LADOTD Statewide Traffic Engineers Meeting

June 26, 2012

Traffic Signal Timing Studies

Nick J. Ferlito, Jr., P.E., PTOE
Neel-Schaffer, Inc.

NEEL-SCHAFFER
Solutions you can build upon

LADOTD State Projects / Task Order Based

State Project No. 700-99-0447 – Statewide
Retainer Contract for Traffic Signal Studies & Design

State Project No. 700-99-0546 – Districts 61, 62 & 02
Retainer Contract for Signal Timing Studies

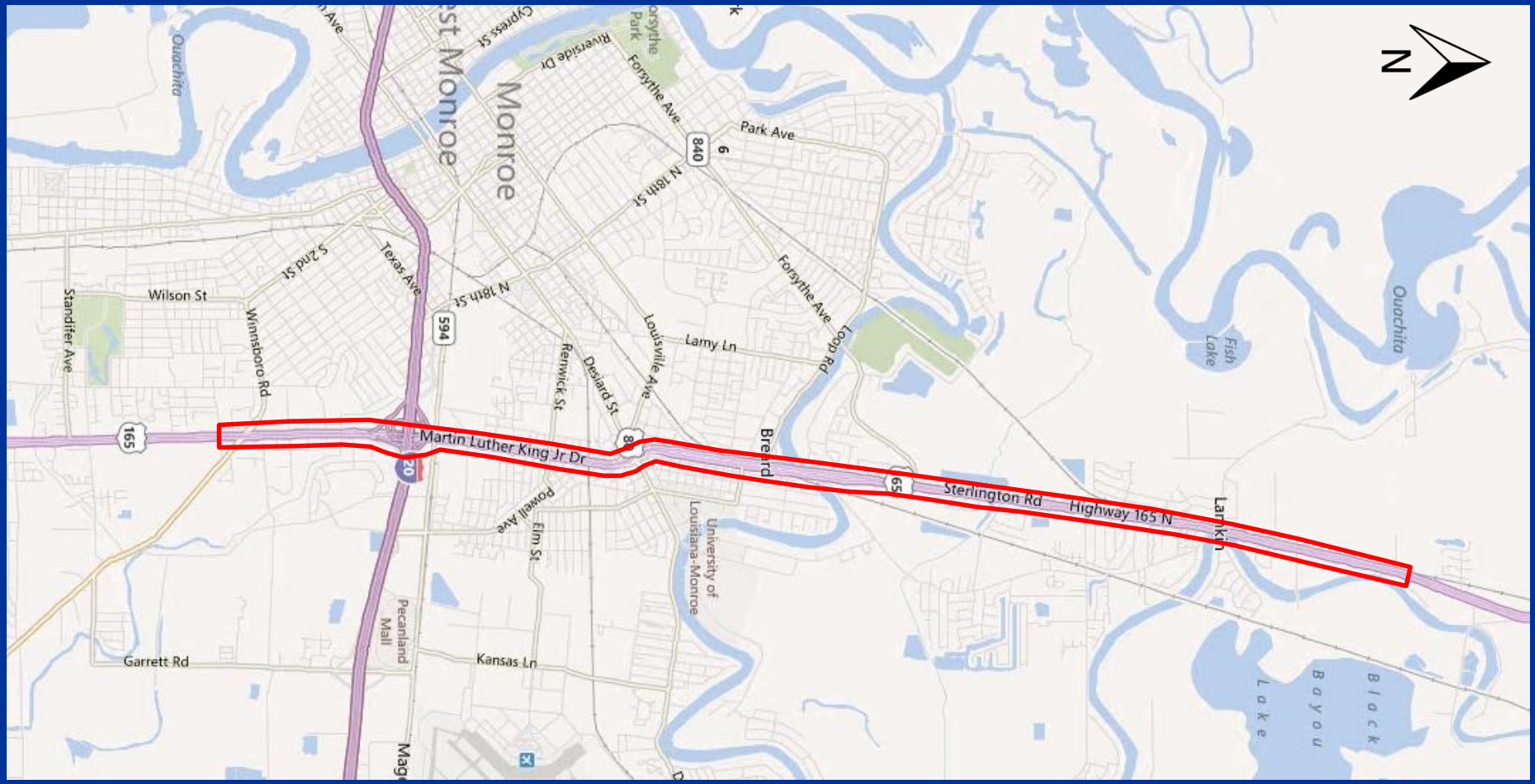
State Project No. 700-99-0542 – Districts 03, 04, 05, 07, 08 & 58
Retainer Contract for Signal Timing Studies

NEEL-SCHAFFER
Solutions you can build upon

State Project No. 700-99-0447 – Statewide

1. Task Order No. 701-65-1275

US 165, Monroe, LA (18 intersections), (LA 15 to CenturyTel)



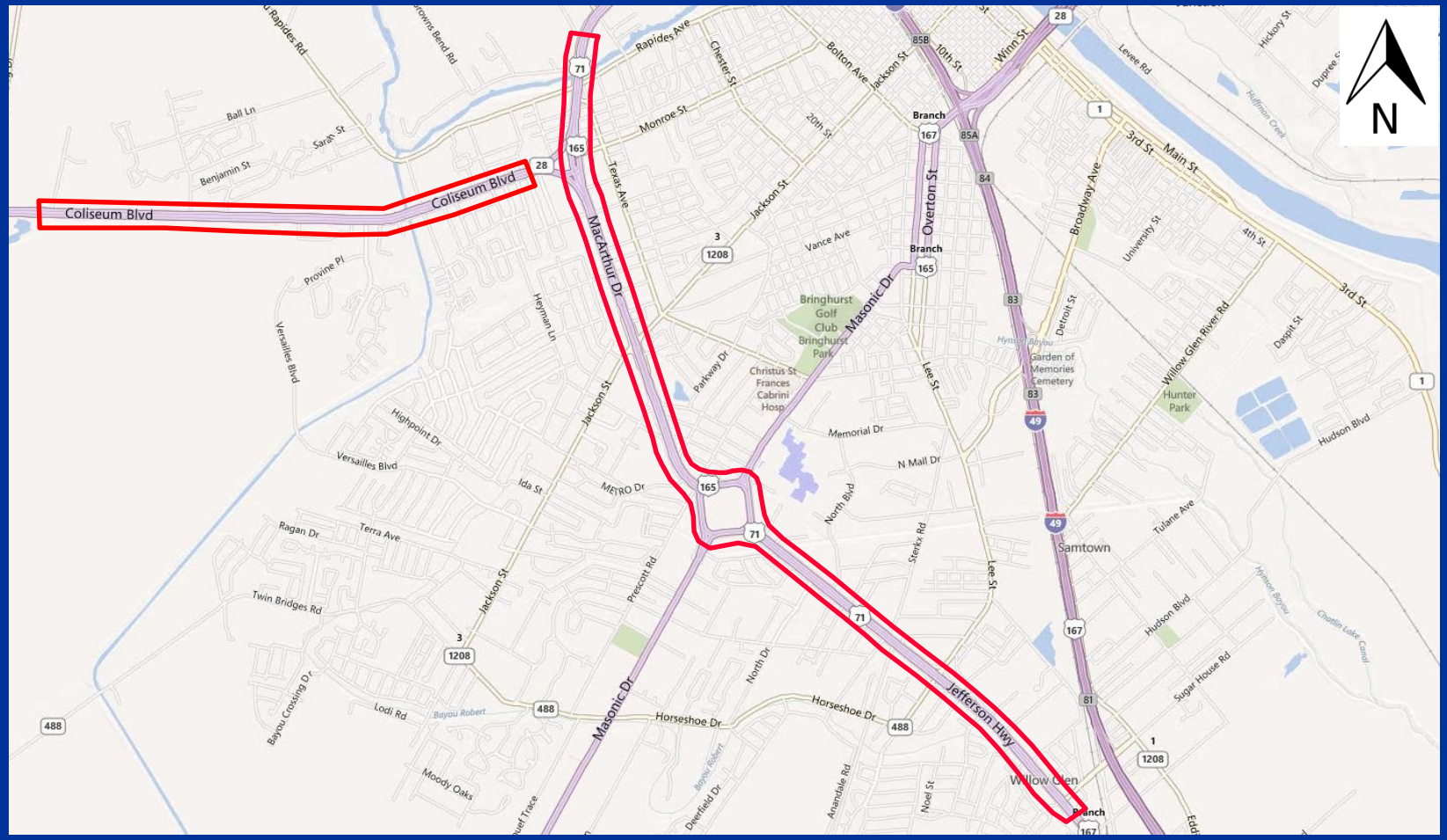
NEEL-SCHAFFER

Solutions you can build upon

State Project No. 700-99-0447 – Statewide

2. Task Order No. 701-65-1466

US 71, Alexandria, LA (9 intersections), (Bayou Rapides Ave to LA 3250)
LA 28, Alexandria, LA (4 intersections), (US 71/US 165 to Wal-Mart)

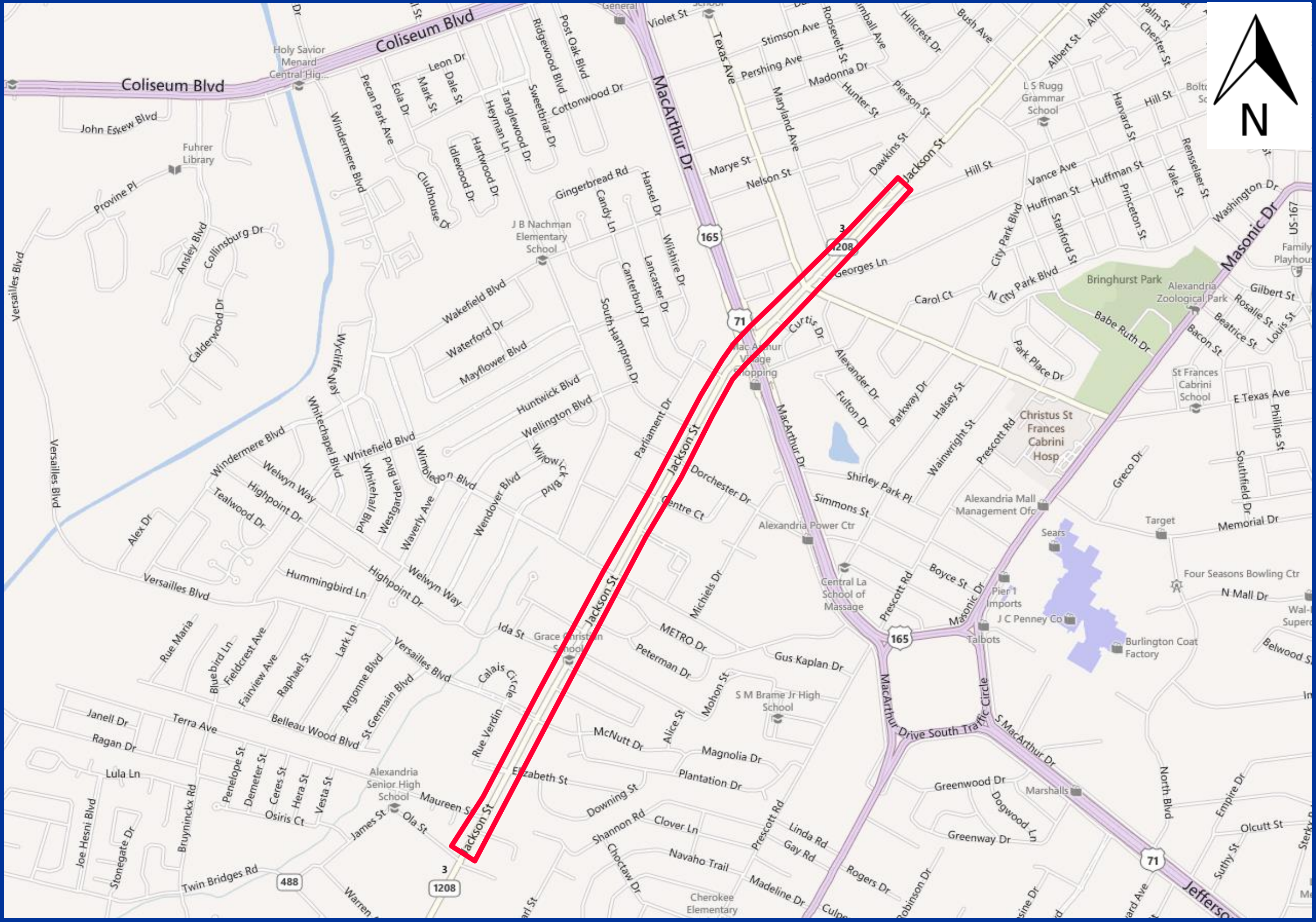


NEEL-SCHAFFER
Solutions you can build upon

State Project No. 700-99-0447 – Statewide

3. Task Order No. H.005746

LA 1208-3, Alexandria, LA (11 intersections), (Hill St. to Maureen St.)

