Road/LA 621
  - No improvements scheduled
- Duplessis Primary School Drive/LA 621
  - No improvements scheduled
- Tiggy Duplessis Road/LA 621
  - No improvements scheduled

Alternative #1 – Existing Volumes

This alternative provides roadway improvements to the I-10 westbound on-ramp, LA 73 and LA 621.

- C. Braud Road/LA 73
  - No improvements scheduled
- I-10 Eastbound On/Off Ramps/LA 73
  - Signal timing optimization, based on existing volumes
- I-10 Westbound On/Off Ramps/LA 73
  - Provide additional southbound right turn lane onto I-10 westbound on-ramp.

- Provide additional merge lane on I-10 westbound on-ramp.
- Provide three thru lanes from the I-10 westbound off-ramp right turn merge with northbound LA 73. (additional lane is exclusive right turn lane at LA 73/LA 621).
- Signal timing optimization, based on existing volumes

➢ LA 73/LA 621
- Provide additional southbound thru lane (for I-10 westbound on-ramp) with 200' of storage.
- Convert existing westbound (LA 621) right turn lane into a shared left/right turn lane. Provide a minimum of 300' of storage on both westbound (LA 621) lanes.
- Provide an exclusive northbound (LA 73) right turn lane, with an overlap phase.
- Signal timing optimization, based on existing volumes
- Signal is coordinated with I-10 ramp signals.

➢ Eads Road/LA 621
- Storage lanes for LA 621 westbound will impact this intersection.

➢ L. Landry Road/LA 621
- No improvements scheduled

➢ Duplessis Primary School Drive/LA 621
- No improvements scheduled

➢ Tiggy Duplessis Road/LA 621
- No improvements scheduled

Alternative #1 – 2024 Volumes

This alternative is based on Alternative #1 – Existing Volumes. Roadway improvements are made to the I-10 on/off ramps to meet traffic demand in 2024. This model also assumes an additional lane has been constructed for westbound I-10 as projected volumes warrant this improvement.

➢ C. Braud Road/LA 73
- Signalize intersection
- Signal is coordinated with I-10 ramp signals, LA 73/LA 621.

➢ I-10 Eastbound On/Off Ramps/LA 73
- Provide dual left turn lanes and right turn lane for the I-10 eastbound off-ramp.
- Signal timing optimization, based on 2024 volumes

➢ I-10 Westbound On/Off Ramps/LA 73
- Provide additional southbound right turn lane onto I-10 westbound on-ramp.
- Provide additional merge lane on I-10 westbound on-ramp. Merge lanes are extended 1200' on I-10 westbound.
- Provide an additional thru lane northbound (LA 73) from the I-10 westbound off ramp right turn merge with northbound LA 73. (third lane transitions into exclusive right turn lane at LA 73/LA 621).
- Provide three right turn lanes on the westbound I-10 off-ramp, and prohibit turn on red.
- Signal timing optimization, based on 2024 volumes

- LA 73/LA 621
  - Provide additional southbound thru lane (for I-10 westbound on-ramp) with a minimum 275' of storage.
  - Provide dual southbound lanes 750' before the intersection.
  - Convert existing westbound (LA 621) right turn lane into a shared left/right turn lane. Provide a minimum of 2100' of storage on both westbound (LA 621) lanes.
  - Provide dual eastbound thru lanes (LA 621) with 2100' of storage.
  - Provide an exclusive northbound (LA 73) right turn lane, with an overlap phase.
  - Signal timing optimization, based on 2024 volumes
  - Signal is coordinated with I-10 ramp signals.
- Eads Road/LA 621
  - Signalize intersection and coordinate with LA 73/LA 621 signal
- L. Landry Road/LA 621
  - Provide exclusive westbound (LA 621) left turn lane, with 150' of storage.
  - Provide storage/acceleration lane to facilitate northbound (L. Landry Road) left turn movements.
- Duplessis Primary School Drive/LA 621
  - No improvements scheduled
- Tiggy Duplessis Road/LA 621
  - Provide exclusive eastbound (LA 621) left turn lane, with 150' of storage.
  - Provide storage/acceleration lane to facilitate southbound (Tiggy Duplessis Road) left turn movements.

4. Summary

The reduction in volatile organic compounds (VOC) and Nitrogen Oxide (NOx) emissions for Interim#1 and Alternative#1 improvement proposals are summarized below.

Emission Reduction Summary

Improvements	Emission Reductions (US tons/year)	
	VOC	NOx
Interim #1	0.08	0.09
Alternative #1	1.61	1.25

The implementation cost of Interim#1 is very minimal so are the emission benefits. On the other hand the emission benefits of Alternative#1 are significantly higher than Interim#1. The cost of implementation of proposed Anlternative#1 improvements is higher but considered to be worth the resulting benefits.

5. Attachments

Considerable information is provided in the attachments following this narrative. The titles to these attachments are as follows.

Attachment A - Emissions Calculation Analysis

Attachment B – SYNCHRO Output

Attachment C – MOBILE6 Input & Output Files

Attachment D – Traffic Count Information

ATTACHMENT A

EMISSIONS CALCULATION ANALYSIS

Existing Conditions in the LA 73@621 Study Area

Intersection	Existing			
	AM		PM	
	LOS	v/c	LOS	v/c
C. Braud/LA 73 (U)				
Eastbound - C. Braud	D(34.8 sec)	0.71	F(65.7 sec)	0.86
Northbound Left Turn Lane- LA 73	A(9.6 sec)	0.04	A(9.7 sec)	0.12
I-10 Eastbound Off-Ramp/LA73 (S)				
Eastbound - I-10 EB Offramp	D(46.4 sec)	0.73	D(42.6 sec)	0.91
Northbound - LA 73	B(11.8 sec)	0.37	C(27.8 sec)	0.81
Southbound - LA 73	A(3.3 sec)	0.43	B(12.8 sec)	0.76
Overall LOS (Delay in sec/veh)	**B(11.0 sec)**	**0.47**	**C(27.1 sec)**	**0.81**
I-10 Westbound Off-Ramp/LA 73 (S)				
Westbound - I-10 WB Offramp	D(52.7 sec)	0.69	D(35.3 sec)	0.59
Northbound - LA 73	B(12.1 sec)	0.67	A(6.6 sec)	0.59
Southbound - LA 73	B(10.8 sec)	0.38	B(11.3 sec)	0.29
Overall LOS (Delay in sec/veh)	**B(13.6 sec)**	**0.65**	**A(9.7)**	**0.58**
I-10 Westbound On-Ramp Merge northbound and southbound LA 73				
Westbound - from southbound LA 73	F(444.5 sec)	1.94	C(16.3 sec)	0.51
LA 73/LA 621 (S)				
Westbound - LA 621	E(72.2 sec)	1.05	D(41.2 sec)	0.82
Northbound - LA 73	B(18.7 sec)	0.43	D(41.0 sec)	1.01
Southbound - LA 73	B(15.4 sec)	0.63	A(6.4 sec)	0.24
Overall LOS (Delay in sec/veh)	**C(32.1 sec)**	**0.80**	**C(33.7 sec)**	**0.90**
Eads/LA 621 (U)				
Eastbound - LA 621	n/a	n/a	n/a	n/a
Westbound -LA 621	n/a	n/a	n/a	n/a
Northbound - Eads	C(18.6 sec)	0.18	D(31.6 sec)	0.31
L Landry Rd/LA 621 (U)				
Northbound - L Landry	D(33.8 sec)	0.45	D(33.2 sec)	0.51
Duplessis Primary School/LA 621 (U)				
Northbound - Duplessis Primary School	C(21.2 sec)	0.03	D(27.6 sec)	0.13
Tiggy Duplessis Rd/LA 621 (U)				
Southbound - Tiggy Duplessis Rd	C(20.3 sec)	0.33	C(24.5 sec)	0.36

