Traffic Engineering 101 - The Basics

Understanding the basic principles and how these drive the decisions regarding traffic management in Louisiana

LOUISIANA'S ON THE MOVE... DOTD BUILDS THE WAY

LOCAL TECHNICAL ASSISTANCE PROGRAM LTAP LOUISIANA TRANSPORTATION RESEARCH CENTER

Traffic Engineering 101

- Purpose:
  - To provide an overview of engineering principles; guidelines & laws which govern traffic management in Louisiana
  - Discuss how DOTD's decisions impact local communities
  - Facilitate feedback & questions from local agencies on state and local traffic engineering issues

Manual on Uniform Traffic Control Devices

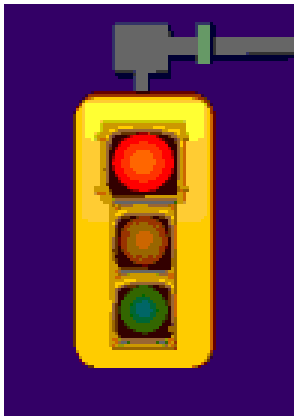
- Federal policy
- All states must adopt
- Set minimums for traffic control devices such as
  - Signs
  - Pavement marking
  - And signals

Engineering Directives and Standard Manual (EDSM)

- DOTD policy
- Signed by Chief Engineer
- Provides additional requirements

Basic Principle of Traffic Engineering

"*Everything is designed to meet Driver Expectancy*"



TR Engineering 101

- Module:
  1. Introduction & Overview (3/22/10)
  2. Speed Management Overview (4/26/10)
  3. School Zones (4/26/10)
  4. **Intersection Traffic Control (5/24/10)**
  5. **Traffic Signal (5/24/10)**
  6. **Roundabouts (5/24/10)**
  7. Sign Selection & Installation (6/28/10)
  8. Work Zones (6/28/10)
  9. Access Management (7/26/10)

Intersection Traffic Control & Management

- Control options
  - Stop control
  - Traffic signals
  - Roundabouts
- Evaluation, selection and maintenance of each

Suggestions & Feedback

- Specific questions you have regarding the major topics:
  - DOTD's traffic engineering staff & general program
  - Speed management decisions
  - Intersections
  - Traffic signals
  - Roundabouts
  - Signs
  - Access management

More Suggestions?

- Other traffic issues or questions?
- Contact Jody Colvin at **Jody.Colvin@la.gov**
- or Marie B. Walsh at **mbwalsh@ltrc.lsu.edu**

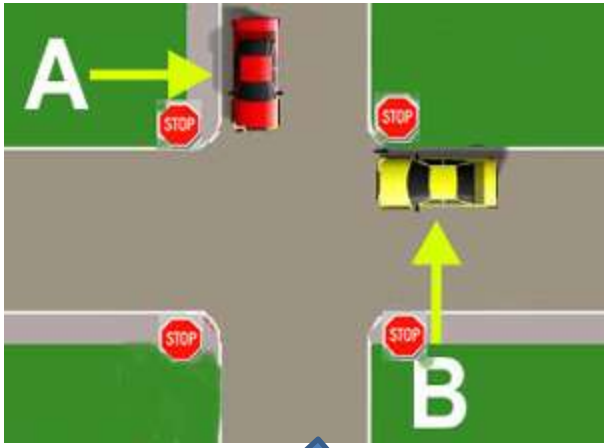
All Way Stop Intersections

MUTCD Section 2B.07

Multiway stop control can be useful as a safety measure at intersections if certain traffic conditions exist.

MUTCD Section 2B.07

Multiway stop control is used where the volume of traffic on the intersecting roads is approximately equal.



Volumes on Street A

=

Volumes on Street B

MUTCD Section 2B.07

The decision to install multiway stop control should be based on an engineering study.

Engineering Study

- Count data
- Delay study
- Crash investigation
- Site investigation

Criteria to Install: Crashes

5 or more reported crashes in a 12 month period which include right- and left-turn collisions as well as right-angle collisions.

Criteria to Install: Volumes

In the same 8 hour period:

- Total of both major street approaches averages at least 300 vehicles per hour
- Total of both minor street approaches averages at least 200 units per hour
- An average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour

Criteria to Install: Optional

- The need to control left-turn conflicts;
- The need to control vehicle/pedestrian conflicts
- Sight Distance Issues

Installation

Size

Min. 24” X 24” Oversize 48” X 48”

Location

- Right side of Road
- Close to the Intersection as practical
- See MUTCD 2003 Page 2A-10

Local Road Safety Program: Intersection Program

- Nominate Intersections
- Low Cost safety Improvement Packages
- Program website: https://www.ltrc.lsu.edu/ltap/lrsp.html
- Contact Marie Walsh 225 767-9184

Questions?

Contact:

Jody Colvin

(225) 242-4635

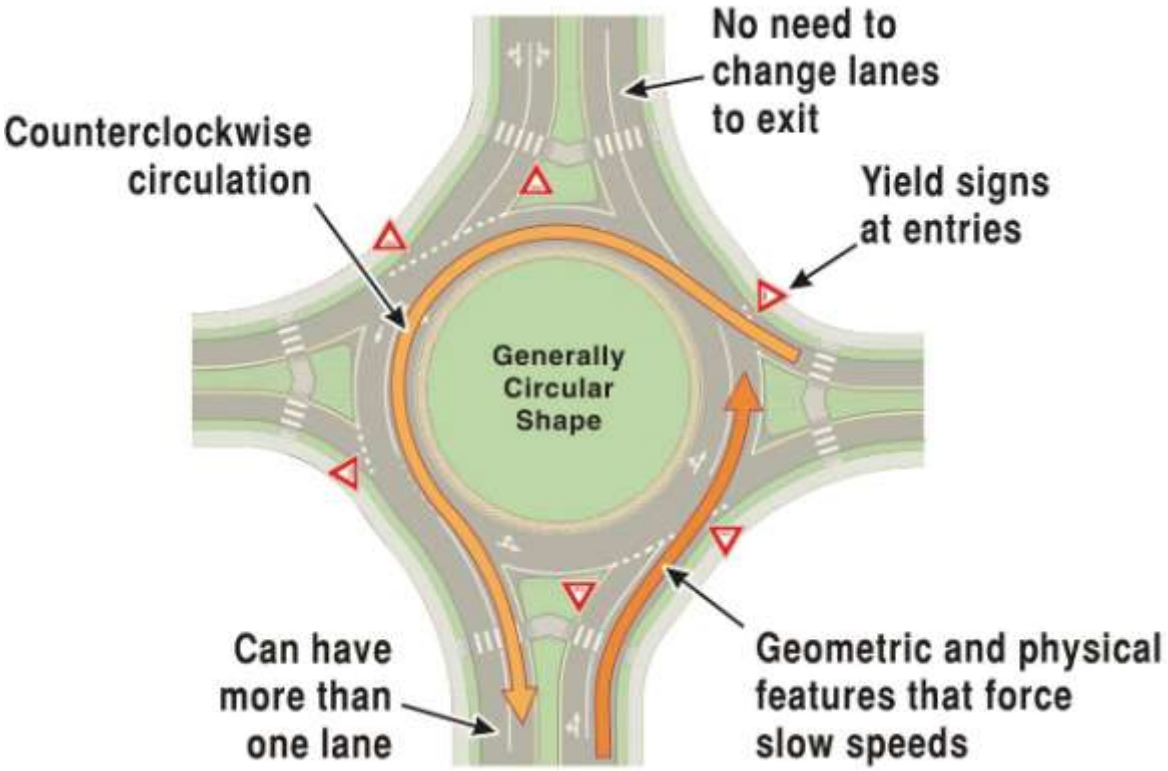
Jody.Colvin@la.gov

Roundabouts

Adapted from photo by Lee Rodegerdts (used with permission)

Key Roundabout Characteristics

- Circular shape, yield control on entry, and geometric features that create a low-speed environment



Presentation Outline

- **Characteristics of Roundabouts**
- Louisiana Roundabouts
- Benefits

Key Roundabout Characteristics

- Yield at entry
- No need to change lanes to exit
- Inscribed circle diameter much smaller than old traffic circles (110 ~ 150 ft)
- Operating speeds between 18~23 mph
- Channelized approaches (Splitter islands)
- Counterclockwise circulation
- Approximate capacities
  - Single lane ~ 25,000 veh/day
  - Double lane ~ 45,000 veh/day

Roundabout Category Comparison

Single-Lane Roundabout

Roundabout Category Comparison

Multilane-Roundabout

Roundabout Category Comparison

“Non-Conforming Traffic Circle”

Alexandria, LA

Presentation Outline

- Characteristics of Roundabouts
- **Louisiana Deployment Status**
- Benefits of Roundabouts

Louisiana Roundabouts Installed

- LA 59 @ LA 36 - Abita Springs
- LA 1067 @ Airport Road - Hammond
- LA 93 @ Ridge Road - Lafayette
- LA 92 @ Chemin Metairie Parkway - Lafayette metro (Youngsville)
- LA 89 @ Chemin Metairie Parkway – Lafayette metro (Youngsville)

Louisiana Roundabouts Under Construction

- LA 1091 @ Brownswitch Road - Slidell
- US 11 @ Cleo - Slidell
- LA 1067 @ Airport Road - Hammond

Louisiana Roundabouts Under Consideration

- Lafayette urban area – Over 120 intersections identified
- Baton Rouge urban area – US 190 @ Juban and Eden Church Rd
  - US 190 @ Juban
  - US 190 @ Eden Church Rd
- North Shore
  - US 51 Bus @ I-12
  - LA 1077 @ LA 1085

Roundabouts in Louisiana

LA 93 (Rue De Belier) @ LA 342 (Ridge Rd)

Roundabouts in Louisiana

LA 92 @ Chemin Metairie Parkway

Roundabouts in Louisiana

LA 59 @ LA 36

Presentation Outline

- Characteristics of Roundabouts
- Louisiana Deployment Status
- **Benefits of Roundabouts**

Benefits of Roundabouts

- Traffic Safety
  - Reduce total crashes by 35% and injury crashes by 76%
  - Reduce fatalities over 90%
- Pedestrian Safety
  - Reduced vehicle speeds, focus on one traffic stream
  - May cause issues for visually impaired pedestrians
- Traffic Calming
  - Reduce vehicle speeds using geometric design

Benefits of Roundabouts (Continued)

- Operational Performance
  - Lower overall delay than other controlled intersections
  - Specific users do not receive priority
- Ongoing Operations and Maintenance
  - Lower operating and maintenance costs than a traffic signal
  - Lower life cycle cost
- Aesthetics
- Approach Roadway Width
  - May not require lengthy turn lanes

Benefits of Roundabouts (Continued)

"Roundabouts First" policies

- New York
- Virginia
- Washington
- Wisconsin
- Maryland
- …and growing number of municipalities

Conclusion

- Roundabouts are substantially different from the older “traffic circles” or “rotary” intersections
- Roundabouts provide superior safety and operational benefits compared to other types of intersections
- Louisiana is leaning forward in the deployment of roundabouts

References

- Federal Highway Administration. *Technical Summary on Roundabouts*. 2010.
- Federal Highway Administration. *Roundabouts: An Informational Guide*. June 2000.
- National Cooperative Highway Research Program. *Roundabouts: An Informational Guide, 2nd Edition*. 2010.
- Federal Highway Administration. *Technical Summary on Mini-Roundabouts*. 2010.
- National Cooperative Highway Research Program. *Roundabouts in the United States*. 2007.
- Insurance Institute for Highway Safety. *Crash Reductions Following Installation of Roundabouts in the United States*. March 2000.
- Maryland Department of Transportation. *Maryland's Roundabouts: Accident Experience and Economic Evaluation*. March 2007.