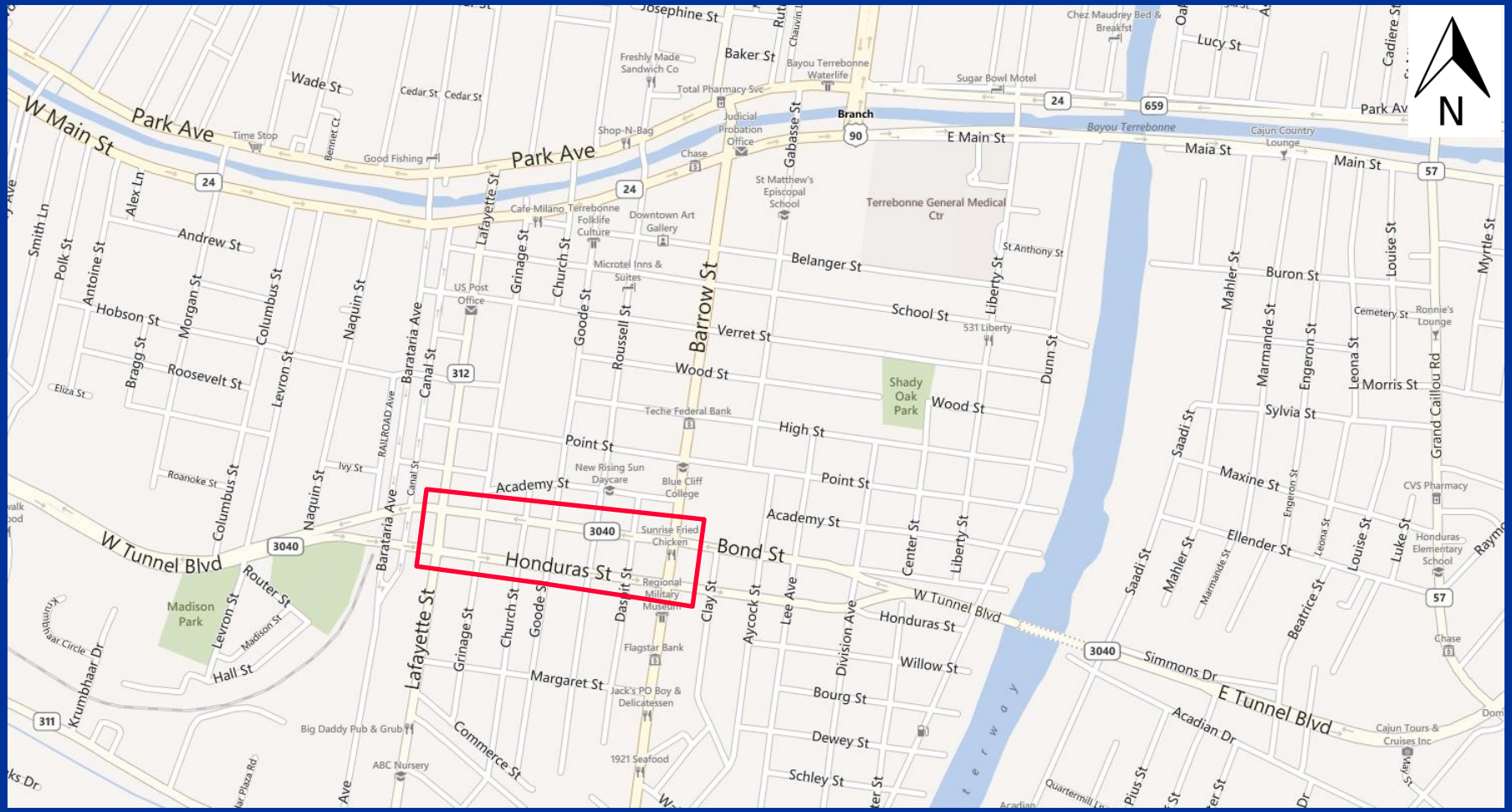


NEEL-SCHAFFER
Solutions you can build upon

State Project No. 700-99-0546 – Districts 61, 62 & 02

1. Task Order No. H.005750

LA 3040, Houma, LA (7 intersections), (LA 182 to LA 312)



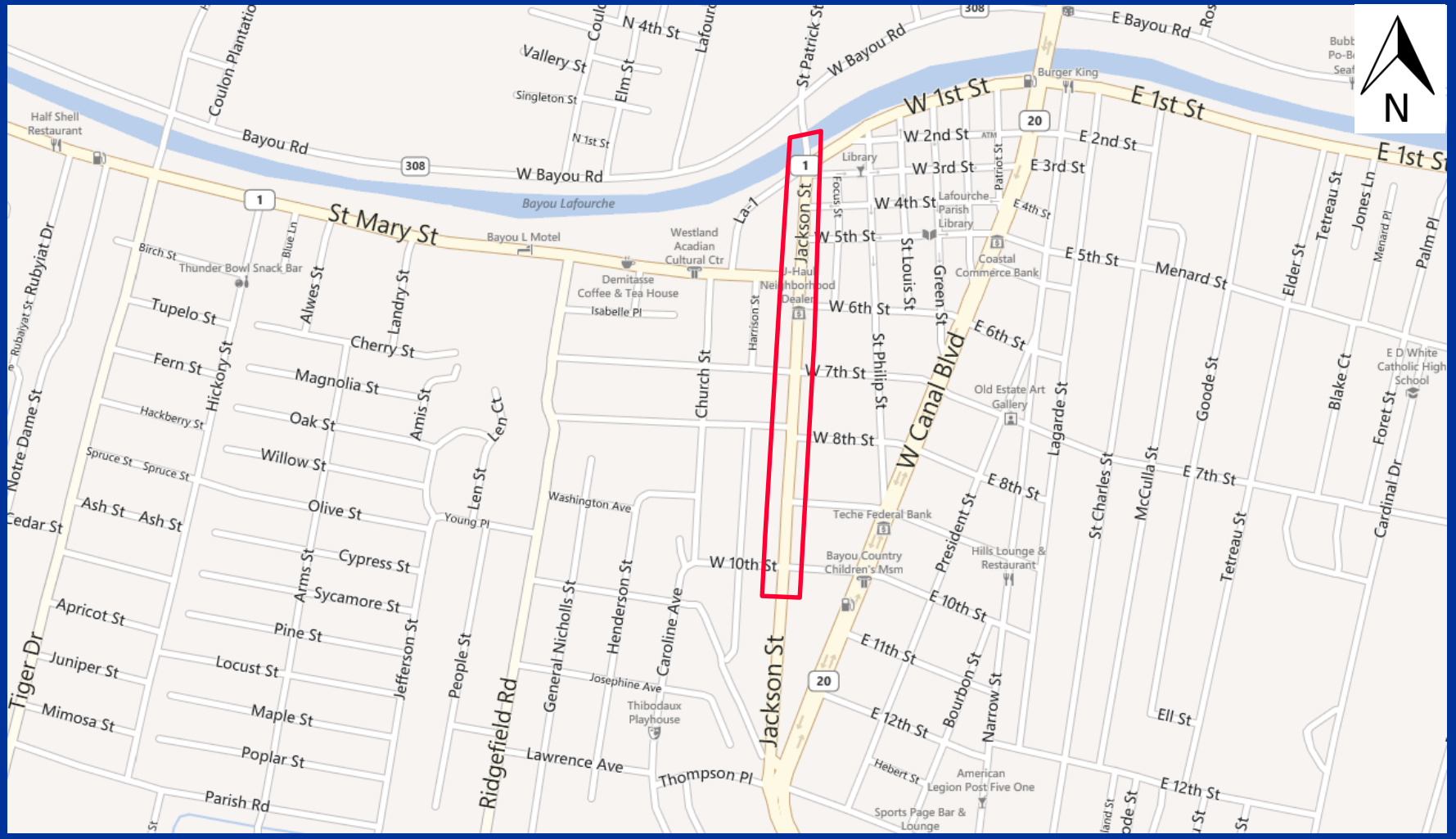
NEEL-SCHAFFER

Solutions you can build upon

State Project No. 700-99-0546 – Districts 61, 62 & 02

1. Task Order No. H.005750

LA 20, Thibodaux, LA (5 intersections), (W. 10th St. to LA 1)



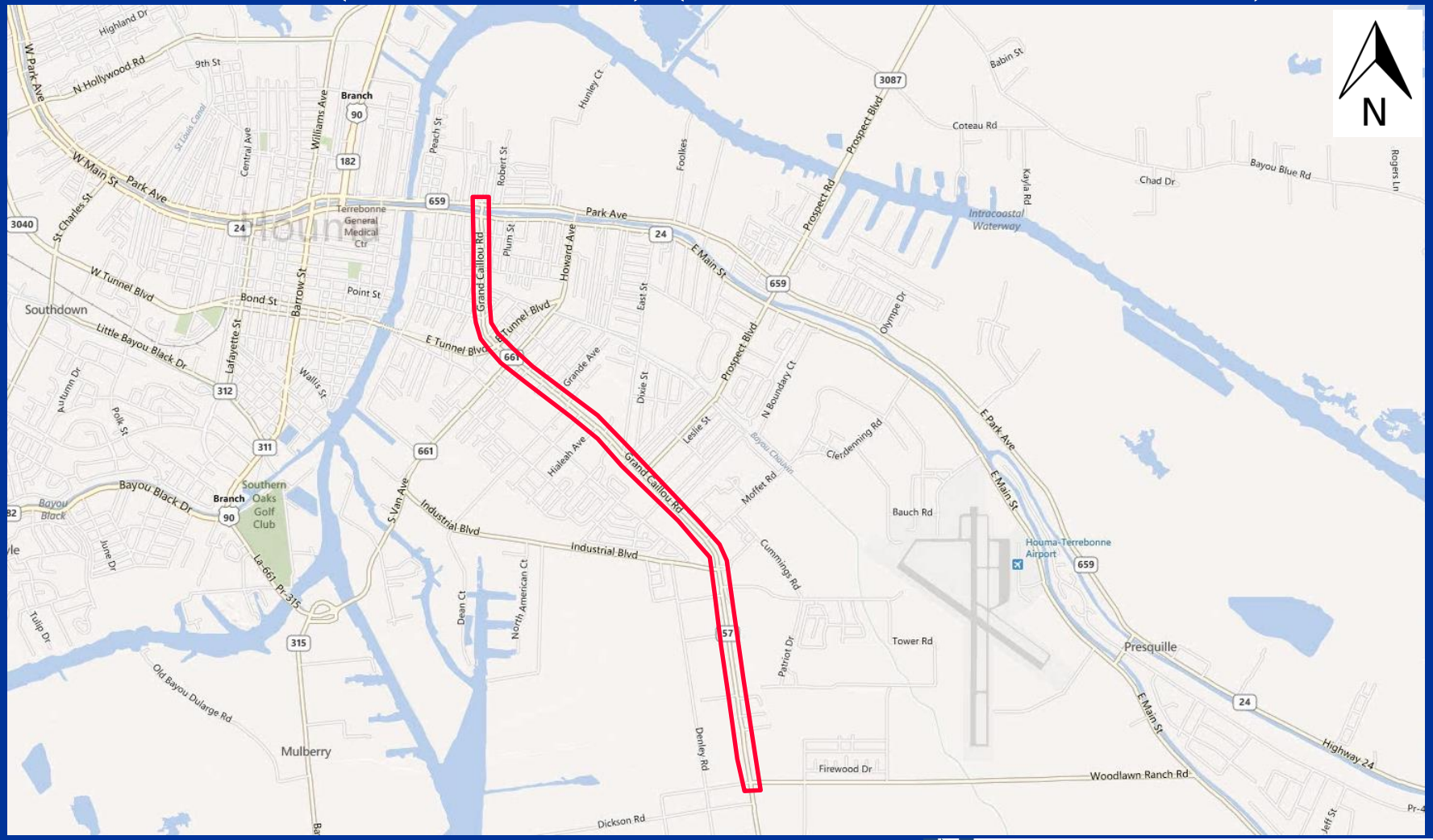
NEEL-SCHAFFER

Solutions you can build upon

State Project No. 700-99-0546 – Districts 61, 62 & 02

1. Task Order No. H.005750

LA 57, Houma, LA (13 intersections), (LA 24 to Woodlawn Ranch Rd.)