INTERIM #1 CAPACITY ANALYSIS

Intersection	Interim #1 - Existing Volumes				Interim #1 - 2024 Volumes			
	AM		PM		AM		PM	
	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c
C. Braud/LA 73 (U)								
Eastbound - C. Braud	D(33.9 sec)	0.71	F(65.7 sec)	0.86	F(358.6 sec)	1.68	F(703.3 sec)	2.41
Northbound Left Turn Lane- LA 73	A(9.6 sec)	0.04	A(9.7 sec)	0.12	B(12.0 sec)	0.08	B(12.8 sec)	0.25
I-10 Eastbound Off-Ramp/LA73 (S)								
Eastbound - I-10 EB Offramp	C(25.7 sec)	0.47	D(40.7 sec)	0.91	C(30.0 sec)	0.64	F(164.5 sec)	1.27
Northbound - LA 73	B(15.8 sec)	0.48	C(26.9 sec)	0.82	C(24.2 sec)	0.77	F(142.6 sec)	1.23
Southbound - LA 73	A(1.7 sec)	0.51	B(15.9 sec)	0.79	B(16.7 sec)	0.89	D(53.2 sec)	1.16
Overall LOS (Delay in sec/veh)	**A(9.9 sec)**	**0.49**	**C(27.0 sec)**	**0.82**	**C(21.1 sec)**	**0.81**	**F(122.0 sec)**	**1.24**
I-10 Westbound Off-Ramp/LA 73 (S)								
Westbound - I-10 WB Offramp	C(27.9 sec)	0.34	C(25.6 sec)	0.49	D(40.9 sec)	0.50	C(35.0 sec)	0.70
Northbound - LA 73	A(7.0 sec)	0.71	A(8.1 sec)	0.56	D(39.4 sec)	1.03	B(16.8 sec)	0.87
Southbound - LA 73	B(13.4 sec)	0.55	C(20.1 sec)	0.47	C(28.4 sec)	0.88	C(33.3 sec)	0.80
Overall LOS (Delay in sec/veh)	**B(10.8 sec)**	**0.64**	**B(12.0)**	**0.54**	**C(34.7 sec)**	**0.93**	**C(21.8 sec)**	**0.81**
I-10 Westbound On-Ramp Merge northbound and southbound LA 73								
Westbound - from southbound LA 73	**F(453.5 sec)**	**1.95**	**C(16.4 sec)**	**0.51**	**F(*)**	**4.27**	**E(40.8)**	**0.84**
LA 73/LA 621 (S)								
Westbound - LA 621	C(31.7 sec)	0.91	D(47.9 sec)	0.87	F(123.6 sec)	1.21	D(47.1 sec)	0.93
Northbound - LA 73	B(19.3 sec)	0.49	E(71.4 sec)	0.74	D(45.4 sec)	0.70	F(120.7 sec)	1.48
Southbound - LA 73	B(18.4 sec)	0.74	A(5.9 sec)	0.23	F(96.9 sec)	1.14	B(10.2 sec)	0.28
Overall LOS (Delay in sec/veh)	**C(22.3 sec)**	**0.83**	**D(54.3 sec)**	**0.83**	**F(92.4 sec)**	**1.18**	**F(87.0 sec)**	**1.16**
Eads/LA 621 (U)								
Eastboind-La621								
Westbound-La621								
Northbound - Eads	C(18.6 sec)	0.18	D(31.6 sec)	0.31	E(46.9 sec)	0.52	F(234.7 sec)	1.13
L Landry Rd/LA 621 (U)								
Northbound - L Landry	D(33.8 sec)	0.45	D(33.2 sec)	0.51	F(445.5 sec)	1.71	F(453.6 sec)	1.78
Duplessis Primary School/LA 621 (U)								
Northbound - Duplessis Primary School	C(21.2 sec)	0.03	D(27.6 sec)	0.13	E(46.0 sec)	0.12	F(102.3 sec)	0.51
Tiggy Duplessis Rd/LA 621 (U)								
Southbound - Tiggy Duplessis Rd	C(20.3 sec)	0.33	C(24.5 sec)	0.36	F(92.7 sec)	0.91	F(266.9 sec)	1.33