References (Continued)

- Transportation Research Board. *Crossing Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians with Vision Disabilities*. 2010.
- Transportation Research Board. *Highway Capacity Manual*. 2010.
- American Association of State Highway and Transportation Officials. *A Policy on Geometric Design of Highways and Streets*. 2004.
- Kansas Department of Transportation. *Kansas Roundabout Guide: A Supplement to FHWA's Roundabouts: An Informational Guide*. October 2003.
- Federal Highway Administration. *Manual on Uniform Traffic Control Devices*. January 2009.
- Illuminating Engineering Society. *Design Guide for Roundabout Lighting*. February 2008.

For More Information

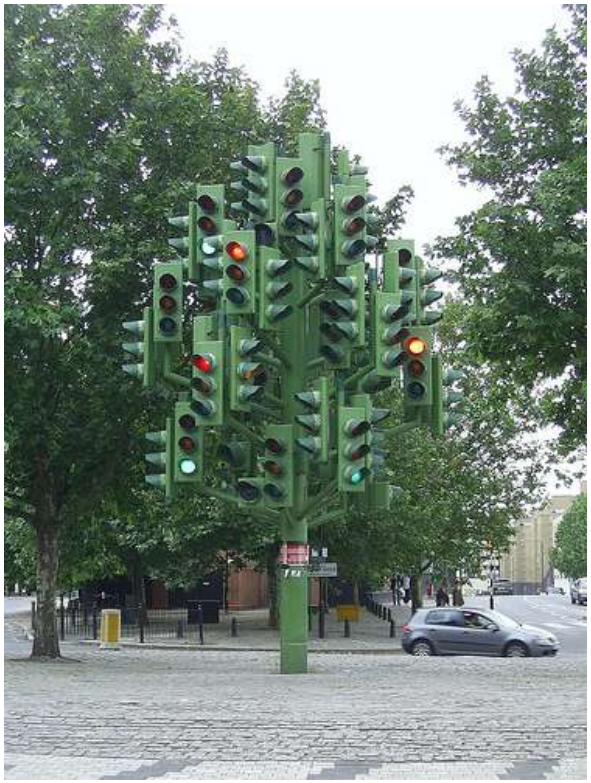
- LTAP/LMA Roundabout webinar on August 23, 2010. 2:00 PM

- DOTD Roundabout EDSMs:
  - “Roundabout Study and Approval” (VI.1.1.5)
  - “Roundabout Design” (VI.1.1.6)

- Visit FHWA’s intersection safety web site for more information on Roundabouts:

  http://safety.fhwa.dot.gov/intersection

Traffic Signal Intersections



MUTCD Part 4
Highway Traffic Signals

- Chapter 4A General
- Chapter 4B Signals – General
- Chapter 4C Signals – Needs Studies
- Chapter 4D Features
- Chapter 4E Pedestrian Features

MUTCD Signal Installation

- An **engineering study** of traffic conditions, pedestrian characteristics, and physical characteristics of the location **shall be performed** to determine whether installation of a traffic control signal is justified at a particular location.

MUTCD Signal Installation

A traffic control signal should not be installed unless an engineering study indicates that installing a traffic control signal will improve the overall safety and/or operation of the intersection.

MUTCD- Warrants

- Warrant 1, Eight-Hour Vehicular Volume.
- Warrant 2, Four-Hour Vehicular Volume.
- Warrant 3, Peak Hour.
- Warrant 4, Pedestrian Volume.
- Warrant 5, School Crossing.
- Warrant 6, Coordinated Signal System.
- Warrant 7, Crash Experience.
- Warrant 8, Roadway Network.

MUTCD-Warrants

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

MUTCD Signal Installation

A traffic control signal should not be installed unless an engineering study indicates that installing a traffic control signal will improve the overall safety and/or operation of the intersection.

MUTCD Signal Study Counts

- At least a 24 hour vehicle count on a Tues, Wed or Thurs for all approaches entering the intersection
- Peak hour vehicle and pedestrian counts for at least the highest hours in the A.M. and the P.M.
- Peak hour counts for any period that can be considered a secondary peak.

MUTCD Signal Study Data

- The posted or statutory speed limit or the 85th percentile speed on the uncontrolled approaches to the location
- A condition diagram showing the physical layout of the intersection
- A collision diagram showing crash experience at or near the intersection.

DOTD – EDSM VI.3.1.6
April 17, 2008

All new signals shall:

i. Meet Warrant 1a (100%) or Warrant 7 from the MUTCD, and

ii. Be spaced at least ½ mile from an adjacent signal, and

iii. Service a public road on at least one minor approach

DOTD – EDSM VI.3.1.6
April 17, 2008

Applies to all **new** signals on state highways.

Including signal permits, construction projects and DOTD installed.

DOTD – EDSM VI.3.1.6

Why only 2 warrants?

- Study conducted internally
- Main volume warrant
- Crash warrant

Why ½ mile spacing?

Better coordination between signals for:

- Better traffic flow
- Consistent speeds

DOTD – Signal Design Manual

Defines DOTD's process for:

Signal studies

Left turn phasing

Timing Analysis

Pole layouts

Head placement

Controller placements

Detection types and layout

Sign placements

Material types

... And much more!

DOTD – Signal Design Manual

Located on the DOTD Traffic Engineering website

Currently in the process of being updated

Existing Signals

Unwarranted Signals

Removal of unwarranted signals can reduce all types of crashes by 24%

Existing Signal Upgrades

- DOTD policy memorandum signed by the Chief Engineer and the Assistant Secretary of Operations
- States no upgrades on existing signals can be performed without a traffic study
- If warrants are not met and/or there is no engineering justification for the signal then a signal removal study must be performed

MUTCD Signal Installation

A traffic control signal should not be installed unless an engineering study indicates that installing a traffic control signal will improve the overall safety and/or operation of the intersection.

Signal Removal Study

- The signal will be flashed for 30 days.
- The DTOE will observe the location to determine if there are any safety or operational issues.
- If no issues then the signal heads and signs will be removed.
- After 3 months the poles and cabinet will be removed.

Questions?