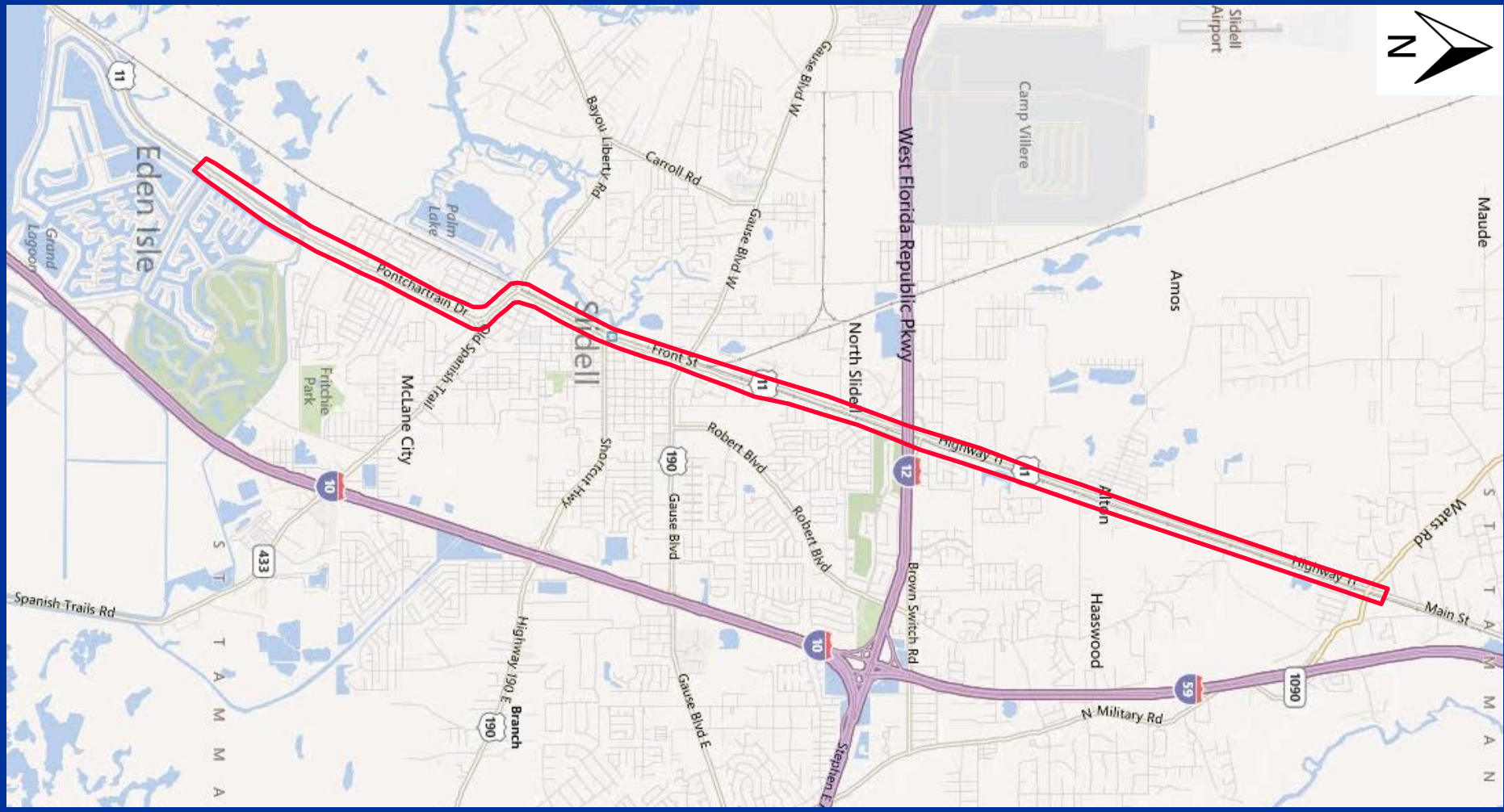
NEEL-SCHAFFER

Solutions you can build upon

State Project No. 700-99-0546 – Districts 61, 62 & 02

2. Task Order No. H.005757.5

US 11, Slidell, LA (17 intersections), (Eden Isles Blvd. to LA 41/LA 3081)



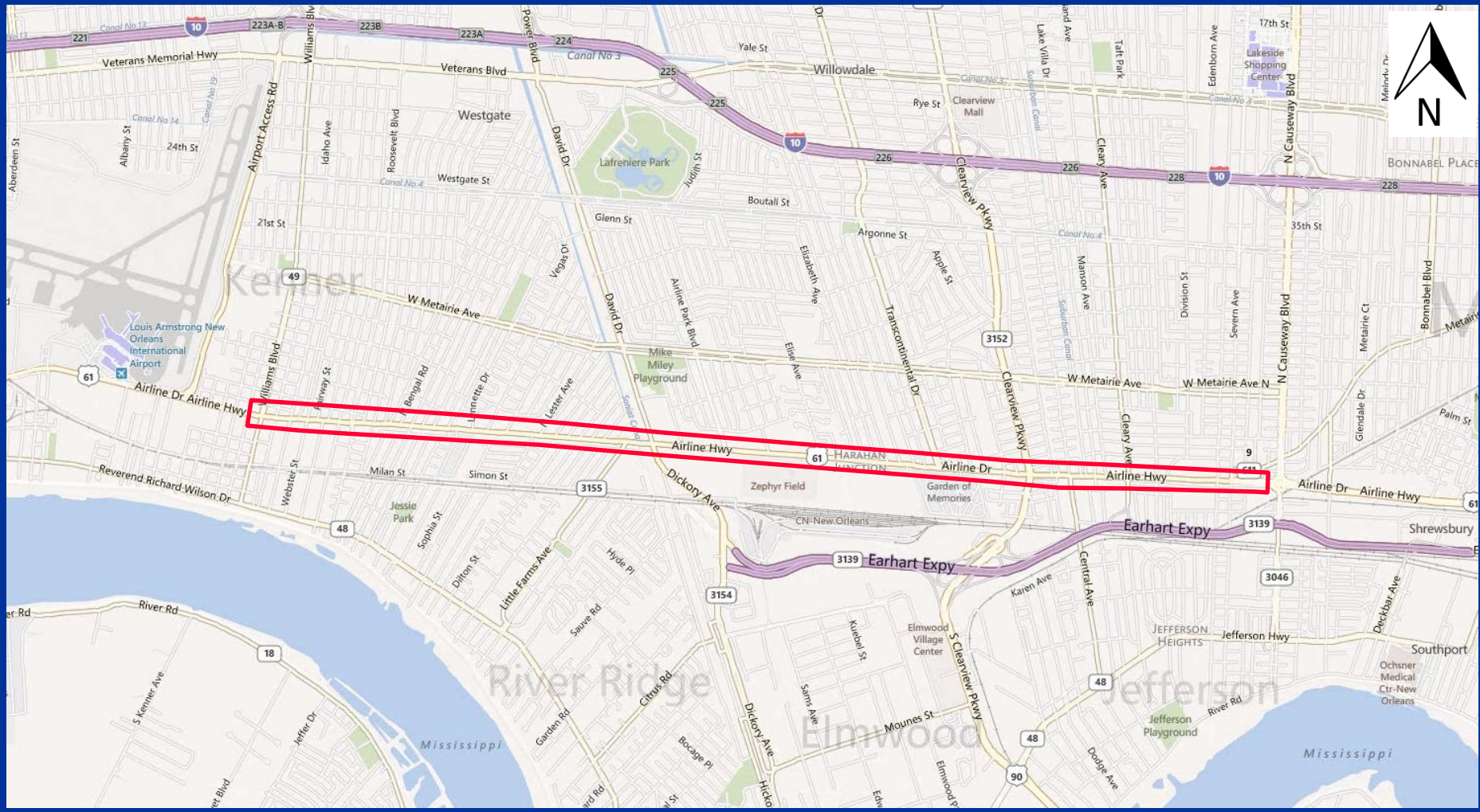
NEEL-SCHAFFER

Solutions you can build upon

State Project No. 700-99-0546 – Districts 61, 62 & 02

3. Task Order No. H.005760

US 61, New Orleans, LA (20 intersections), (Williams Blvd. to Severn Ave.)



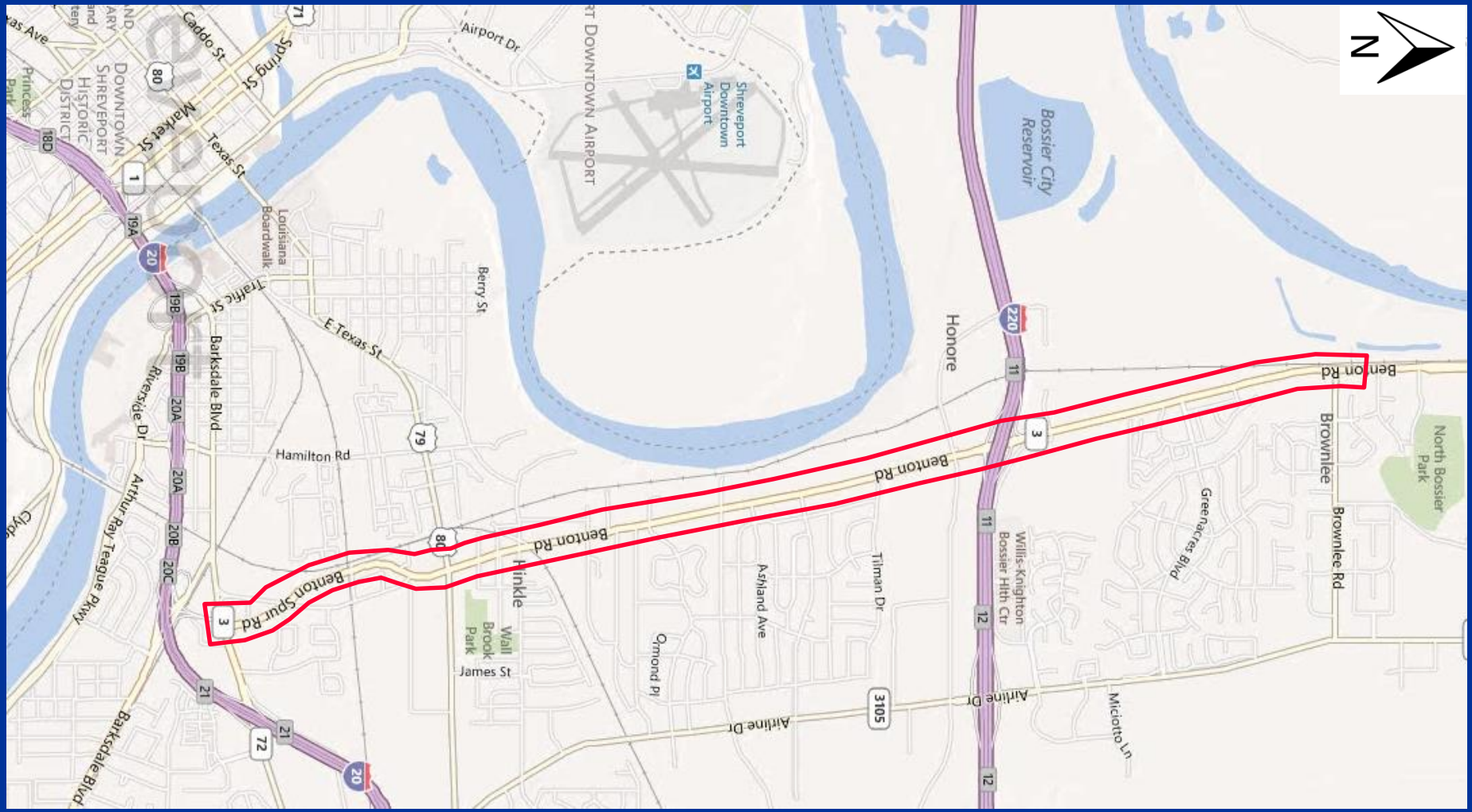
NEEL-SCHAFFER

Solutions you can build upon

State Project No. 700-99-0542 – Districts 03, 04, 05, 07, 08 & 58

1. Task Order No. H.005756.5

LA 3, Bossier City, LA (11 intersections), (Brownlee Rd. to Old Minden Hwy.)