ALTERNATIVE #1 CAPACITY ANALYSIS

Intersection	Alt. 1 - Existing Volumes				Alt. 1 - 2024 Volumes			
	AM		PM		AM		PM	
	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c
C. Braud/LA 73 (U)								
Eastbound - C. Braud	D(34.8 sec)	0.71	F(65.7sec)	0.86	D(48.1 sec)	0.85	D(36.1 sec)	0.78
Northbound Left Turn Lane- LA 73	A(9.6 sec)	0.04	A(9.7 sec)	0.12	A(9.6 sec)	0.46	B(11.1 sec)	0.67
					A(3.2 sec)	0.54	A(7.6 sec)	0.66
Overall LOS (Delay in sec/veh)	n/a	n/a	n/a	n/a	**B(12.5 sec)**	**0.63**	**B(12.6 sec)**	**0.70**
I-10 Eastbound Off-Ramp/LA73 (S)								
Eastbound - I-10 EB Offramp	D(46.4 sec)	0.73	D(41.7)	0.90	D(40.4 sec)	0.50	E(73.5 sec)	1.00
Northbound - LA 73	B(11.8 sec)	0.37	C(29.7)	0.82	C(22.5 sec)	0.76	D(42.2 sec)	1.02
Southbound - LA 73	A(3.3 sec)	0.43	B(13.8)	0.75	A(5.9 sec)	0.73	B(16.7sec)	0.34
Overall LOS (Delay in sec/veh)	**B(11.0 sec)**	**0.47**	**D(28.0)**	**0.85**	**B(16.7 sec)**	**0.71**	**D(42.3 sec)**	**1.01**
I-10 Westbound Off-Ramp/LA 73 (S)								
Westbound - I-10 WB Offramp	D(52.7 sec)	0.69	C(30.9)	0.40	E(66.8 sec)	0.81	D(50.6 sec)	0.57
Northbound - LA 73	B(12.1 sec)	0.67	A(6.2)	0.57	C(27.7 sec)	0.90	A(9.2 sec)	0.94
Southbound - LA 73	A(4.3 sec)	0.37	C(24.6)	0.55	C(26.4 sec)	0.87	D(39.5 sec)	0.87
Overall LOS (Delay in sec/veh)	**B(10.8 sec)**	**0.65**	**B(12.1)**	**0.53**	**C(32.8 sec)**	**0.88**	**C(25.3 sec)**	**0.94**
I-10 Westbound On-Ramp Merge northbound and southbound LA 73								
Westbound - from southbound LA 73	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LA 73/LA 621 (S)								
Westbound - LA 621	B(15.3 sec)	0.44	D(36.9)	0.66	A(1.5 sec)	0.60	A(0.6 sec)	0.55
Northbound - LA 73	B(15.0 sec)	0.35	A(6.0)	0.50	B(12.9 sec)	0.48	D(38.3 sec)	0.98
Southbound - LA 73	B(19.3 sec)	0.56	A(4.1)	0.15	C(34.5 sec)	0.89	C(24.2 sec)	0.87
Overall LOS (Delay in sec/veh)	**B(17.2 sec)**	**0.49**	**A(10.0)**	**0.54**	**C(20.2 sec)**	**0.70**	**C(29.8 sec)**	**0.93**
Eads/LA 621 (U)								
Eastboind-La621					A(1.2 sec)	0.15	A(1.8 sec)	0.49
Westbound-La621					C(27.4 sec)	0.75	E(57.1 sec)	0.81
Northbound - Eads	B(14.2 sec)	0.13	D(30.3)	0.30	E(63.6 sec)	0.62	E(68.6 sec)	0.63
Overall LOS (Delay in sec/veh)					**C(21.9 sec)**	**0.46**	**B(19.3 sec)**	**0.58**
L Landry Rd/LA 621 (U)								
Northbound - L Landry	D(33.8 sec)	0.45	D(33.2)	0.51	F(62.9 sec)	0.75	F(122.3 sec)	1.02
Duplessis Primary School/LA 621 (U)								
Northbound - Duplessis Primary School	C(21.2 sec)	0.03	D(27.6)	0.13	C(22.8 sec)	0.05	E(35.3 sec)	0.23
Tiggy Duplessis Rd/LA 621 (U)								
Southbound - Tiggy Duplessis Rd	C(20.3 sec)	0.33	C(24.5)	0.36	F(58.5 sec)	0.76	E(38.2 sec)	0.60

Capital Region Planning Commission (CRPC)
Emission Calculations

Note: The analysis showed the proposed improvements would enhance traffic flow through the network three hours during the morning peak period and three hours during the evening peak period. The total delay and emissions calculations were performed assuming the improvements will help traffic going through the intersection six hours per day, and 260 days in a year (assuming only weekdays).

Interim #1 – Signal Timing Optimization

Delay Calculations
Critical Peak: A.M

	Average Delay (Sec/Veh)	Volume (VPH)	Total Delay Veh-Hr/Peak.Hr
Existing Conditions	28.2	6,065	47.5
With Improvements	19.5	6,104	33.0
		Reduction in Delay	**14.5** * 6 = 87.0

Emission Calculations
Volatile Organic Compounds (VOC)
Emission Factor: 1.218

= 87.0 * 1.218 * 2.5
= 264.92

Formula = Delay in veh-hours/hour * VOC Emission Factor * 2.5 (conversion of gm/mi to gm/hr)

Hourly emission reductions = Reduction in delay * VOC emission factor * 2.5
= 264.92 grams/day
= 0.26 kilograms/day
= **0.08 U.S. tons/year**

Nitrogen Oxides (NOx)
Emission factor: 1.474

Formula = Delay in veh-hours/hour * NOx Emission Factor * 2.5 (conversion of gm/mi to gm/hr)

Hourly emission reductions = Reduction in delay * VOC emission factor * 2.5
= 320.60 grams/day
= 0.32 kilograms/day
= **0.09 U.S. tons/year**

Alternative #1 – Intersection Improvement at LA 621 @ LA 73

Delay Calculations
Critical Peak: P.M

	Average Delay (Sec/Veh)	Volume (VPH)	Total Delay Veh-Hr/Peak.Hr
Existing Conditions	33.7	2,716	25.4
With Improvements	10.0	2,716	7.5

Reduction in Delay 17.9

Emission Calculations
Volatile Organic Compounds (VOC)
Emission Factor: 9.640
Formula = Delay in veh-hours/hour * VOC Emission Factor * 2.5 (conversion of gm/mi to gm/hr)

Hourly emission reductions = Reduction in delay * VOC emission factor * 2.5
= 2585.50 grams/day
= 2.59 kilograms/day
= **0.74 U.S. tons/year**

Nitrogen Oxides (NOx)
Emission factor: 2.721
Formula = Delay in veh-hours/hour * NOx Emission Factor * 2.5 (conversion of gm/mi to gm/hr)

Hourly emission reductions = Reduction in delay * VOC emission factor * 2.5
= 729.52 grams/day
= 0.73 kilograms/day
= **0.21 U.S. tons/year**

Alternative #1 – I 10 Westbound Ramp Improvements

Delay Calculations
Critical Peak: A.M

	Average Delay (Sec/Veh)	Volume (VPH)	Total Delay Veh-Hr/Peak.Hr
Existing Conditions	444.5	1,467	181.1
With Improvements	11.4	1,467	4.6

Reduction in Delay 176.5

Emission Calculations
Volatile Organic Compounds (VOC)
Emission Factor: 1.142
Formula = Delay in veh-hours/hour * VOC Emission Factor * 2.5 (conversion of gm/mi to gm/hr)

Hourly emission reductions	=	Reduction in delay * VOC emission factor * 2.5
	=	3023.24 grams/day
	=	3.02 kilograms/day
	=	**0.87 U.S. tons/year**

Nitrogen Oxides (NOx)
Emission factor: 1.369
Formula = Delay in veh-hours/hour * NOx Emission Factor * 2.5 (conversion of gm/mi to gm/hr)