Contact:

Jody Colvin

(225) 242-4635

Jody.Colvin@la.gov

Traffic Signal Installation & Maintenance

DOTD – TSI

Traffic Signal Inventory

Each signal has an unique TSI number

Includes a layout of the intersection and signal equipment

Tracks updates and maintenance

Records Operation of signal such as:

- red, yellow and green time
- phasing
- timing plans
- emergency operations

DOTD – TSI

TRAFFIC SIGNAL INVENTORY — TSI NO. 00056

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION — District — SHEET: 1 of 5

INTERSECTION: LA 659 (E. PARK AVE) @ LA 3087 (PROSPECT BLVD) — STATION ID:

CITY: HOUMA — PARISH: Terrebonne — INSTALLATION DATE:

TYPE SIGNAL: Actuated Controller — LAST REVISION DATE:

PHASES	Ø1 + Ø5			Ø2 + Ø6			Ø3 + Ø7			Ø4 + Ø8									FI
INTERVALS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
SIGNAL FACES 1			R			R	R/G	R/Y	R/R	G	Y	R							R
2			R			R			R	G	Y	R							Y
3			R			R			R	G	Y	R							Y
4			R			R			R	G	Y	R							Y
5			R			R			R	G	Y	R							Y
6			R			R	R/G	R/Y	R/R	G	Y	R							R
7			R	G	Y	R	R/G	R/Y	R/R			R							R
8			R	G	Y	R			R			R							R
9			R	G	Y	R			R			R							R
10	R/G	R/Y	R/R	G	Y	R			R			R							R
11	R/G	R/Y	R/R	G	Y	R			R			R							R
12			R	G	Y	R			R			R							R
13																			
14																			
15																			
16																			

Hours of Flashing Operati Emergency

TIME SEC	8.0	5.0	1.0	##	5.0	1.0	6.0	5.0	1.0	##	5.0	1.0							Offset = 62 sec
FO SEC																			
YP SEC																			
SPLIT SEC	14		14	36		36	12		12	28		28							

PLAN - CYCLE LENGTH - 90 TIMES OF OPERATION - ALL DAY

TIME SEC																			Offset = sec
FO SEC																			
YP SEC																			
SPLIT SEC																			

PLAN - CYCLE LENGTH - TIMES OF OPERATION -

TIME SEC																			Offset = sec
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PLAN - CYCLE LENGTH - TIMES OF OPERATION -

TIME SEC																			Offset = sec
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PLAN - CYCLE LENGTH - TIMES OF OPERATION -

TIME SEC																			Offset = sec
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PLAN - CYCLE LENGTH - TIMES OF OPERATION -

PHASING SEQUENCE: Ø1 + Ø5 | Ø2 + Ø6 | Ø3 + Ø7 | Ø4 + Ø8 | 0 | 0

SIGNAL WARRANT: — MAINTAINED BY: LADOTD — CONTROLLER MANUF: — SYSTEM #:

MASTER/ SLAVE: — MASTER INT #: — COORDINATED WITH TSIFS: 61

DOTD – TSI

TRAFFIC SIGNAL INVENTORY

TSI NO. 00056

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION — District — SHEET: 1 of 5

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INTERVALS		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
SIGNAL FACES	1			R			R	R/G	R/Y	R/R	G	Y	R							R
	2			R			R			R	G	Y	R							Y
	3			R			R			R	G	Y	R							Y
	4			R			R			R	G	Y	R							Y
	5			R			R			R	G	Y	R							Y
	6			R			R	R/G	R/Y	R/R	G	Y	R							R
	7			R	G	Y	R	R/G	R/Y	R/R			R							R
	8			R	G	Y	R			R			R							R
	9			R	G	Y	R			R			R							R
	10	R/G	R/Y	R/R	G	Y	R			R			R							R
	11	R/G	R/Y	R/R	G	Y	R			R			R							R
	12			R	G	Y	R			R			R							R
	13																			
	14																			
	15																			
	16																			
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YP	SEC																			
SPLIT	SEC	14		14	36		36	12		12	28		28							

PLAN - CYCLE LENGTH - 90 TIMES OF OPERATION - ALL DAY

Hours of Flashing Operati Emergenci

DOTD – TSI

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SIGNAL FACES 1			R			R	R/G	R/Y	R/R	G	Y	R							R
2			R			R			R	G	Y	R							Y
3			R			R			R	G	Y	R							Y
4			R			R			R	G	Y	R							Y
5			R			R			R	G	Y	R							Y
6			R			R	R/G	R/Y	R/R	G	Y	R							R
7			R	G	Y	R	R/G	R/Y	R/R			R							R
8			R	G	Y	R			R			R							R
9			R	G	Y	R			R			R							R
10	R/G	R/Y	R/R	G	Y	R			R			R							R
11	R/G	R/Y	R/R	G	Y	R			R			R							R
12			R	G	Y	R			R			R							R
13																			
14																			
15																			
16																			
TIME SEC	8.0	5.0	1.0	##	5.0	1.0	6.0	5.0	1.0	##	5.0	1.0							Offset =
FO SEC																			62 sec
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SPLIT SEC	14		14	36		36	12		12	28		28							

PLAN - CYCLE LENGTH - 90 TIMES OF OPERATION - ALL DAY

TIME SEC																			Offset =
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PLAN - CYCLE LENGTH - TIMES OF OPERATION -

TIME SEC																			Offset =
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PLAN - CYCLE LENGTH - TIMES OF OPERATION -

PHASING SEQUENCE: Φ1 + Φ5 | Φ2 + Φ6 | Φ3 + Φ7 | Φ4 + Φ8 | 0 | 0

SIGNAL WARRANTS: — MAINTAINED BY: LADOTD — CONTROLLER MANUF: — SYSTEM #:

MASTER/ SLAVE: — MASTER AT TSI #: — COORDINATED WITH TSI #S: 51

Hours of Flashing Operati Emergency

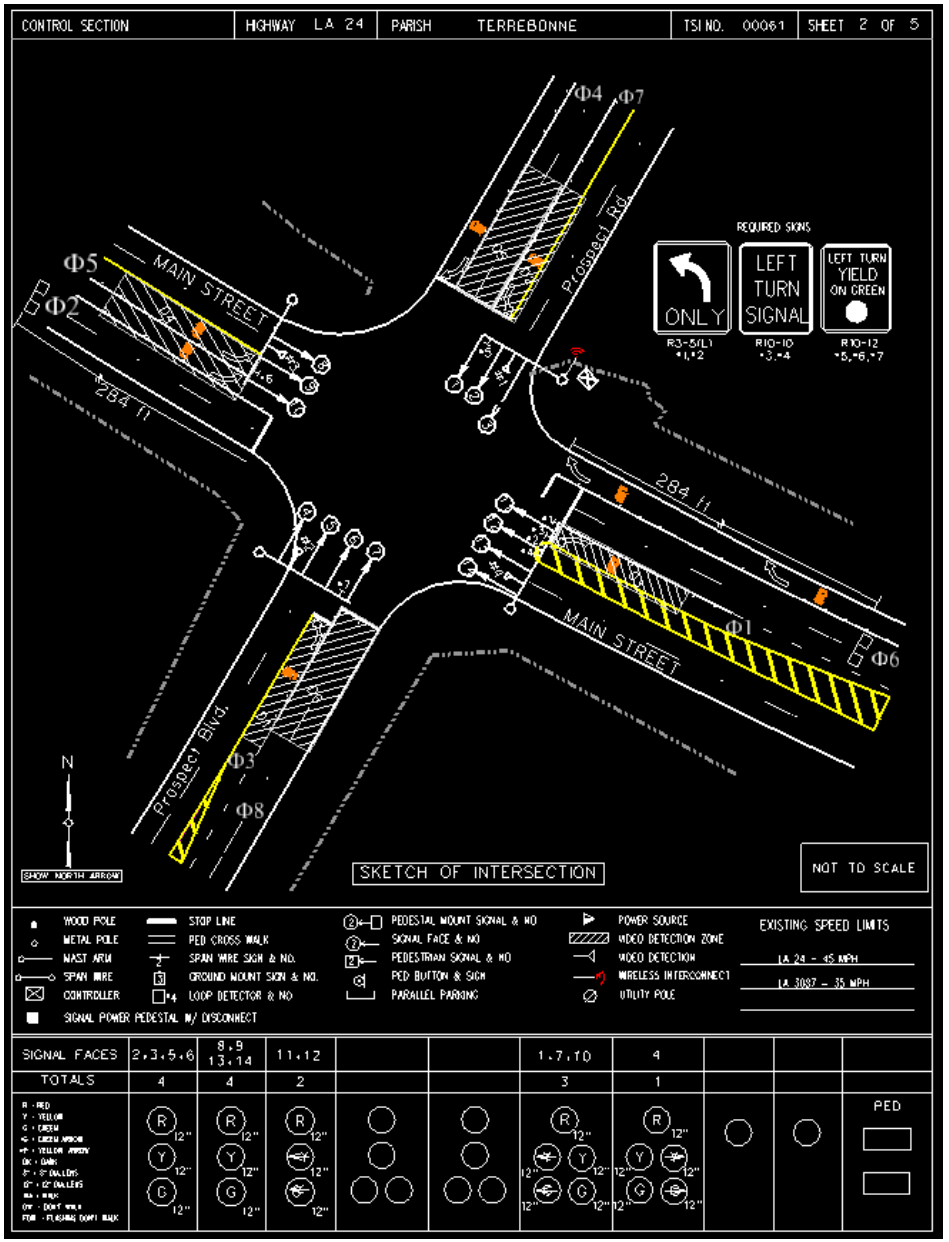
DOTD – TSI

TRAFFIC SIGNAL INVENTORY							TSI NO. 00056		
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION							SHEET: 3 OF 5		
CONTROL SECTION:	HIGHWAY: LA 24						PARISH: Terrebonne		
Phase Timing Parameters									
Phase Designation		1	2	3	4	5	6	7	8
Movement Description		←	↓	↑	←	↳	↑	↰	→
PARAMETER	RANGE								
MIN GREEN (MIN I)	0 - 99.0	4.0	10.0	4.0	10.0	4.0	10.0	4.0	10.0
PASSAGE TIME	0 - 9.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
MAX GREEN I (MAX I)	0 - 99.0	15.0	40.0	15.0	40.0	15.0	40.0	15.0	40.0
MAX GREEN II (MAX II)	0 - 99.0								
YELLOW CLEARANCE (YEL)	3 - 9.9	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
RED CLEARANCE (RED)	0 - 9.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
WALK (WALK)	0 - 99.0								
PED CLEARANCE (P CLR)	0 - 99.0								
ADDED INITIAL GREEN	0 - 9.9		2.0				2.0		
TIME TO REDUCE	0 - 99.0		20.0				20.0		
TIME BEFORE REDUCTION	0 - 99.0		10.0				10.0		
MIN GAP	0 - 9.9								
MAX INITIAL GREEN	0 - 99								
WALK 2	0 - 99.0								
PED CLEARANCE 2	0 - 99.0								
MAX 3	0 - 99.0								
MAX EXTENSION	0 - 99.0								
RECALL	CODES	MOF	MIN	MOF	MOF	MOF	MIN	MOF	MOF
LOOP # - DELAY (in sec.)	0 - 99.0								
LOOP # - EXTEND (in sec.)	0 - 9.9								

RECALL FUNCTIONS	
MON	MEMORY ON
MOF	MEMORY OFF
MIN	MINIMUM
MAX	MAXIMUM
PMN	PEDESTRIAN AND MINIMUM
PMX	PEDESTRIAN AND MAXIMUM

Note 1:	
Note 2:	
Note 3:	