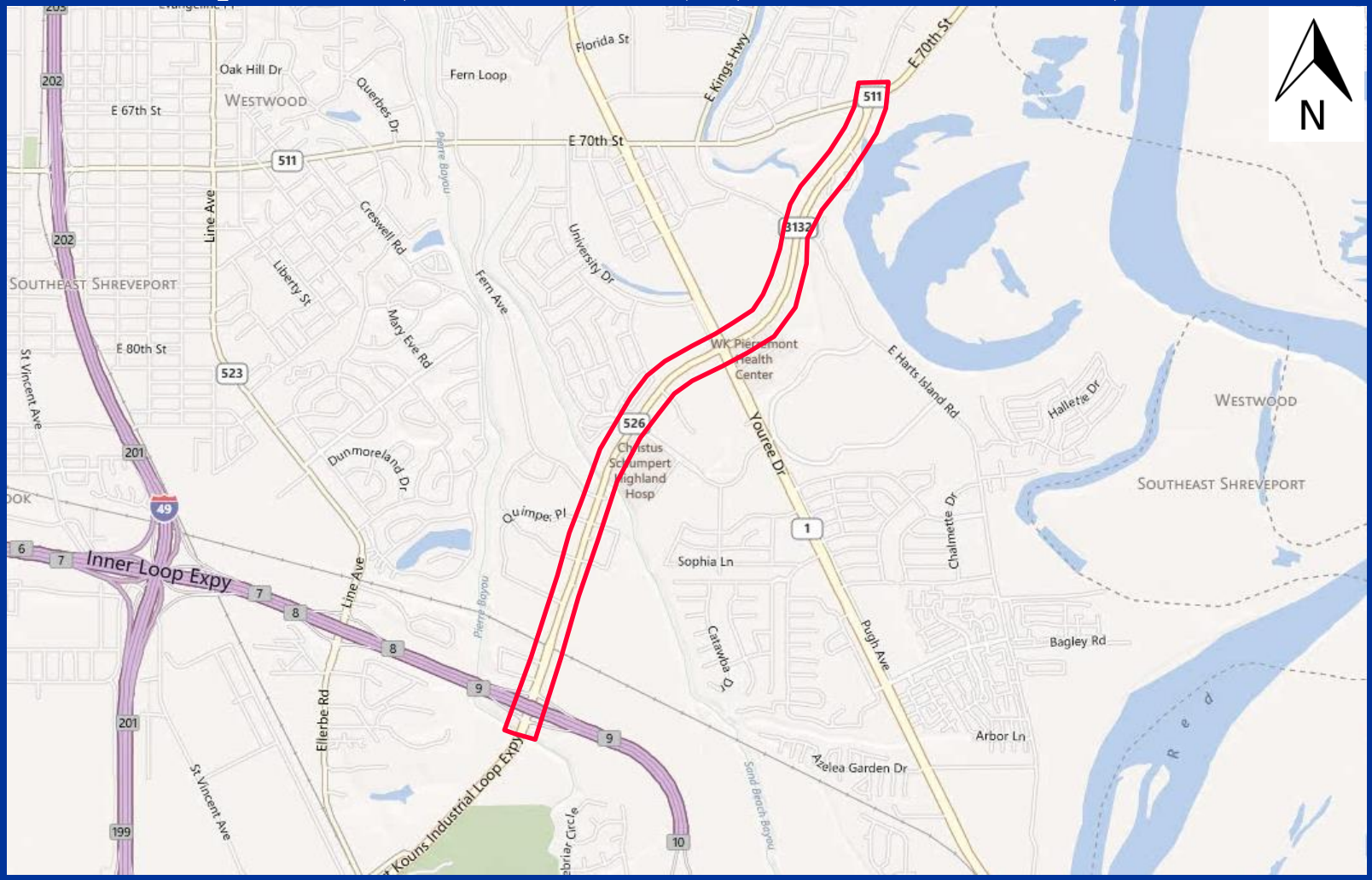


NEEL-SCHAFFER
Solutions you can build upon

State Project No. 700-99-0542 – Districts 03, 04, 05, 07, 08 & 58

1. Task Order No. H.005756.5

LA 526, Shreveport, LA (8 intersections), (LA 511 to LA 3132)



NEEL-SCHAFFER

Solutions you can build upon

Signal Timing Studies
Scope of Work

Task 1.0	Project Management
Task 2.0	Initial Data Collection
Task 3.0	Final Data Collection
Task 4.0	New Proposed TSIs
Task 5.0	Programming Controllers

Task 1.0 – Project Management

- Attend kickoff meeting
- Prepare kickoff meeting minutes
- Develop project schedule
- Develop monthly progress report
- Update project schedule monthly

NEEL-SCHAFFER
Solutions you can build upon

Task 2.0 – Initial Data Collection

- 7-day, 24 hour approach traffic counts, 15 min. intervals
- Intersection / Controller inventories

NEEL-SCHAFFER
Solutions you can build upon

SIGNALIZED INTERSECTION INSPECTION

DOTD WILL COMPLETE

TSI # ____-_____ CONTROL SECTION _____-_____ LOGMILE _____

ROAD NAME: PRIMARY _____ SIDE 1 _____

SIDE 2 _____ SIDE 3 _____

LATITUDE _____ LONGITUDE _____ (SHOW 4 DECIMAL PLACES)

PARISH _____ FIPS CITY _____

FIPS URBAN AREA _____ FED AID SYSTEM

POLICE HAND CORD: YES NO EMERGENCY VEHICLE PREEMPTION: YES NO

BU POWER QUICK CONNECT: YES NO GPS: YES NO # OF BLANK OUT SIGNS _____

SIGNAL TYPE

FIXED TIME FLASHING BEACON FLASHING SIGN ACTIVATED SEMI ACTUATED VOLUME DENSITY

SIGNAL STATUS: ACTIVE INACTIVE OTHER: _____

CABINET TYPE: 4 PHASE 8 PHASE EAGLE "EF" ELECTROMECHANICAL

FLASHING GAMMATRONIX-91 KENTRON KST MARBELITE

MARBELITE TD 11448 SINGER

CABINET MOUNT TYPE: GROUND POLE PEDESTAL

CONTROLLER TYPE + MODEL

CONTROLLER SERIAL NUMBER: _____

AUTO SENSOR CONTROLS CO.	MARATHON	TSC-204
CROUSEHINDS	MARBELITE M41	KENTRON, MODEL KMT 1700L
EAGLE EF120	NEMA	KENTRON, MODEL KMT 1800
EAGLE EF140	SECO SOUTH	KENTRON, MODEL KST SERIES
EAGLE EF20	SOLID STATE FLASHER	KENTRON, MODEL KTA/KSA SERIES
EAGLE EPAC	SOLID STATE FLASHER ACC 2017E	MARBELITE, MODEL M-30
ELECTRO-TECHNICS	SOLID STATE FLASHER ACC 204	NAZTEC, MODEL 900, TS 1
ELECTRONICS	SOLID STATE FLASHER EDI	NAZTEC, MODEL 920, TS 1
GAMMATRONIC	SOLID STATE FLASHER PDC	NAZTEC, MODEL 980, TS 2, TYPE 1
GTE CORP	SVA 367	NAZTEC, MODEL 981, TS 2, TYPE 1
GW EAGLE	SVA 385	NAZTEC, MODEL 980, TS 2, TYPE 2
HONEYWELL	TIME-O-MATIC	NAZTEC, MODEL 2070L
KENTRON KFA 200	TRAFF-O-MATIC 118M	
KENTRON KSC	TRAFFIC CONTROL	

CONFLICT MONITOR TYPE + MODEL

CONFLICT MONITOR SERIAL NUMBER: _____

TYPE/MODEL:

CROUSE HINDS ED1 NAZTEC 500 SOLID STATE DEVICE TCT-LSM 12

EBERLE DESIGN, INC. MODEL SSM12LE-C NAZTEC MODEL NM512 NAZTEC MODEL MMU516

SOLID STATE DEVICES MODEL GUARDIAN LCD 6P SOLID STATE DEVICES MODEL GUARDIAN LCD 12P

INTERCONNECT

INTERCONNECT SYSTEM NAME/NUMBER: _____

INTERCONNECT ROLE: LOCAL MASTER

INTERCONNECT TYPE: NOTWISTED PAIR PHONE LINE FIBER OTHER: _____

COMMUNICATION TYPE: NO PHONE LINE FIBER OTHER: _____

PED INFO

OF CROSSWALKS # OF PED PUSH BUTTONS # OF PED SYMBOL HEADS ____ # OF PED COUNTDOWN ____

1 2 3 4 5 NO 1 2 3 4 5 NO # OF PED WORD HEADS ____

POLE LAYOUT

BOXED DIAGONAL MAST ARM MAST ARM & PEDESTAL PEDESTALS V SPAN U SPAN Z SPAN

DETECTION: YES NO

LOOPS: YES NO # OF ____ SETBACK LOOPS: YES NO MICROWAVES: YES NO # OF ____

TOTAL # OF: CAMERAS 1 2 3 4 5 RADAR 1 2 3 4 5 VOLUME DENSITY 1 2 3 4 5 WVDS 1 2 3 4 5

OTHER: _____ # OF ____

DETECTION MANUFACTURER TYPE: _____

POLE TYPES

	SINGLE MAST ARM	METAL	WOOD	UTILITY POLE	PEDESTAL	ADD ON ARM
# OF	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

DECORATIVE: 1 2 3 4 5 (NO LUMINAIRES) CITY POLE W/ LUMINAIRES: 1 2 3 4 5

Pole 1 STRAIN POLE HEIGHT: 26 28 30 _____ WOOD POLE HEIGHT: 35 40 45 _____ MAST ARM HEIGHT: 20 ____
MAST ARM SPAN: 25 30 35 40 45 50 55 60 70 75 _____ ADD ON ARM: 30 35 40 45 50 55 60 75 ____

Pole 2 STRAIN POLE HEIGHT: 26 28 30 _____ WOOD POLE HEIGHT: 35 40 45 _____ MAST ARM HEIGHT: 20 ____
MAST ARM SPAN: 25 30 35 40 45 50 55 60 70 75 _____ ADD ON ARM: 30 35 40 45 50 55 60 75 ____

Pole 3 STRAIN POLE HEIGHT: 26 28 30 _____ WOOD POLE HEIGHT: 35 40 45 _____ MAST ARM HEIGHT: 20 ____
MAST ARM SPAN: 25 30 35 40 45 50 55 60 70 75 _____ ADD ON ARM: 30 35 40 45 50 55 60 75 ____

Pole 4 STRAIN POLE HEIGHT: 26 28 30 _____ WOOD POLE HEIGHT: 35 40 45 _____ MAST ARM HEIGHT: 20 ____
MAST ARM SPAN: 25 30 35 40 45 50 55 60 70 75 _____ ADD ON ARM: 30 35 40 45 50 55 60 75 ____