Hourly emission reductions	=	Reduction in delay * VOC emission factor * 2.5
	=	3626.83 grams/day
	=	3.63 kilograms/day
	=	**1.04 U.S. tons/year**

Emission Reduction Summary

Improvements	Emission Reductions (US tons/year)	
	VOC	NOx
Interim #1	0.08	0.09
Alternative #1	1.61	1.25

ATTACHMENT B

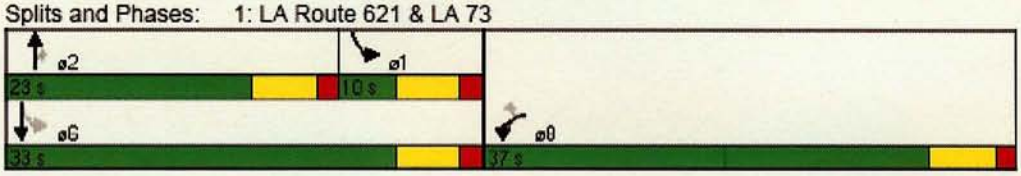
SYNCHRO OUTPUT

INTERIM #1

Phase Number	1	2	6	8
Movement	SBL	NBT	SBTL	WBL
Lead/Lag	Lag	Lead		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	C-Max	None
Maximum Split (s)	10	23	33	37
Maximum Split (%)	14.3%	32.9%	47.1%	52.9%
Minimum Split (s)	10	22	22	22
Yellow Time (s)	4.5	4.5	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	6	53	53	16
End Time (s)	16	6	16	53
Yield/Force Off (s)	10	0	10	47
Yield/Force Off 170(s)	10	0	10	47
Local Start Time (s)	6	53	53	16
Local Yield (s)	10	0	10	47
Local Yield 170(s)	10	0	10	47

Intersection Summary	
Cycle Length	70
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow, Master Intersection	

Splits and Phases: 1: LA Route 621 & LA 73

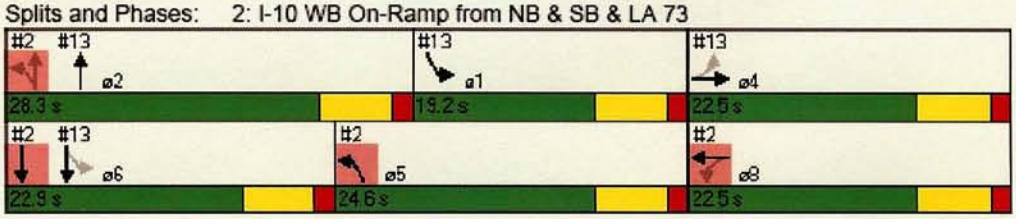


Phase Number	1	2	4	5	6	8
Node Number	13	2	13	2	2	2
Movement	SBL	NBTL	EBTL	NBL	SBT	WBTL
Lead/Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	Max	C-Max	None
Maximum Split (s)	19.2	28.3	22.5	24.6	22.9	22.5
Maximum Split (%)	27.4%	40.4%	32.1%	35.1%	32.7%	32.1%
Minimum Split (s)	10.5	22.5	22.5	22.5	22.5	22.5
Yellow Time (s)	5	5	5	5	5	5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Minimum Initial (s)	4	4	4	4	4	4
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	5.9	47.6	25.1	0.5	47.6	25.1
End Time (s)	25.1	5.9	47.6	25.1	0.5	47.6
Yield/Force Off (s)	18.6	69.4	41.1	18.6	64	41.1
Yield/Force Off 170(s)	18.6	69.4	41.1	18.6	64	41.1
Local Start Time (s)	11.9	53.6	31.1	6.5	53.6	31.1
Local Yield (s)	24.6	5.4	47.1	24.6	0	47.1
Local Yield 170(s)	24.6	5.4	47.1	24.6	0	47.1

Intersection Summary	
Cycle Length	70
Control Type	Actuated-Coordinated
Natural Cycle	70

Offset: 64 (91%), Referenced to phase 2:NBTL and 6:SBT, Start of Yellow

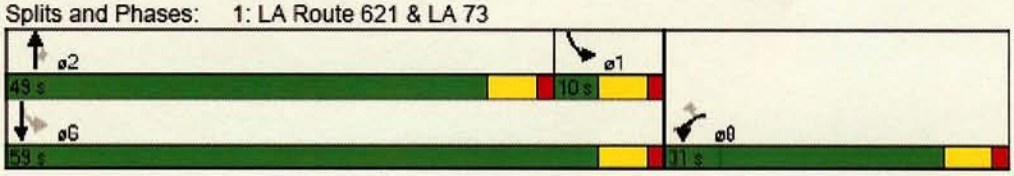
Splits and Phases: 2: I-10 WB On-Ramp from NB & SB & LA 73



Phase Number	1	2	6	8
Movement	SBL	NBT	SBTL	WBL
Lead/Lag	Lag	Lead		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	Max	C-Max	C-Max	None
Maximum Split (s)	10	49	59	31
Maximum Split (%)	11.1%	54.4%	65.6%	34.4%
Minimum Split (s)	10	22	22	22
Yellow Time (s)	4.5	4.5	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	6	47	47	16
End Time (s)	16	6	16	47
Yield/Force Off (s)	10	0	10	41
Yield/Force Off 170(s)	10	0	10	41
Local Start Time (s)	6	47	47	16
Local Yield (s)	10	0	10	41
Local Yield 170(s)	10	0	10	41

Intersection Summary	
Cycle Length	90
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow, Master Intersection	

Splits and Phases: 1: LA Route 621 & LA 73



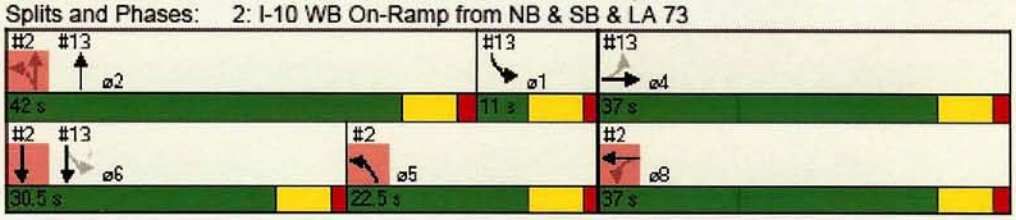
22

Phase Number	1	2	4	5	6	8
Node Number	13	2	13	2	2	2
Movement	SBL	NBTL	EBTL	NBL	SBT	WBTL
Lead/Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	Max	None	C-Max	Max
Maximum Split (s)	11	42	37	22.5	30.5	37
Maximum Split (%)	12.2%	46.7%	41.1%	25.0%	33.9%	41.1%
Minimum Split (s)	10.5	22.5	22.5	22.5	22.5	22.5
Yellow Time (s)	5	5	5	5	5	5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Minimum Initial (s)	4	4	4	4	4	4
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	2	50	13	80.5	50	13
End Time (s)	13	2	50	13	80.5	50
Yield/Force Off (s)	6.5	85.5	43.5	6.5	74	43.5
Yield/Force Off 170(s)	6.5	85.5	43.5	6.5	74	43.5
Local Start Time (s)	18	66	29	6.5	66	29
Local Yield (s)	22.5	11.5	59.5	22.5	0	59.5
Local Yield 170(s)	22.5	11.5	59.5	22.5	0	59.5