DOTD – TSI


CONTROL SECTION
HIGHWAY LA 24
PARISH TERREBONNE
TSI NO. 00061
SHEET 2 OF 5
Φ4
Φ7
Φ5
Φ2
MAIN STREET
PROSPECT RD
284 ft
REQUIRED SIGNS
ONLY
LEFT TURN SIGNAL
LEFT TURN YIELD ON GREEN
R3-5(L)
R10-10
R10-12
284 ft
MAIN STREET
Φ1
Φ6
Prospect Blvd.
Φ3
Φ8
N
SHOW NORTH ARROW
SKETCH OF INTERSECTION
NOT TO SCALE
WOOD POLE
METAL POLE
MAST ARM
SPAN WIRE
CONTROLLER
SIGNAL POWER PEDESTAL W/ DISCONNECT
STOP LINE
PED CROSS WALK
SPAN WIRE SIGN & NO.
GROUND MOUNT SIGN & NO.
LOOP DETECTOR & NO
PEDESTAL MOUNT SIGNAL & NO
SIGNAL FACE & NO
PEDESTRIAN SIGNAL & NO
PED BUTTON & SIGN
PARALLEL PARKING
POWER SOURCE
VIDEO DETECTION ZONE
VIDEO DETECTION
WIRELESS INTERCONNECT
UTILITY POLE
EXISTING SPEED LIMITS
LA 24 - 45 MPH
LA 3087 - 35 MPH
SIGNAL FACES
TOTALS
2,3,5,6
8,9
13,14
11,12
1,7,10
4
PED

Maintenance

Annual Inspections for:

- Equipment
- Signing
- Striping
- Timing

Inspection Sheets

S NALIZED INTERSECTION INSPEC ON

TSI # _____-_____

Latitude _____ Longitude _____

SIGNAL TYPE

FIXED TIME FLASHING BEACON FLASHING SIGN FULLY ACTUATED SEMI ACTUATED

 # OF CROSSWALKS 1 2 3 4 5

 # OF PED PUSH BUTTON 1 2 3 4 5

POLICE HAND CORD YES NO

INTERCONNECT

NO TWISTED PAIR PHONE LINE FIBER OTHER:_____

COMMUNICATIONS

NO PHONE LINE FIBER OTHER:_____

CABINET MOUNT TYPE

GROUND POLE PEDASTAL

CABINET TYPE

4 PHASE 8 PHASE OTHER:_____

CONTROLLER TYPE

AUTO SENSOR CONTROLS CO.	CROUSEHINDS	EAGLE EF120	EAGLE EF 140
EAGLE EF20	EAGLE EPAC	ELECTO-TECHNICS	ELECTONICS
GAMMATRONIC	GTE CORP	GW EAGLE	HONEYWELL
KENTRON 1700	KENTRON KFA 200	KENTRON KSA 100	KENTRON KSC
KENTORN KST	MARATHON	MARBELLITE M30	MARBELLITE M41
NAZTEC TS1	NAZTEC TS2	NEMA	SECO SOUTH
SVA 367	SVA 385	TIME-O-MATIC	TRAFF-O-MATIC
TRAFFIC CONTROL	TRAFFIC SIGNAL INC	TSC	

OTHER_____

CONFLICT MONITOR TYPE

POLE LAYOUT

BOXED DIAGONAL MAST ARM MAST ARM & PEDASTAL PEDASTALS V SPAN Z SPAN

POLE TYPES

# OF	SINGLE MAST ARM	DOUBLE MAST ARM	METAL	WOOD	UTILITY POLE	PEDASTAL
	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

DETECTION

LOOPS: YES NO

TOTAL # OF: CAMERAS 1 2 3 4 5 RADAR 1 2 3 4 5 OTHER: (NOT LOOPS)_____ 1 2 3 4 5

** ATTACH MARKED UP TSI WITH NORTH ARROW, SIGNAL HEAD #'S, LANE #'S, AND LANE TYPES

Inspection Sheets

TRAFFIC SIGNAL PREVENTIVE MAINTENANCE REPORT PAGE 1 OF 2

WORK ORDER NUMBER:

LOCATION: **INTERSECTION #:**

ACTIVITY	OPERATING PROPERLY	ADJUSTED	CLEANED	REPAIRED	REPLACED	REFERRED	REMOVED	NOT APPLICABLE
Visual inspection of cabinet & miscellaneous equipment								
Documentation present								
Cabinet prints present								
Controller operating properly								
Controller programming								
Inspect contacts (electromechanical)								
Detectors operating properly								
Conflict monitor tested for conflict								
Conflict monitor tested for absent ind.								
Conflict monitor tested for voltage mon.								
All wiring connections check for tightness.								
Signal heads, alignment and unobstructed								
Signal lamps operational								
Signal lens, visual inspection								
Signal heads, clearance from roadway								
Visual inspection of signs								
Sign(s), straight and mounting tight								
Visual inspection of signal cable								

Inspection Sheets

TRAFFIC SIGNAL PREVENTIVE MAINTENANCE REPORT PAGE 2 OF 2

WORK ORDER NUMBER: _____

LOCATION: INTERSECTION #:

ACTIVITY	OPERATING PROPERLY	ADJUSTED	CLEANED	REPAIRED	REPLACED	REFERRED	REMOVED	NOT APPLICABLE
Visual inspection of span cable								
Pedestrian detector tested								
Loops inspected for physical damage								
Span attachments and hardware tight								
Signal support poles								
Service disconnect visual inspection and locked								

SIGNATURE OF TECHNICIAN PREFORMING MAINTENANCE: _____

DATE: _____

Maintenance

Update TSI when any changes are made

District 08 Stats

Signals & Flashing Beacons: 271

Flashing Beacons: 88

Signals: 183

Signal Electricians: 7 (2 man crews)

Engineering Technicians: 3

Traffic Engineers: 3

Signal Costs

Installation costs: $150,000

Utility Costs: w/ LED $17/month
w/ Bulbs $148/month

District 08
Maintenance Call Outs per month:
66 signal calls during working hours
18 signal call after working hours

Questions?