HEAD TYPE INFORMATION

OF 1 SECTION HEADS _____ # OF 2 SECTION HEADS _____

OF 3 SECTION HEADS _____ # OF 4 SECTION HEADS _____

OF 5 SECTION HEADS _____ # OF 6 SECTION HEADS _____

OF OPTICALLY PROG. HEADS _____ SIZE OF SECTION HEADS 8" 12" COMBO

LENS LIGHT SOURCE INFORMATION

BULB LED BOTH

BACK PLATE: YES NO VISORS: YES NO Grid Louvers: YES NO

LEFT TURN ARROW INFORMATION

OF: PERMITTED LEFT TURNS____ PERMITTED/PROTECTED LEFT TURNS____ PROTECTED LEFT TURNS____

TSI #

SIGNALIZED INTERSECTION INSPECTION

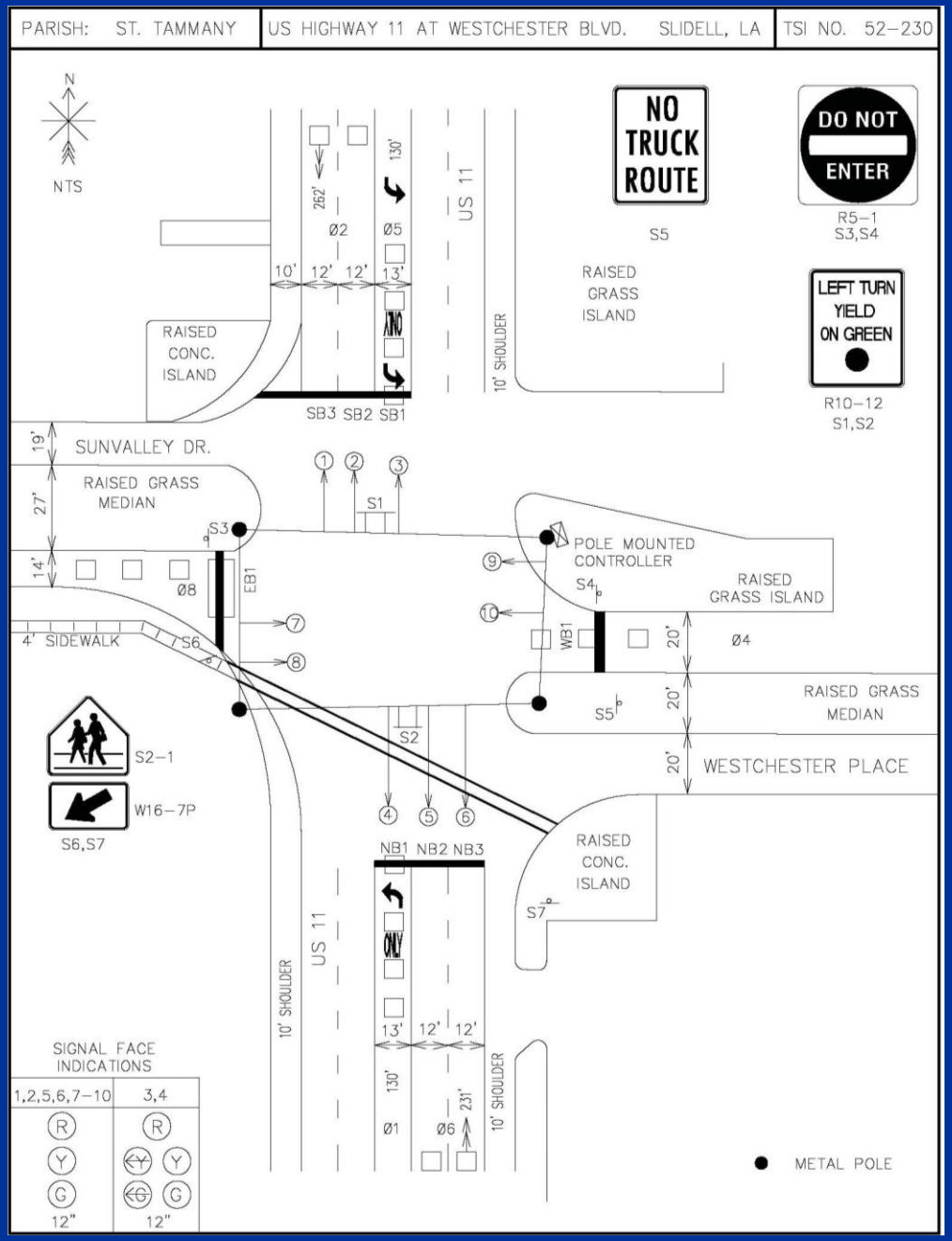
TSI # ______________________________

LANE #	DETECTION	HEAD #	HEAD TYPE	LENS		LIGHT		COMMENTS (Show LT and/or RT Arrows)
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	
			1 3 4 5 SYM WORD	12	8	LED	BULB	

Task 2.0 – Initial Data Collection

- 7-day, 24 hour approach traffic counts, 15 min. intervals
- Intersection / Controller inventories
- Intersection layouts in Microstation

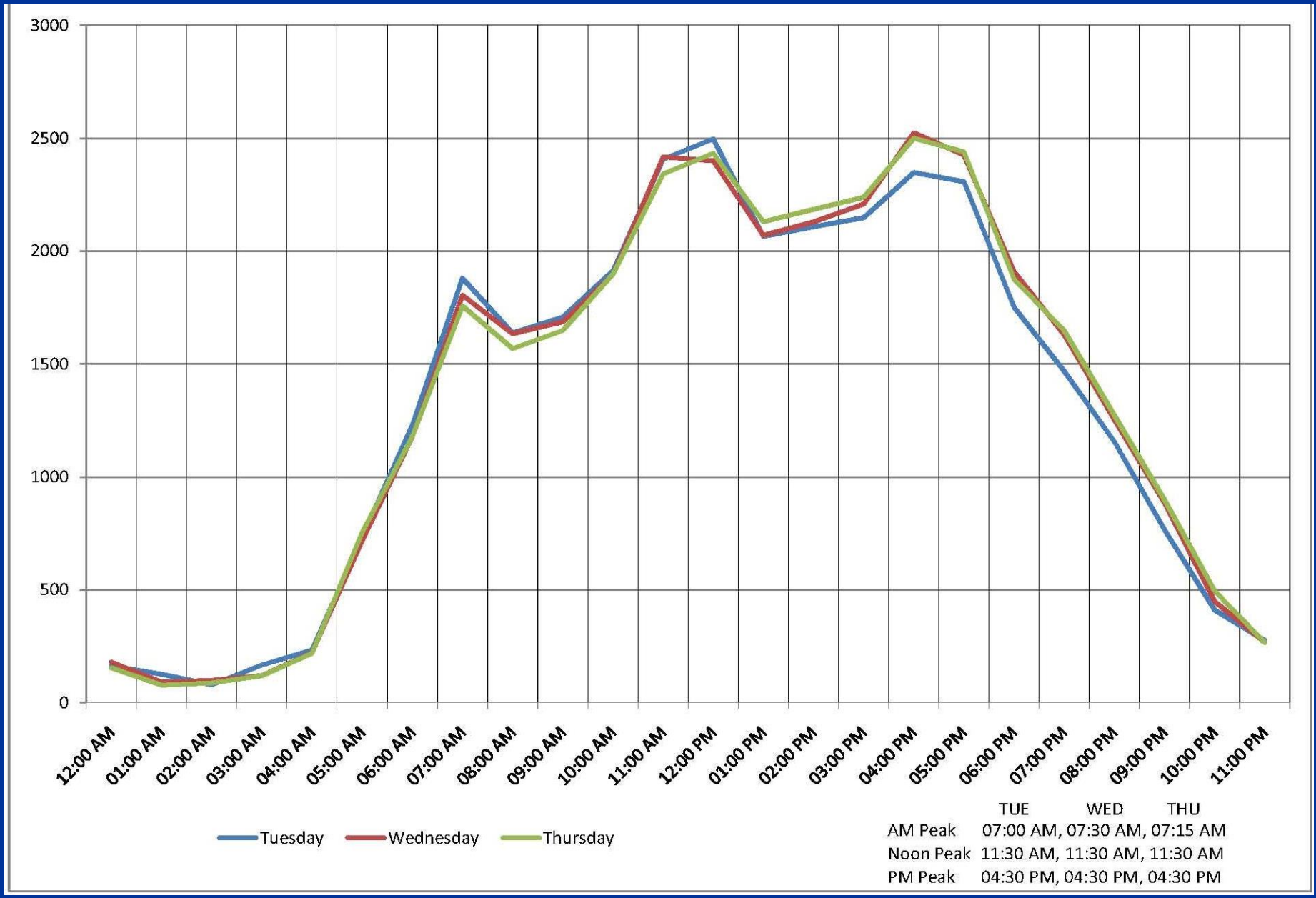
NEEL-SCHAFFER
Solutions you can build upon



NEEL-SCHAFFER
Solutions you can build upon

Task 2.0 – Initial Data Collection

- 7-day, 24 hour approach traffic counts, 15 min. intervals
- Intersection / Controller inventories
- Intersection layouts in Microstation
- Crash summary and/or collision diagram (if required)
- Warrants analysis
- Determination of peak periods for TMCs, travel time runs and peak hour observations



	TUE	WED	THU
AM Peak	07:00 AM,	07:30 AM,	07:15 AM
Noon Peak	11:30 AM,	11:30 AM,	11:30 AM
PM Peak	04:30 PM,	04:30 PM,	04:30 PM

NEEL-SCHAFFER
Solutions you can build upon

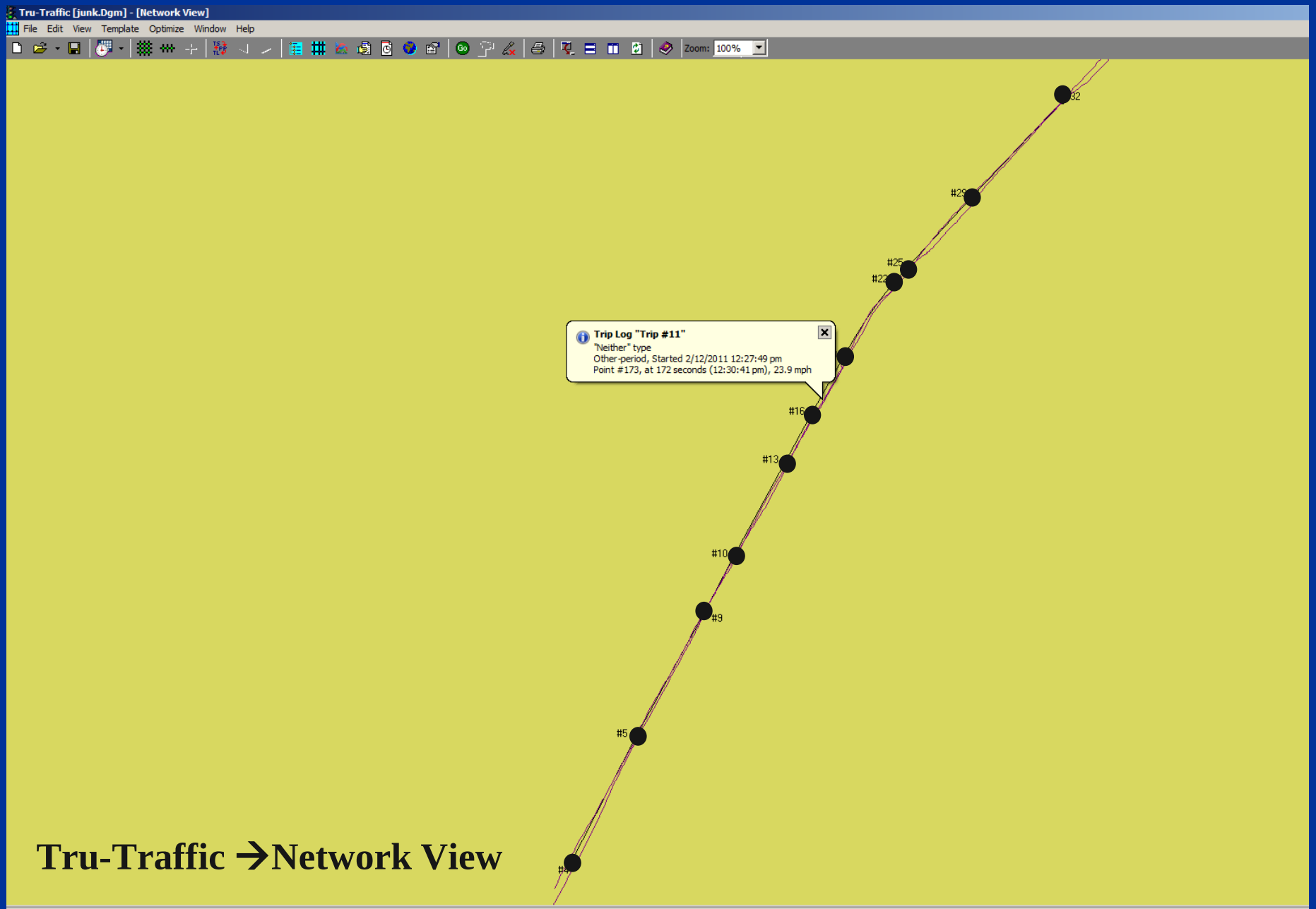
Task 2.0 – Initial Data Collection

- 7-day, 24 hour approach traffic counts, 15 min. intervals
- Intersection / Controller inventories
- Intersection layouts in Microstation
- Crash summary and/or collision diagram (if required)
- Warrants analysis
- Determination of peak periods for TMCs, travel time runs and peak hour observations
- Submittal of Initial Data Collection Report
- Attend Initial Data Collection Meeting
- Prepare minutes