Intersection Summary	
Cycle Length	90
Control Type	Actuated-Coordinated
Natural Cycle	80

Offset: 74 (82%), Referenced to phase 2:NBTL and 6:SBT, Start of Yellow

Splits and Phases: 2: I-10 WB On-Ramp from NB & SB & LA 73

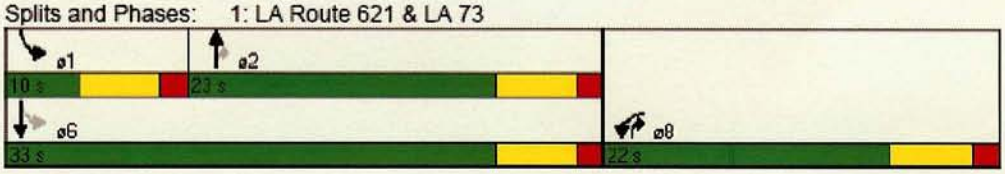


ALTERNATIVE #1

Phase Number	1	2	6	8
Movement	SBL	NBT	SBTL	WBL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	Max	Max	Max
Maximum Split (s)	10	23	33	22
Maximum Split (%)	18.2%	41.8%	60.0%	40.0%
Minimum Split (s)	10	22	22	22
Yellow Time (s)	4.5	4.5	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	10	0	33
End Time (s)	10	33	33	0
Yield/Force Off (s)	4	27	27	49
Yield/Force Off 170(s)	4	27	27	49
Local Start Time (s)	45	0	45	23
Local Yield (s)	49	17	17	39
Local Yield 170(s)	49	17	17	39

Intersection Summary	
Cycle Length	55
Control Type	Actuated-Uncoordinated
Natural Cycle	55

Splits and Phases: 1: LA Route 621 & LA 73

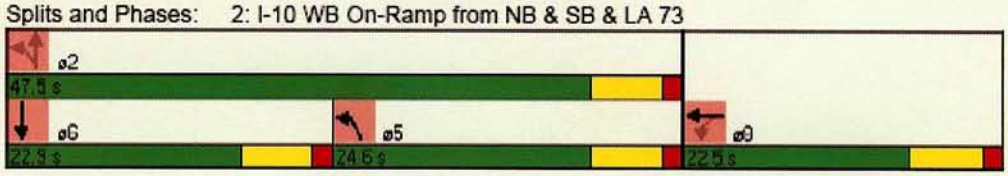


Phase Number	2	5	6	8
Movement	NBTL	NBL	SBT	WBTL
Lead/Lag		Lag	Lead	
Lead-Lag Optimize		Yes	Yes	
Recall Mode	C-Max	Max	C-Max	None
Maximum Split (s)	47.5	24.6	22.9	22.5
Maximum Split (%)	67.9%	35.1%	32.7%	32.1%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1.5	1.5	1.5	1.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	53.6	6.5	53.6	31.1
End Time (s)	31.1	31.1	6.5	53.6
Yield/Force Off (s)	24.6	24.6	0	47.1
Yield/Force Off 170(s)	24.6	24.6	0	47.1
Local Start Time (s)	53.6	6.5	53.6	31.1
Local Yield (s)	24.6	24.6	0	47.1
Local Yield 170(s)	24.6	24.6	0	47.1

Intersection Summary	
Cycle Length	70
Control Type	Actuated-Coordinated
Natural Cycle	70

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Yellow, Master Intersection

Splits and Phases: 2: I-10 WB On-Ramp from NB & SB & LA 73

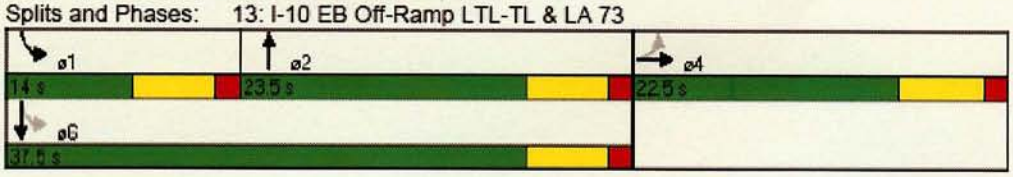


Phase Number	1	2	4	6
Movement	SBL	NBT	EBTL	SBTL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	14	23.5	22.5	37.5
Maximum Split (%)	23.3%	39.2%	37.5%	62.5%
Minimum Split (s)	10.5	22.5	22.5	22.5
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1.5	1.5	1.5	1.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	29	43	6.5	29
End Time (s)	43	6.5	29	6.5
Yield/Force Off (s)	36.5	0	22.5	0
Yield/Force Off 170(s)	36.5	0	22.5	0
Local Start Time (s)	29	43	6.5	29
Local Yield (s)	36.5	0	22.5	0
Local Yield 170(s)	36.5	0	22.5	0

Intersection Summary	
Cycle Length	60
Control Type	Actuated-Coordinated
Natural Cycle	60

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

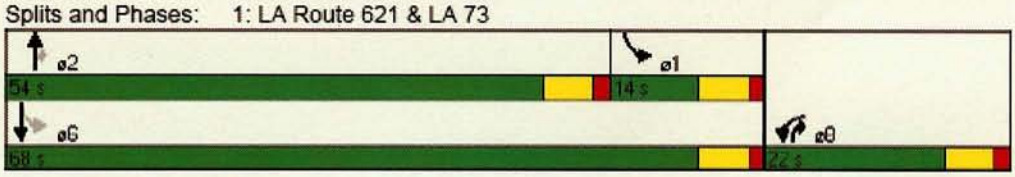
Splits and Phases: 13: I-10 EB Off-Ramp LTL-TL & LA 73