Contact:

David Backstedt

(318) 561-5105

David.Backstedt@la.gov

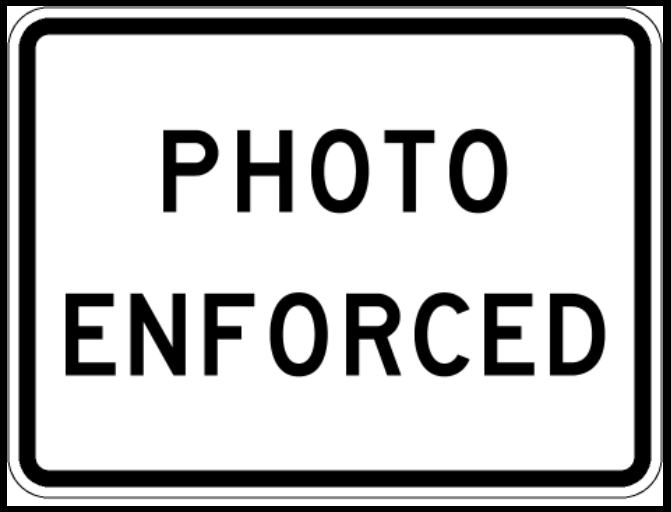


Photo Enforcement and DOTD

Peter A. Allain, PE, PTOE

Photo Enforcement

- Highway Safety
- Existing Installations
- Legislation
- Future Installations

Highway Safety

Engineering

Enforcement

Education

Highway Safety

Engineering
Enforcement
Education

Photo Enforcement

Highway Safety

- FACT: Photo Enforcement is a tool that has been proven to improve compliance with laws and therefore can improve safety.
- 2010 HSM: Photo enforcement can reduce angle crashes by 26%

Highway Safety Manual

Engineering tools that can reduce crashes

- Photo Enforcement – 26% Angle +18% rear ends
- Lighting – 38% nighttime injury
- Remove unwarranted signal – 24%
- Convert signal to roundabout – 48%
- Protected Only – 99% left turn crashes

Existing Red Light Installations in Louisiana

- New Orleans
- Jefferson Parish
- Baton Rouge
- Lafayette

Existing Speed Vans in Louisiana

- Lafayette
- Baker
- Zachary
- Livingston Parish
- Gretna
- Westwego

Existing Installations Approved by DOTD in 2008

- Lafayette –
  - Red light running
  - Speeding
- Baton Rouge –
  - Red light running

First year's performance for Lafayette

Effectiveness of Red-Light Cameras for Reducing the Number of Crashes at Intersections in the City of Lafayette

Submitted to:

Dan Magri

LADOTD

By:

Dr. Helmut Schneider
Associate Dean for Research and Economic Development
Ourso Family Distinguished Professor of Information Systems
and Chairman of Information Systems and Decision Sciences at
Louisiana State University
Ph.: 225-578-2516
Fax: 225-578-2511
Homepage: http://isds.bus.lsu.edu
LA Traffic Crash Reports http://lhsc.lsu.edu

Acknowledgment: The report was prepared with the help of Cory Hutchinson (HSRG) and Christian Raschke (HSRG). The research was supported through a grant from the Louisiana DOTD.

First year's performance for Lafayette

	Time Frame	Right Angle	Rear End	Other	Total
Before	**Jan 07 - Dec 07**	**45**	**66**	**15**	**126**
After	**Apl 08 - Mar 09**	**30**	**65**	**15**	**110**
	Percent Change	**-33%**	**-2%**	**0%**	**-13%**

Highway Safety Manual: Photo enforcement can reduce angle crashes by 26% and increase rear end crashes by 18%.

Legislation

Photo Enforcement
1997 – 2009 Legislation

2001; HB 1591 –Municipalities – Failed in House
2001; SB 1059 – Municipalities – died in committee
2004; HB 1078 – Municipalities – Failed in House
2004; SB 612 – Municipalities – died in House
2005; SB 168 – New Orleans – withdrawn
2005; HB 368 – New Orleans – died in House
2008; SB 396 – Municipalities – Failed in Senate
2009; HB 254 – Statewide – died in committee
2009; HB 480 – Prohibit – died in committee

Photo Enforcement 2010 Legislation

HB 159 – Require vote of people – withdrawn
HB 160 – Prohibit - deferred
HB 283 – Court oversight -?
HB 374 – Limits fines - held in committee
HB 383 – Require vote of people - ?
HB 786 – Justice of Peace oversight- ?
HB 859 – Prohibit – held in committee
HB 1149 – Railroad crossings – passed House

HB 1147

Allows the installation of photo enforcement at railroad grade crossing and allocates fees:

- 1/3 of fees to local government
- 1/3 of fees to rail safety fund
- 1/3 of fees to new passenger rail fund