NEEL-SCHAFFER
Solutions you can build upon

Task 3.0 – Final Data Collection

- Perform peak hour TMCs, 15 minute intervals w/queue lengths
- Perform peak hour observations
- Perform peak hour travel time runs using GPS and Tru-Traffic



Tru-Traffic →Network View

NEEL-SCHAFFER
Solutions you can build upon

AM PEAK 5/10/2011	TRAVEL RUN 1			TRAVEL RUN 2			TRAVEL RUN 3		
	SOUTHBOUND			SOUTHBOUND			SOUTHBOUND		
Intersection	TIME	TRAVEL TIME (SEC)	STOP DELAY (SEC)	TIME	TRAVEL TIME (SEC)	STOP DELAY (SEC)	TIME	TRAVEL TIME (SEC)	STOP DELAY (SEC)
LA 1 (W. 1st St)	7:10:42 AM			7:49:00 AM			7:55:43 AM		
W. 4th St	7:10:50 AM	8	0	7:49:17 AM	16	8	7:55:52 AM	9	0
St. Mary St	7:11:02 AM	12	0	7:49:50 AM	34	16	7:56:07 AM	14	0
W. 7th St	7:11:16 AM	15	0	7:50:07 AM	17	0	7:56:41 AM	34	18
W. 10th St	7:12:09 AM	53	21	7:50:56 AM	48	10	7:57:17 AM	36	0
Total	*1 Min 28 Sec*	88	21	*1 Min 55 Sec*	115	34	*1 Min 33 Sec*	93	18
	NORTHBOUND			NORTHBOUND			NORTHBOUND		
Intersection	TIME	TRAVEL TIME (SEC)	STOP DELAY (SEC)	TIME	TRAVEL TIME (SEC)	STOP DELAY (SEC)	TIME	TRAVEL TIME (SEC)	STOP DELAY (SEC)
W. 10th St	7:14:25 AM			7:51:57 AM			8:00:00 AM		
W. 7th St	7:14:52 AM	27	0	7:52:30 AM	33	0	8:00:42 AM	42	8
St. Mary St	7:15:06 AM	14	0	7:53:22 AM	52	38	8:00:59 AM	17	0
W. 4th St	7:15:19 AM	12	0	7:53:39 AM	17	0	8:01:12 AM	13	0
LA 1 (W. 1st St)	7:16:52 AM	94	87	7:53:49 AM	10	0	8:01:56 AM	44	36
Total	*2 Min 27 Sec*	147	87	*1 Min 52 Sec*	112	38	*1 Min 56 Sec*	116	44

AM PEAK 5/10/2011	TRAVEL RUN 4			TRAVEL RUN 5			AVERAGE TRAVEL RUN		
	SOUTHBOUND			SOUTHBOUND			SOUTHBOUND		
Intersection	TIME	TRAVEL TIME (SEC)	STOP DELAY (SEC)	TIME	TRAVEL TIME (SEC)	STOP DELAY (SEC)	TIME	TRAVEL TIME (SEC)	STOP DELAY (SEC)
LA 1 (W. 1st St)	8:04:06 AM			8:29:50 AM					
W. 4th St	8:04:13 AM	8	0	8:29:57 AM	7	0		10	2
St. Mary St	8:04:42 AM	28	13	8:30:09 AM	11	0		18	4
W. 7th St	8:04:58 AM	16	0	8:30:43 AM	34	16		24	7
W. 10th St	8:05:27 AM	29	0	8:31:15 AM	33	0		36	3
Total	*1 Min 21 Sec*	81	13	*1 Min 25 Sec*	85	16	*1 Min 28 Sec*	88	16
	NORTHBOUND			NORTHBOUND			NORTHBOUND		
Intersection	TIME	TRAVEL TIME (SEC)	STOP DELAY (SEC)	TIME	TRAVEL TIME (SEC)	STOP DELAY (SEC)	TIME	TRAVEL TIME (SEC)	STOP DELAY (SEC)
W. 10th St	8:06:06 AM			8:31:58 AM					
W. 7th St	8:06:40 AM	33	0	8:32:45 AM	47	13		35	2
St. Mary St	8:07:08 AM	28	10	8:33:06 AM	21	0		25	9
W. 4th St	8:07:36 AM	28	0	8:33:22 AM	16	0		17	0
LA 1 (W. 1st St)	8:08:11 AM	35	29	8:34:03 AM	42	33		37	29
Total	*2 Min 4 Sec*	124	39	*2 Min 6 Sec*	126	46	*1 Min 54 Sec*	114	40

Task 3.0 – Final Data Collection

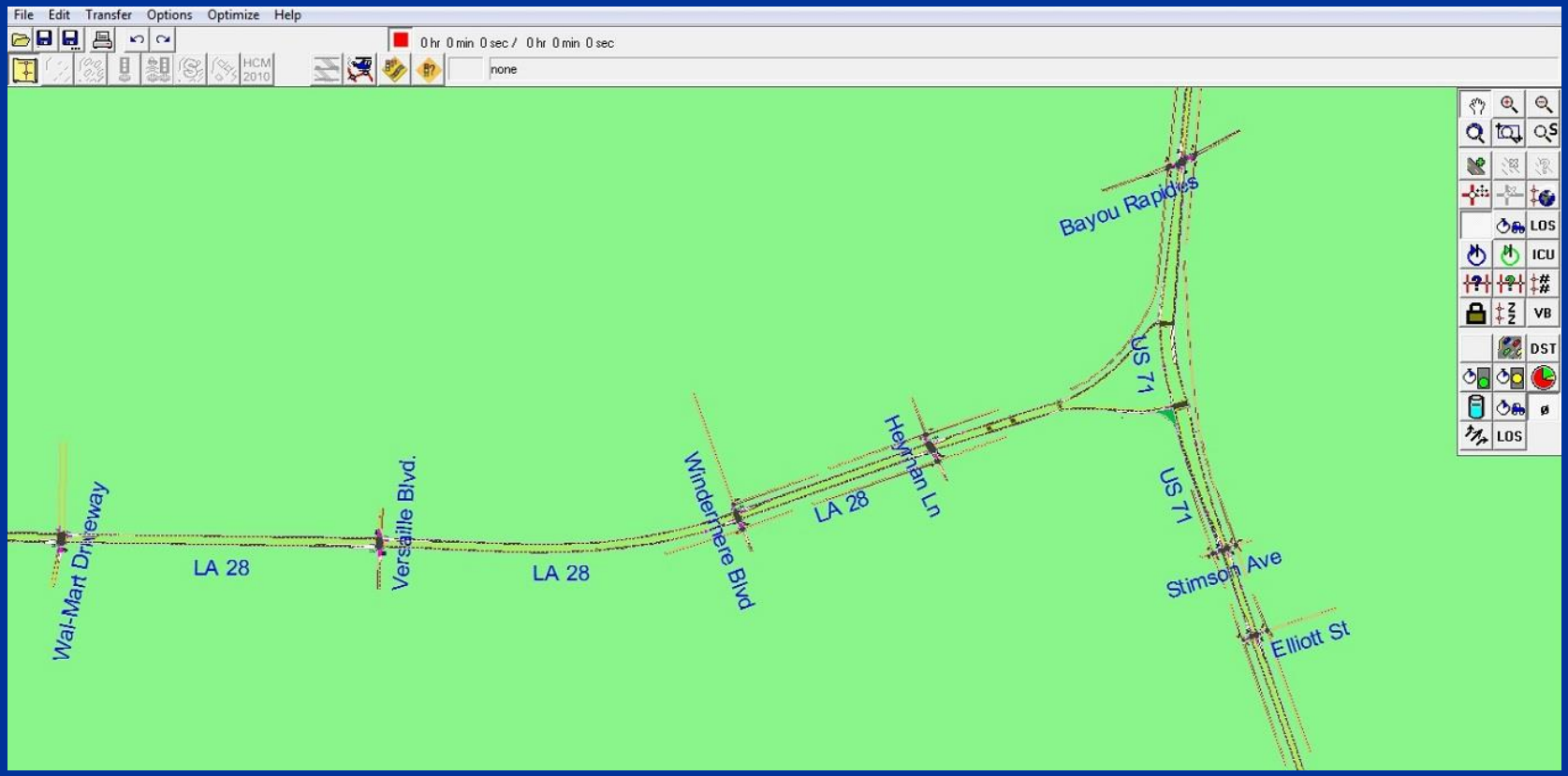
- Perform peak hour TMCs, 15 minute intervals w/queue lengths
- Perform peak hour observations
- Perform peak hour travel time runs using GPS and TRU-TRAFFIC
- Perform clearance interval calculations
- Submittal of Final Data Collection Report
- Attend Final Data Collection Meeting
- Prepare meeting minutes

NEEL-SCHAFFER
Solutions you can build upon

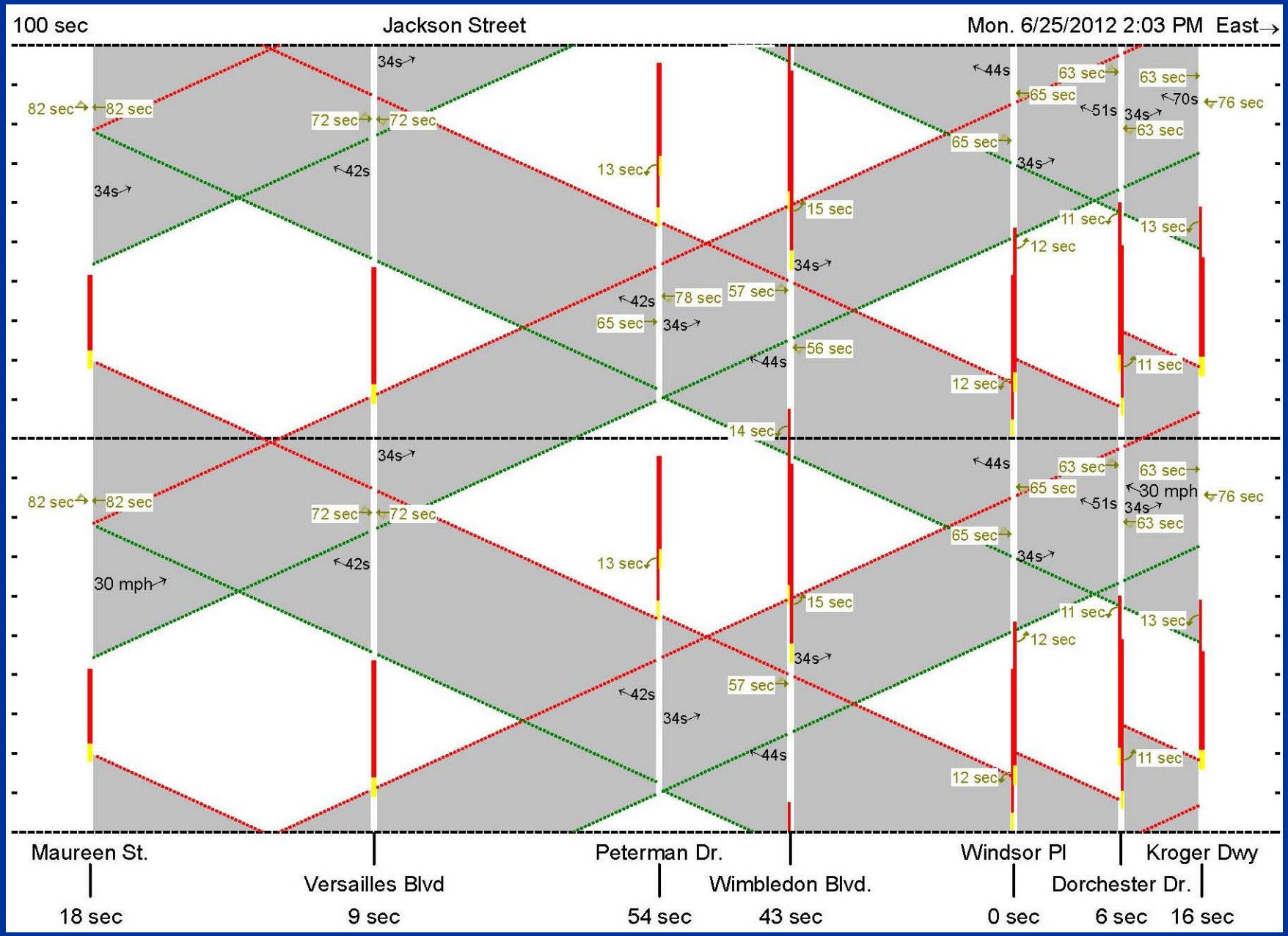
Task 4.0 – New Proposed TSIs

- Develop Synchro models for existing peak hour conditions (existing geometry, signal timing, and peak hour volumes).
- Calibrate existing Synchro models based on the travel time runs collected in Task 3.0.
- Develop Synchro models for recommended signal timings.
  - Coordinated Systems / Subsystems
  - Cycle Lengths
  - Signal Phasing
  - Phase Spits
  - Offsets