Phase Number	1	2	6	8
Movement	SBL	NBT	SBTL	WBL
Lead/Lag	Lag	Lead		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	C-Max	None
Maximum Split (s)	14	54	68	22
Maximum Split (%)	15.6%	60.0%	75.6%	24.4%
Minimum Split (s)	10	22	22	22
Yellow Time (s)	4.5	4.5	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	54	0	0	68
End Time (s)	68	54	68	0
Yield/Force Off (s)	62	48	62	84
Yield/Force Off 170(s)	62	48	62	84
Local Start Time (s)	54	0	0	68
Local Yield (s)	62	48	62	84
Local Yield 170(s)	62	48	62	84

Intersection Summary	
Cycle Length	90
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	

Splits and Phases: 1: LA Route 621 & LA 73

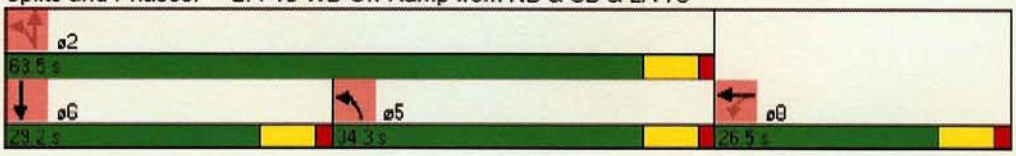


Phase Number	2	5	6	8
Movement	NBTL	NBL	SBT	WBTL
Lead/Lag		Lag	Lead	
Lead-Lag Optimize		Yes	Yes	
Recall Mode	C-Max	Max	C-Max	Max
Maximum Split (s)	63.5	34.3	29.2	26.5
Maximum Split (%)	70.6%	38.1%	32.4%	29.4%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1.5	1.5	1.5	1.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	29.2	0	63.5
End Time (s)	63.5	63.5	29.2	0
Yield/Force Off (s)	57	57	22.7	83.5
Yield/Force Off 170(s)	57	57	22.7	83.5
Local Start Time (s)	0	29.2	0	63.5
Local Yield (s)	57	57	22.7	83.5
Local Yield 170(s)	57	57	22.7	83.5

Intersection Summary	
Cycle Length	90
Control Type	Actuated-Coordinated
Natural Cycle	70

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green, Master Intersection

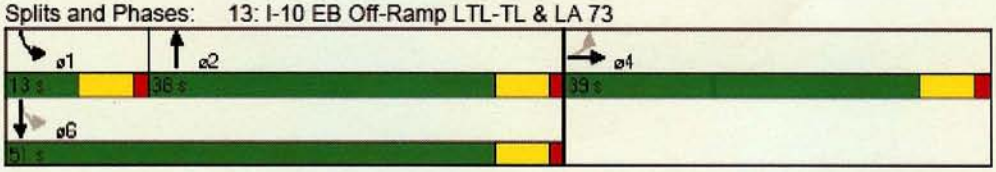
Splits and Phases: 2: I-10 WB On-Ramp from NB & SB & LA 73



Phase Number	1	2	4	6
Movement	SBL	NBT	EBTL	SBTL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	13	38	39	51
Maximum Split (%)	14.4%	42.2%	43.3%	56.7%
Minimum Split (s)	10.5	22.5	22.5	22.5
Yellow Time (s)	5	5	5	5
All-Red Time (s)	1.5	1.5	1.5	1.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	77	0	38	77
End Time (s)	0	38	77	38
Yield/Force Off (s)	83.5	31.5	70.5	31.5
Yield/Force Off 170(s)	83.5	31.5	70.5	31.5
Local Start Time (s)	77	0	38	77
Local Yield (s)	83.5	31.5	70.5	31.5
Local Yield 170(s)	83.5	31.5	70.5	31.5

Intersection Summary	
Cycle Length	90
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	

Splits and Phases: 13: I-10 EB Off-Ramp LTL-TL & LA 73



ATTACHMENT C

MOBILE6 INPUT & OUTPUT

MOBILE6.2
INPUT

```
MOBILE6 INPUT FILE :
*123456789012345678:
POLLUTANTS          : HC NOX
RUN DATA
NO REFUELING        :
MIN/MAX TEMPERATURE: 72.3 94.8
ABSOLUTE HUMIDITY   : 123.44
FUEL RVP            : 7.8
EXPRESS HC AS VOC   :
REG DIST            : LA_REGD1.D
*I/M DESC FILE       : BT05IM.D
ANTI-TAMP PROG      : 00 80 95 22222 21111111 1 11 072. 22222222
VMT FRACTIONS       :
0.667 0.054 0.178 0.017 0.008 0.023 0.002 0.002
0.001 0.005 0.006 0.007 0.024 0.001 0.001 0.004
*
SCENARIO REC        : INTERIM #1, SIGNAL TIMING OPTIMIZATION FOR COMPLETE
NETWORK, 38.0 MPH
CALENDAR YEAR       : 2005
EVALUATION MONTH    : 7
ALTITUDE            : 1
AVERAGE SPEED       : 38.0 Areawide 0.0 44.1 26.5 29.4

END OF RUN

*

NO REFUELING        :
MIN/MAX TEMPERATURE: 72.3 94.8
ABSOLUTE HUMIDITY   : 123.44
FUEL RVP            : 7.8
EXPRESS HC AS VOC   :
REG DIST            : LA_REGD1.D
*I/M DESC FILE       : BT05IM.D
ANTI-TAMP PROG      : 00 80 95 22222 21111111 1 11 072. 22222222
VMT FRACTIONS       :
0.667 0.054 0.178 0.017 0.008 0.023 0.002 0.002
0.001 0.005 0.006 0.007 0.024 0.001 0.001 0.004
*
SCENARIO REC        : ALTERNATIVE #1, LA 621@73 INTERSECTION IMPROVEMENT
CALENDAR YEAR       : 2005
EVALUATION MONTH    : 7
ALTITUDE            : 1
AVERAGE SPEED       : 2.5 Arterial 0.0 100.0 0.0 0.0

END OF RUN

*

NO REFUELING        :
MIN/MAX TEMPERATURE: 72.3 94.8
ABSOLUTE HUMIDITY   : 123.44
FUEL RVP            : 7.8
EXPRESS HC AS VOC   :
REG DIST            : LA_REGD1.D
*I/M DESC FILE       : BT05IM.D
ANTI-TAMP PROG      : 00 80 95 22222 21111111 1 11 072. 22222222
VMT FRACTIONS       :
```

```
0.667 0.054 0.178 0.017 0.008 0.023 0.002 0.002
0.001 0.005 0.006 0.007 0.024 0.001 0.001 0.004
*
SCENARIO REC        : ALTERNATIVE #1, I-10 WESTBOUND RAMP IMPROVEMENT
CALENDAR YEAR       : 2005
EVALUATION MONTH    : 7
ALTITUDE            : 1
AVERAGE SPEED       : 34.6 Areawide 0.0 45.9 0.0 54.1

END OF RUN
```