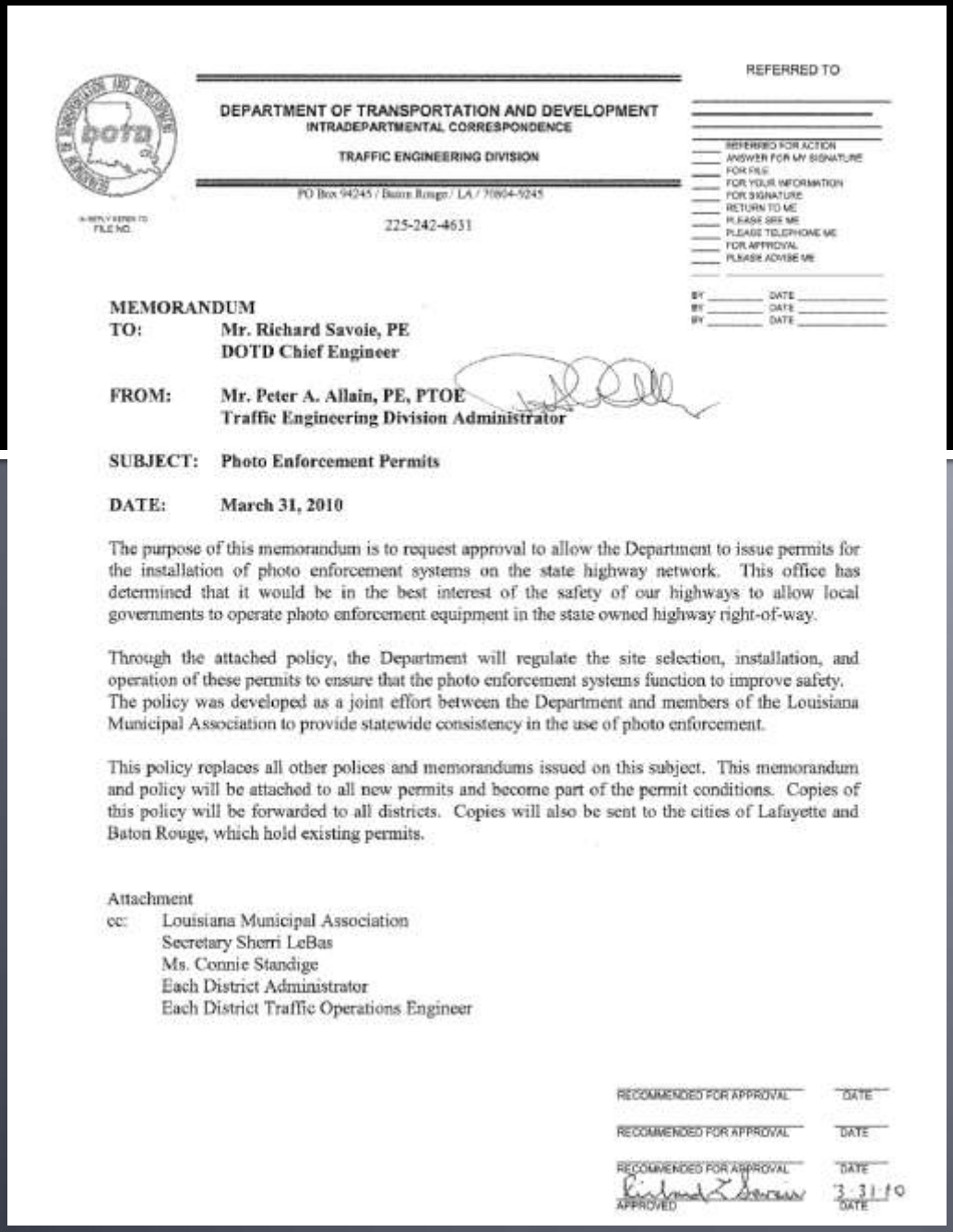
Future Installations

- Red Light Enforcement at DOTD owned signals (Sites will be selected based on safety.)
- Speed vans on state highways will require permits from DOTD.

Future Installations and New DOTD Policy

- Cooperative effort between Louisiana Municipal Association and DOTD.
- Sets statewide standards.
- Permits for DOTD owned signals and for speed enforcement vans/trailers.
- DOTD receives no money.

New DOTD Policy



DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
INTRADEPARTMENTAL CORRESPONDENCE

TRAFFIC ENGINEERING DIVISION

PO Box 94245 / Baton Rouge / LA / 70804-9245

225-242-4631

REFERRED TO

___ REFERRED FOR ACTION
___ ANSWER FOR MY SIGNATURE
___ FOR FILE
___ FOR YOUR INFORMATION
___ FOR SIGNATURE
___ RETURN TO ME
___ PLEASE SEE ME
___ PLEASE TELEPHONE ME
___ FOR APPROVAL
___ PLEASE ADVISE ME

BY _____ DATE _____
BY _____ DATE _____
BY _____ DATE _____

MEMORANDUM

TO: **Mr. Richard Savoie, PE**
DOTD Chief Engineer

FROM: **Mr. Peter A. Allain, PE, PTOE**
Traffic Engineering Division Administrator

SUBJECT: **Photo Enforcement Permits**

DATE: **March 31, 2010**

The purpose of this memorandum is to request approval to allow the Department to issue permits for the installation of photo enforcement systems on the state highway network. This office has determined that it would be in the best interest of the safety of our highways to allow local governments to operate photo enforcement equipment in the state owned highway right-of-way.

Through the attached policy, the Department will regulate the site selection, installation, and operation of these permits to ensure that the photo enforcement systems function to improve safety. The policy was developed as a joint effort between the Department and members of the Louisiana Municipal Association to provide statewide consistency in the use of photo enforcement.

This policy replaces all other polices and memorandums issued on this subject. This memorandum and policy will be attached to all new permits and become part of the permit conditions. Copies of this policy will be forwarded to all districts. Copies will also be sent to the cities of Lafayette and Baton Rouge, which hold existing permits.

Attachment
cc: Louisiana Municipal Association
Secretary Sherri LeBas
Ms. Connie Standige
Each District Administrator
Each District Traffic Operations Engineer

RECOMMENDED FOR APPROVAL _____ DATE _____

RECOMMENDED FOR APPROVAL _____ DATE _____

RECOMMENDED FOR APPROVAL _____ DATE _____

APPROVED Richard L. Savoie 3-31-10 DATE

Safety!

New DOTD Policy

- Definitions
- Purpose
- Permits -Authority, Location, Tolerances, Engineering Reports, Plans, Signing
- System Operation
- Removal

New DOTD policy details

- **Definitions**
  - Requires violations be at stop bar
- **Purpose**
  - Enhance safety
  - Grandfathers existing systems for 18 months.

New DOTD policy details

- **Permits**
  - Outlines permit process
  - DOTD Traffic Control Device Permit
  - Documented authority
  - Must have at least **5 crashes in 12 months**
  - Speed tolerances of **6-10 mph**
  - Red Light tolerance of **0.4 seconds**

New DOTD policy details

- **Permits (continued)**
  - Requires engineering report
  - Clearance interval (**yellow light**)
  - Field inspection of intersection
  - Detailed plans
  - Minimum signing
  - Test plan
  - Annual **reporting**

New DOTD policy details

- **System Operation**
- **Removal**
  - If yearly report indicates an increase in crashes.

- **Will begin accepting permits**
  - August 1, 2010.

"…ensure that photo enforcement systems function to improve safety"

Traffic Signals

Speed Vans

New DOTD Policy

Does not address

- Legality of photo enforcement
  - Due process
  - Civil vs. Moving violations
  - Appeals
- Amount of fees or fines
  - How the fines are spent

Thank you

Contact Information:

Peter Allain, PE, PTOE

(225) 242-4631

peter.allain@la.gov

Traffic Engineering 101

Thank You!

See you on June 28th at 2:00PM for:

- Sign Installation and Maintenance
- Work Zones