Synchro Network Example

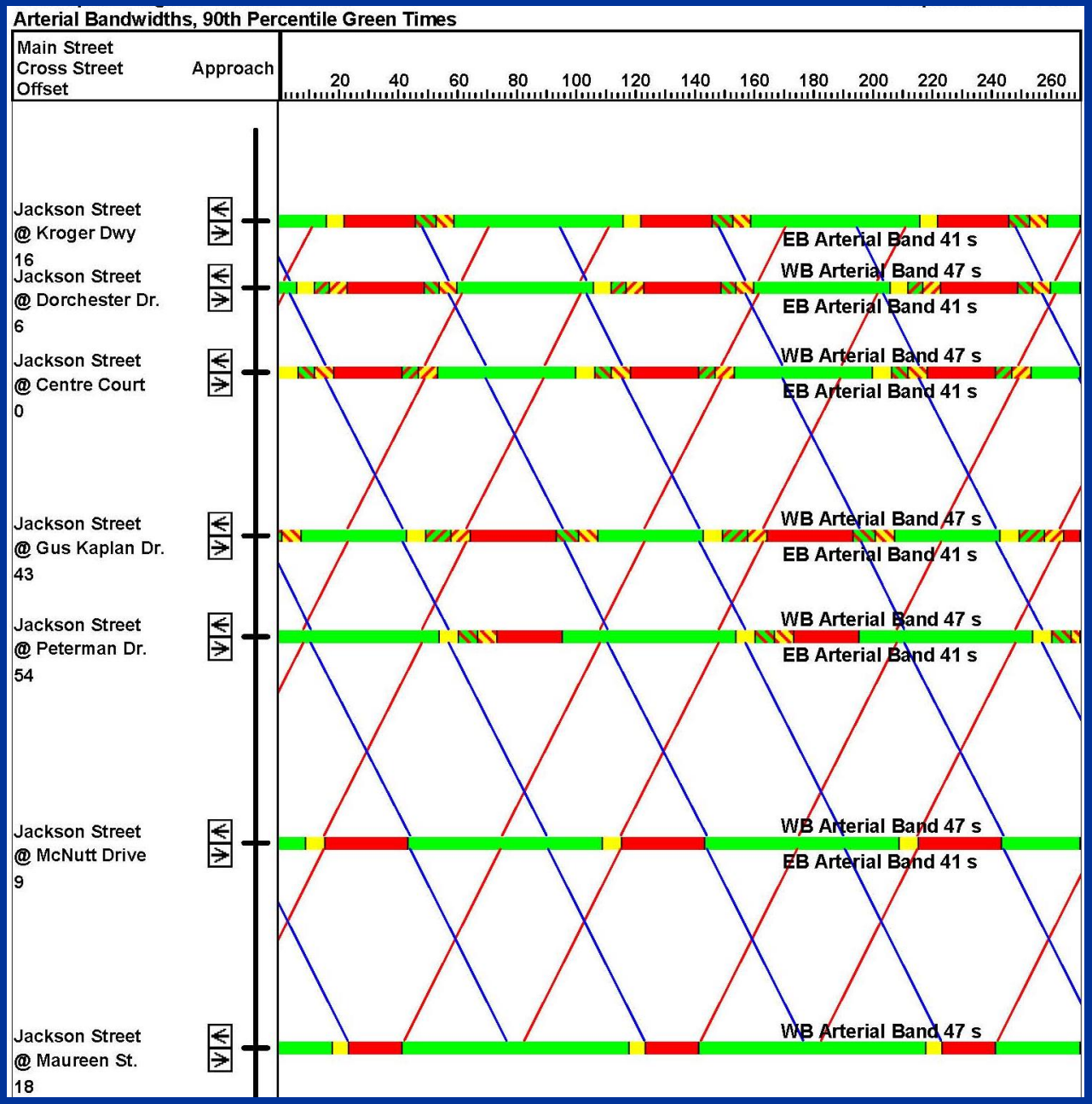


NEEL-SCHAFFER
Solutions you can build upon



Tru-Traffic → Time-Space Diagram

NEEL-SCHAFFER
Solutions you can build upon



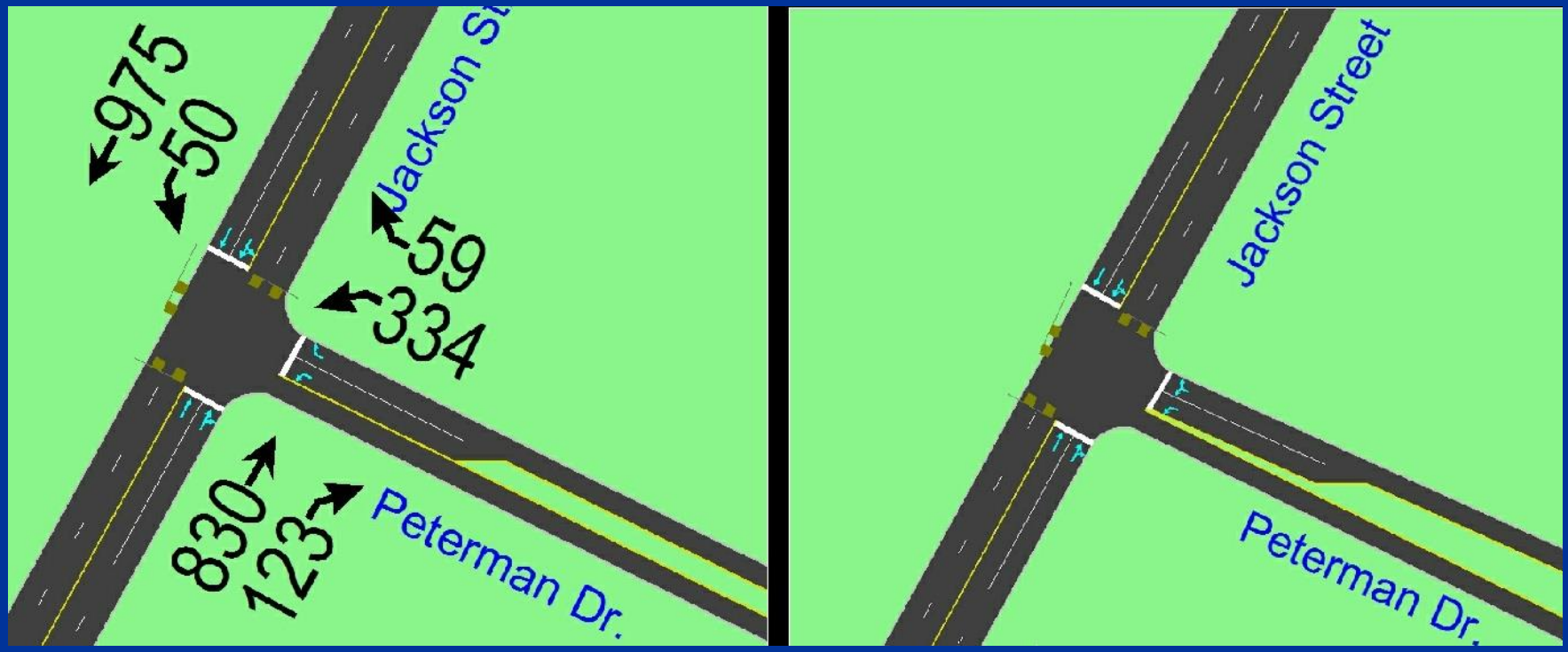
Synchro → Time-Space Diagram

NEEL-SCHAFFER
Solutions you can build upon

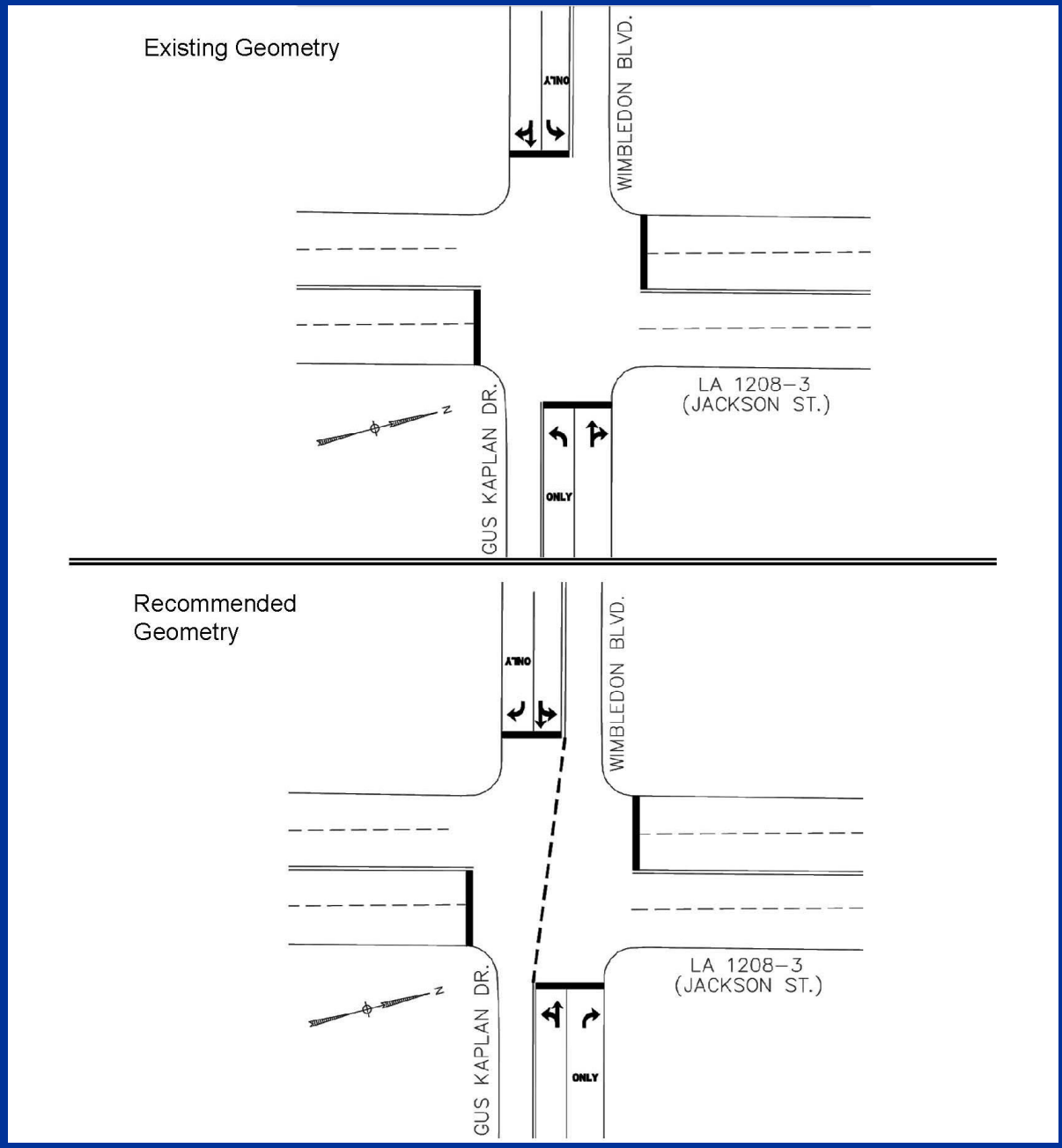
Task 4.0 – New Proposed TSIs Cont'd.