MOBILE6.2
OUTPUT

```
*****************************************************************************
* MOBILE6.2.01 (31-Oct-2002)                                                *
* Input file: LA621@73.IN (file 1, run 1).                                  *
*****************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading Registration Distributions from the following external
* data file: LA_REGD1.D
  M615 Comment:
               User supplied VMT mix.

* # # # # # # # # # # # # # # # # # # # # # # # # # # # #
* INTERIM #1, SIGNAL TIMING OPTIMIZATION FOR COMPLETE NETWORK, 38.0 MPH

* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # # # # #
  M 15 Warning:
             The combined area wide average speed entered cannot be
             greater than 27.0 miles per hour.
             The average speed will be reset to this value.
  M584 Warning:
            The user supplied area wide average speed of 27.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to a fixed combination of freeways,
            freeway ramps, arterial/collector and local roadways
            for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                   Calendar Year:  2005
                           Month:  July
                        Altitude:  Low
              Minimum Temperature:  72.3 (F)
              Maximum Temperature:  94.8 (F)
                Absolute Humidity:  123. grains/lb
                 Nominal Fuel RVP:   7.8 psi
                    Weathered RVP:   7.4 psi
              Fuel Sulfur Content:   92. ppm

              Exhaust I/M Program:  No
                 Evap I/M Program:  No
                      ATP Program:  Yes
                 Reformulated Gas:  No
```

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Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.6657	0.2319	0.0246		0.0210	0.0013	0.0005	0.0510	0.0040	1.0000

Composite Emission Factors (g/mi):

Composite VOC :	1.248	1.268	0.791	1.222	1.500	0.767	1.023	0.567	3.05	1.218
Composite NOX :	0.845	0.946	0.957	0.947	4.321	1.680	1.500	11.187	1.01	1.474

```
*************************************************************************
* MOBILE6.2.01 (31-Oct-2002)                                            *
* Input file: LA621@73.IN (file 1, run 2).                              *
*************************************************************************
  M603 Comment:
              User has disabled the calculation of REFUELING emissions.


* Reading Registration Distributions from the following external
* data file: LA_REGD1.D
  M615 Comment:
              User supplied VMT mix.

* # # # # # # # # # # # # # # # # # # # # # # # # # # #
* ALTERNATIVE #1, LA 621@73 INTERSECTION IMPROVEMENT

* File 1, Run 2, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of  2.5
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                   Calendar Year:  2005
                           Month:  July
                        Altitude:  Low
              Minimum Temperature:  72.3 (F)
              Maximum Temperature:  94.8 (F)
                Absolute Humidity:  123. grains/lb
                 Nominal Fuel RVP:   7.8 psi
                    Weathered RVP:   7.4 psi
              Fuel Sulfur Content:   92. ppm

              Exhaust I/M Program:  No
```

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```
                Evap I/M Program:  No
                     ATP Program:  Yes
                Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:               <6000     >6000     (All)
                       ------    ------    ------    ------    ------    ------    ------    ------    ------    ------

  VMT Distribution:    0.6657    0.2319    0.0246              0.0210    0.0013    0.0005    0.0510    0.0040    1.0000
 ---------------------------------------------------------------------------------------------------------------------
Composite Emission Factors (g/mi):
    Composite VOC :     10.427     9.282     5.515     8.920    13.352     1.594     1.975     1.679     10.52     9.640
    Composite NOX :      1.911     1.783     1.843     1.789     3.153     2.584     2.293    17.955      0.88     2.721
 ---------------------------------------------------------------------------------------------------------------------
*************************************************************************
* MOBILE6.2.01 (31-Oct-2002)                                            *
* Input file: LA621@73.IN (file 1, run 3).                              *
*************************************************************************
  M603 Comment:
              User has disabled the calculation of REFUELING emissions.


* Reading Registration Distributions from the following external
* data file: LA_REGD1.D
  M615 Comment:
              User supplied VMT mix.