- Provide recommendations on striping/lane use changes, signal equipment upgrades and geometric improvements.

Proposed Lane Use / Striping Change Examples



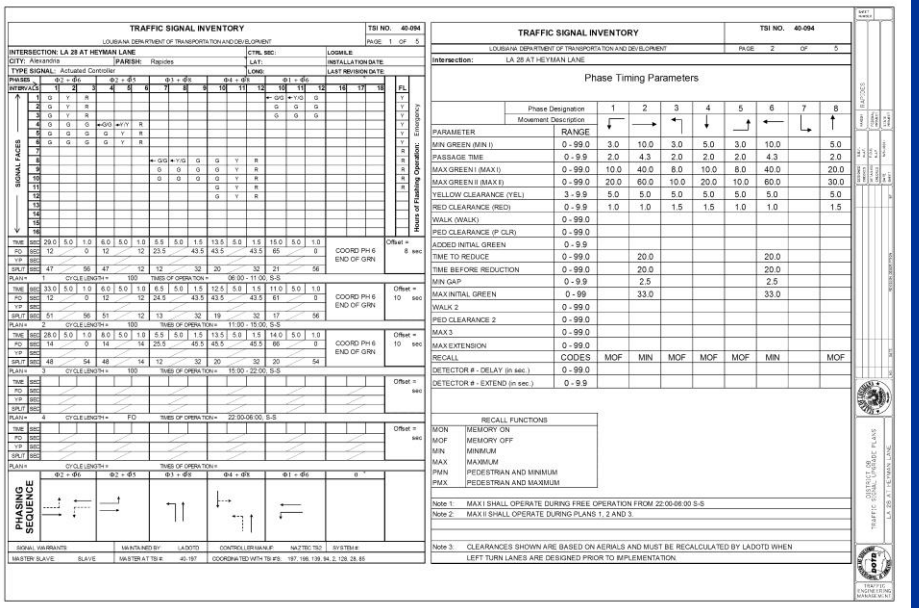
NEEL-SCHAFFER
Solutions you can build upon



NEEL-SCHAFFER
Solutions you can build upon

Task 4.0 – New Proposed TSIs Cont'd.

- Provide recommendations on striping/lane use changes, signal equipment upgrades and geometric improvements.
- Submittal of Recommend Signal Timing Report
  - New TSIs with recommend signal timing plans
  - Comparison of existing and proposed LOS/Delay for all peaks.
  - Comparison of existing and proposed travel times for all peaks.
  - Summary of all signal equipment upgrade recommendations.
  - Summary of all striping/lane use recommended changes.
  - Summary of all geometric recommendations.
- Attend Recommended Signal Timing Meeting
- Prepare meeting minutes



TRAFFIC SIGNAL INVENTORY

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

TSI NO. 40-094

PAGE 1 OF 5

INTERSECTION: LA 28 AT HEYMAN LANE — CTRL SEC: — LOG/MILE:

CITY: Alexandria — PARISH: Rapides — LAT: — INSTALLATION DATE:

TYPE SIGNAL: Actuated Controller — LONG: — LAST REVISION DATE:

PHASES: Φ2 + Φ6 | Φ2 + Φ5 | Φ1 + Φ8 | Φ4 + Φ8 | Φ1 + Φ6

INTERVALS: 1 2 3 4 5 6 | 7 8 9 10 11 12 | 13 14 15 16 17 18 | FL

SIGNAL FACES — Hours of Flashing Operation: Emergency

1	G	Y	R									← G/G	Y/G	G				Y
2	G	Y	R									G	G	G				Y
3	G	Y	R									G	G	G				Y
4	G	G	G	←G/G	←Y/Y	R												Y
5	G	G	G	G	Y	R												Y
6	G	G	G	G	Y	R												Y
7							← G/G	← Y/G	G	G	Y	R						R
8							G	G	G	G	Y	R						R
9							G	G	G	G	Y	R						R
10										G	Y	R						R
11										G	Y	R						R
12										G	Y	R						R
13																		
14																		
15																		
16																		

TIME	SEC	29.0	5.0	1.0	6.0	5.0	1.0	5.5	5.0	1.5	13.5	5.0	1.5	15.0	5.0	1.0		
PD	SEC	12		0	12		12	23.5		43.5	43.5		43.5	65		0	COORD PH 6 END OF GRN	
YP	SEC																	
SPLIT	SEC	47		96	47		12	12		32	20		32	21		56		

PLAN = 1 — CYCLE LENGTH = 160 — TIMES OF OPERATION = 06:00 - 11:00, S-S — Offset = 8 sec

TIME	SEC	33.0	5.0	1.0	6.0	5.0	1.0	6.5	5.0	1.5	12.5	5.0	1.5	11.0	5.0	1.0		
PD	SEC	12		0	12		12	24.5		43.5	43.5		43.5	61		0	COORD PH 6 END OF GRN	
YP	SEC																	
SPLIT	SEC	51		56	51		12	13		32	19		32	17		56		

PLAN = 2 — CYCLE LENGTH = 160 — TIMES OF OPERATION = 11:00 - 15:00, S-S — Offset = 10 sec

TIME	SEC	26.0	5.0	1.0	8.0	5.0	1.0	5.5	5.0	1.5	13.5	5.0	1.5	14.0	5.0	1.0		
PD	SEC	14		0	14		14	25.5		45.5	45.5		45.5	66		0	COORD PH 6 END OF GRN	
YP	SEC																	
SPLIT	SEC	48		54	48		14	12		32	20		32	20		54		

PLAN = 3 — CYCLE LENGTH = 160 — TIMES OF OPERATION = 15:00 - 22:00, S-S — Offset = 10 sec

TIME	SEC																	
PD	SEC																	
YP	SEC																	
SPLIT	SEC																	

PLAN = — CYCLE LENGTH = — TIMES OF OPERATION = — Offset = sec

TIME	SEC																	
PD	SEC																	
YP	SEC																	
SPLIT	SEC																	

PLAN = 4 — CYCLE LENGTH = FC — TIMES OF OPERATION = 22:00-06:00, S-S — Offset = sec

TIME	SEC																	
PD	SEC																	
YP	SEC																	
SPLIT	SEC																	

PLAN = — CYCLE LENGTH = — TIMES OF OPERATION = — Offset = sec

PHASING SEQUENCE: Φ2 + Φ6 | Φ2 + Φ5 | Φ1 + Φ8 | Φ4 + Φ8 | Φ1 + Φ6 | 8

SIGNAL WARRANTS: — MAINTAINED BY: LADOTD — CONTROLLER MANUF.: NAZTEC TS2 — SYSTEM #:

MASTER: SLAVE: SLAVE — MASTER AT TSI #: 40-197 — COORDINATED WITH TSI #'S: 197, 198, 139, 84, 2, 128, 28, 85

TRAFFIC SIGNAL INVENTORY

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

TSI NO. 40-094

PAGE 2 OF 5

Intersection: LA 28 AT HEYMAN LANE

Phase Timing Parameters

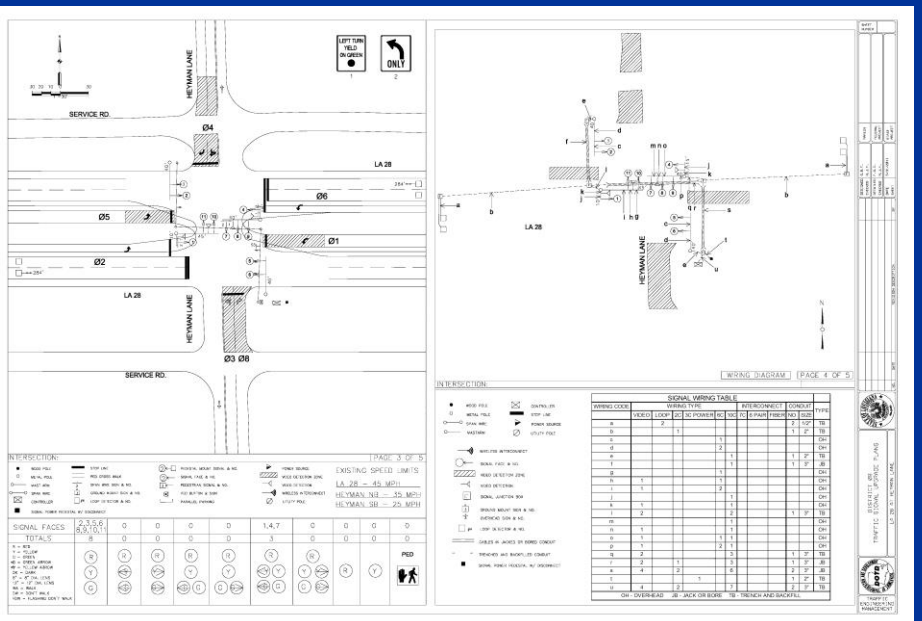
Phase Designation		1	2	3	4	5	6	7	8
Movement Description		↰	→	↰	↓	↱	←	↳	↑
PARAMETER	RANGE								
MIN GREEN (MIN I)	0 - 99.0	3.0	10.0	3.0	5.0	3.0	10.0		5.0
PASSAGE TIME	0 - 9.9	2.0	4.3	2.0	2.0	2.0	4.3		2.0
MAX GREEN I (MAX I)	0 - 99.0	10.0	40.0	8.0	10.0	8.0	40.0		20.0
MAX GREEN II (MAX II)	0 - 99.0	20.0	60.0	10.0	20.0	10.0	60.0		30.0
YELLOW CLEARANCE (YEL)	3 - 9.9	5.0	5.0	5.0	5.0	5.0	5.0		5.0
RED CLEARANCE (RED)	0 - 9.9	1.0	1.0	1.5	1.5	1.0	1.0		1.5
WALK (WALK)	0 - 99.0								
PED CLEARANCE (P CLR)	0 - 99.0								
ADDED INITIAL GREEN	0 - 9.9								
TIME TO REDUCE	0 - 99.0		20.0				20.0		
TIME BEFORE REDUCTION	0 - 99.0		20.0				20.0		
MIN GAP	0 - 9.9		2.5				2.5		
MAX INITIAL GREEN	0 - 99		33.0				33.0		
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
DETECTOR # - DELAY (in sec.)	0 - 99.0								
DETECTOR # - 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: MAX I SHALL OPERATE DURING FREE OPERATION FROM 22:00-06:00 S-S

Note 2: MAX II SHALL OPERATE DURING PLANS 1, 2 AND 3.

Note 3: CLEARANCES SHOWN ARE BASED ON AERIALS AND MUST BE RECALCULATED BY LADOTD WHEN LEFT TURN LANES ARE DESIGNED PRIOR TO IMPLEMENTATION.



Task 5.0 – Programming Controllers

- Recommended signal timing plans are programmed by either the NSI team or by LADOTD District personnel.
- Monitor signal timing plans in the field to verify operations. Make timing adjustments as necessary.
- Perform post travel time runs to compare to existing travel time runs.
- Provide updated TSI forms for all intersections once all adjustments have been completed and field verified.

Traffic Signal Timing Studies
Project Status

US 165, Monroe, LA	Implemented/Operational*
US 71, Alexandria, LA	Implemented/Operational*
LA 28, Alexandria, LA	Implemented/Operational*
LA 1208-3, Alexandria, LA	Final Timing Completed/Not Implemented to date
LA 3040, Houma, LA	Fall 2012 Implementation
LA 57, Houma, LA	Fall 2012 Implementation
* - Implemented by District personnel.	

NEEL-SCHAFFER
Solutions you can build upon

Traffic Signal Timing Studies
Project Status Cont'd.

LA 20, Thibodaux, LA	Fall 2012 Implementation
US 11, Slidell, LA	Fall 2012 Implementation
LA 3, Bossier City, LA	Final Data Collection Phase
US 526, Shreveport, LA	Final Data Collection Phase
US 61, New Orleans, LA	Initial Data Collection Phase

NEEL-SCHAFFER
Solutions you can build upon

QUESTIONS?

NEEL-SCHAFFER
Solutions you can build upon