* # # # # # # # # # # # # # # # # # # # # # # # # # # #
* ALTERNATIVE #1, I-10 WESTBOUND RAMP IMPROVEMENT

* File 1, Run 3, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # # # #
  M584 Warning:
            The user supplied area wide average speed of 34.6
            will be used for all hours of the day.  100% of VMT
            has been assigned to a fixed combination of freeways,
            freeway ramps, arterial/collector and local roadways
            for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                   Calendar Year:  2005
                           Month:  July
                        Altitude:  Low
              Minimum Temperature:  72.3 (F)
              Maximum Temperature:  94.8 (F)
```

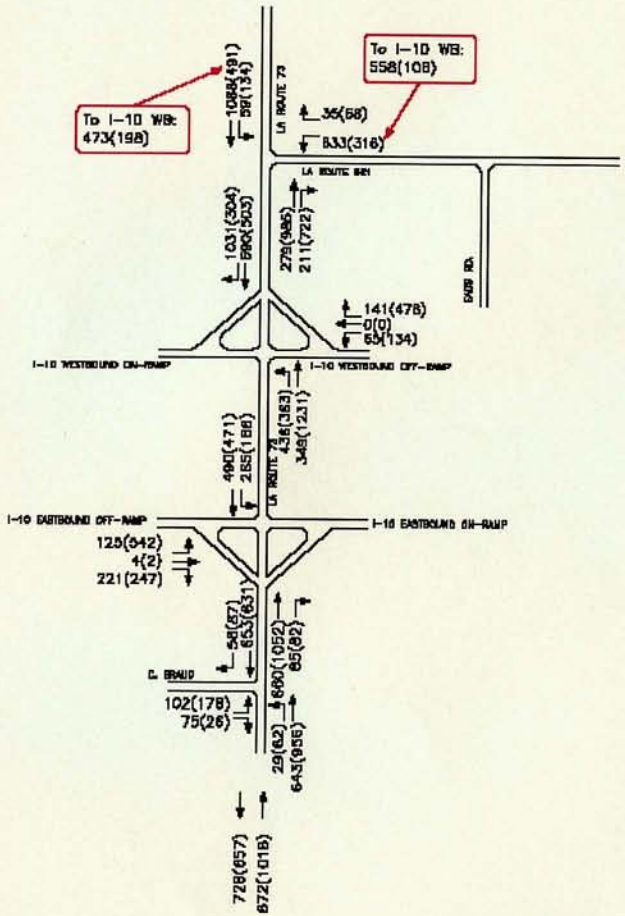
Absolute Humidity: 123. grains/lb
Nominal Fuel RVP: 7.8 psi
Weathered RVP: 7.4 psi
Fuel Sulfur Content: 92. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: Yes
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.6657	0.2319	0.0246		0.0210	0.0013	0.0005	0.0510	0.0040	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	1.174	1.205	0.744	1.161	1.202	0.706	0.953	0.485	2.78	1.142
Composite NOX :	0.856	0.969	0.975	0.969	4.207	1.339	1.201	8.936	0.96	1.369

ATTACHMENT D

TRAFFIC COUNT INFORMATION



NOTE: N.T.S.

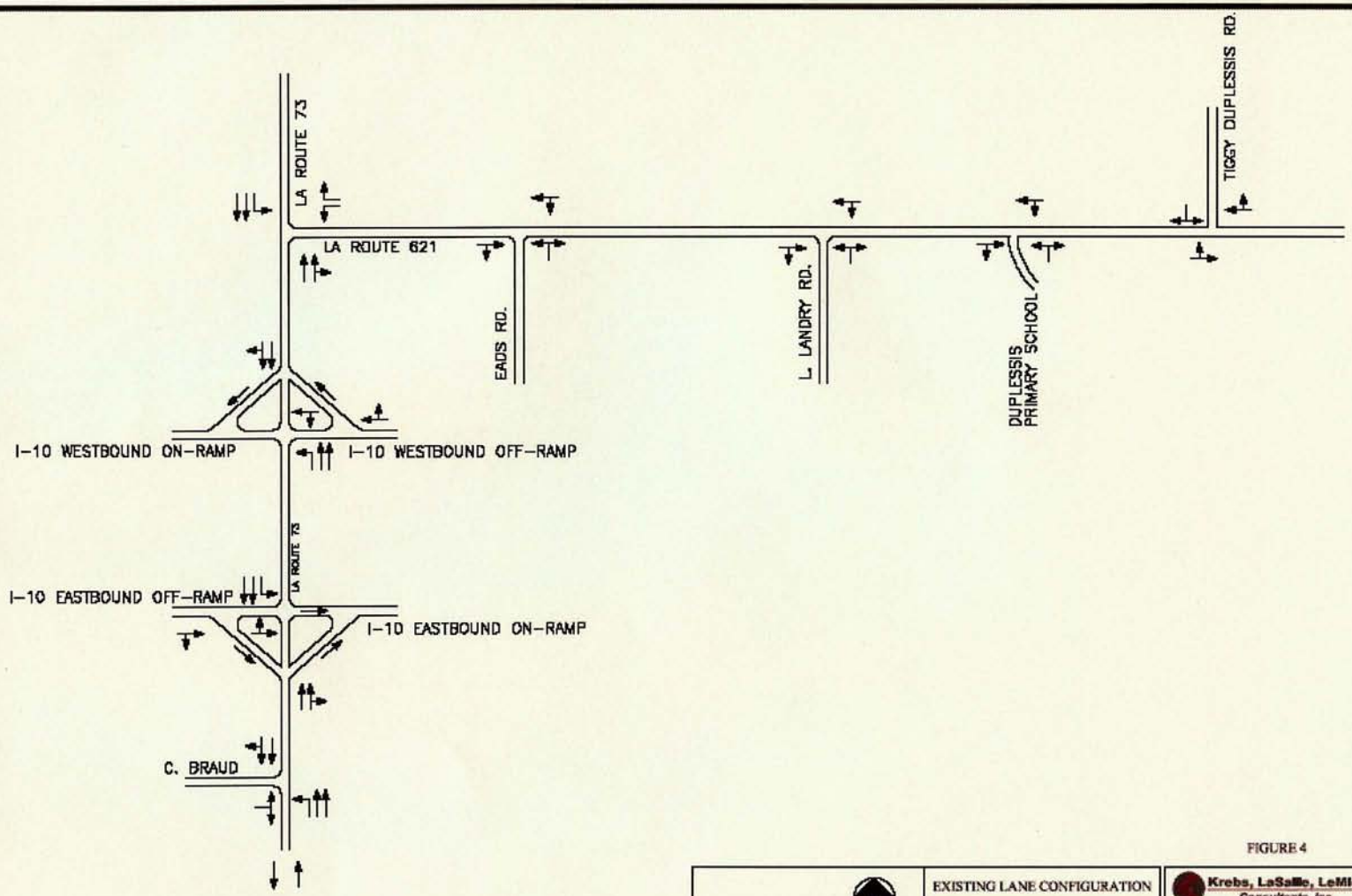
KEY
DD(DD) = AM(PM)
N

EXISTING VOLUMES
PEAK HOUR VOLUMES

LA 73 at LA 621
Dutch Town, LA

FIGURE 3

Krebs, LaSalle, LeMieux
Consultants, Inc.



NOTE: N.T.S.

N

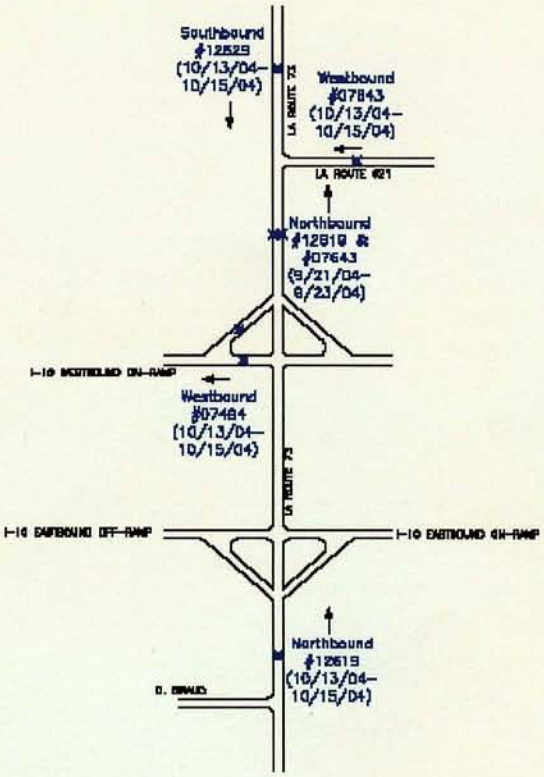
EXISTING LANE CONFIGURATION

LA 73 at LA 621
Dutch Town, LA

FIGURE 4

Krebs, LaSalle, LeMieux Consultants, Inc.

ct



NOTE: N.T.S.

FIGURE 5

N

24-HOUR MACHINE
COUNT LOCATIONS

LA 73 at LA 621
Dutch Town, LA

Krebs, LaSalle, LeMieux
Consultants, Inc.
3033 27th STREET METAIRIE, LA 70002
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