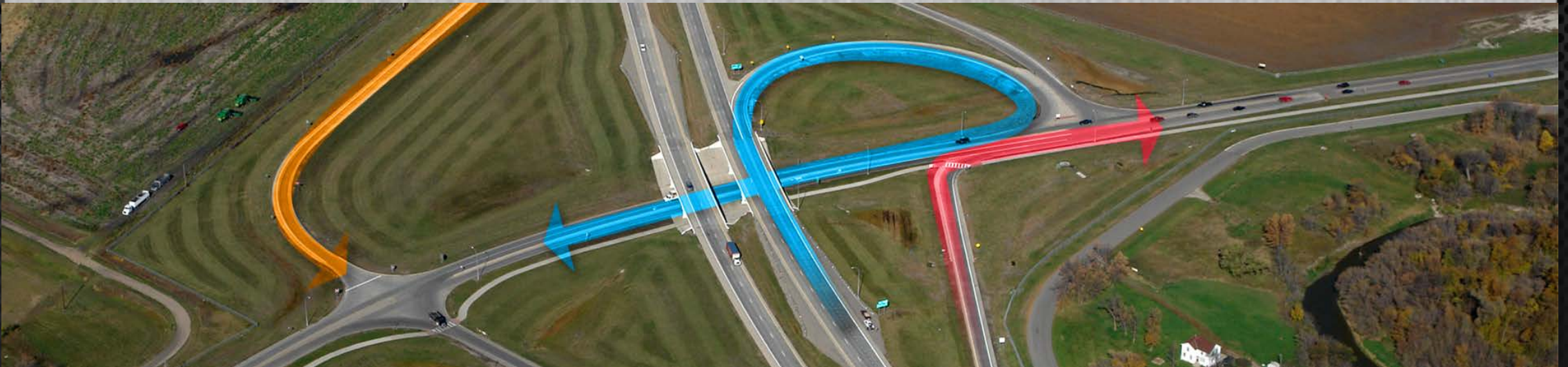


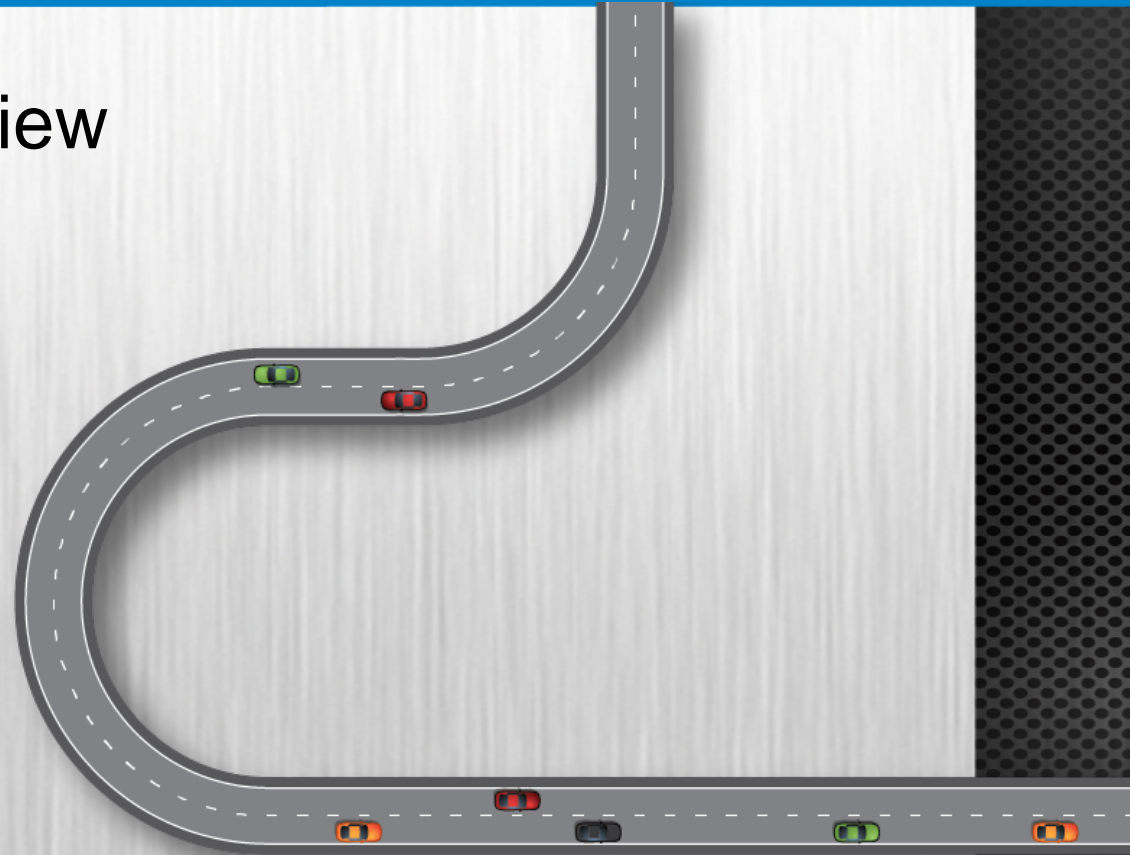
TEAM Conference 2018

Traffic Incident Management Tools for Urban and Rural Highways



Presentation Overview

- Traffic Incident Management Overview
- St. Louis District's TIM Approach
- Arterial Management Interface
- Overview of AMI
- Route Development
- Successful Use of AMI
- Other TIM Tools

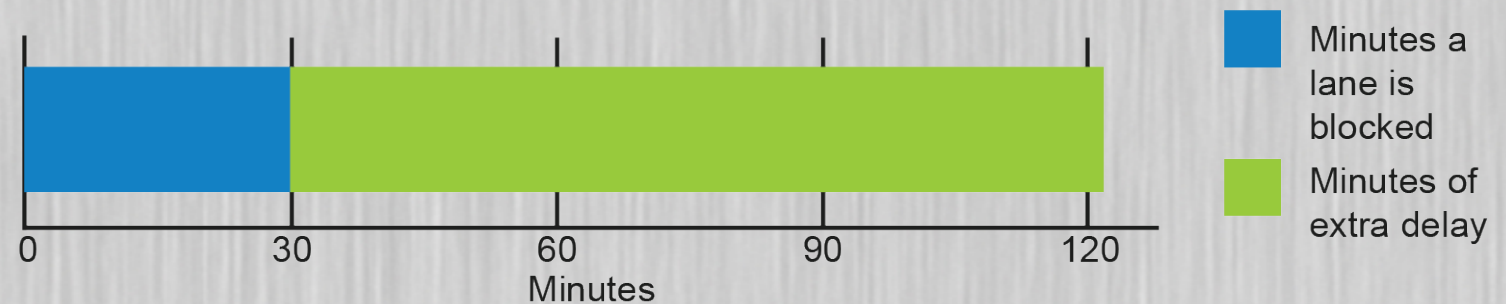


Traffic Incident Management Overview



Traffic Incidents

- Every year traffic incidents occur on our nation's roadways causing major backups and delays.
- Traffic Incidents
 - Create unsafe situations and put responders/motorists at risk.
 - Major cause of congestion and traffic delay.
- Delays cost both time and money.



Benefits of TIM

- Good stewards of the roadway.
- Save costs
- Be proactive, not reactive.
 - Utilize predetermined routes with an established implementation plan.

Benefits of Preplanning

- Specific to Diversion Routes & Incidents:
 - Reduces queue lengths.
 - Reduces potential for secondary crashes.
 - Maintains continued traffic movement.
 - People
 - Freight
 - Reduces overall delay.
 - Minimizes traffic randomly detouring and choking local roads and streets.

Benefits of Preplanning

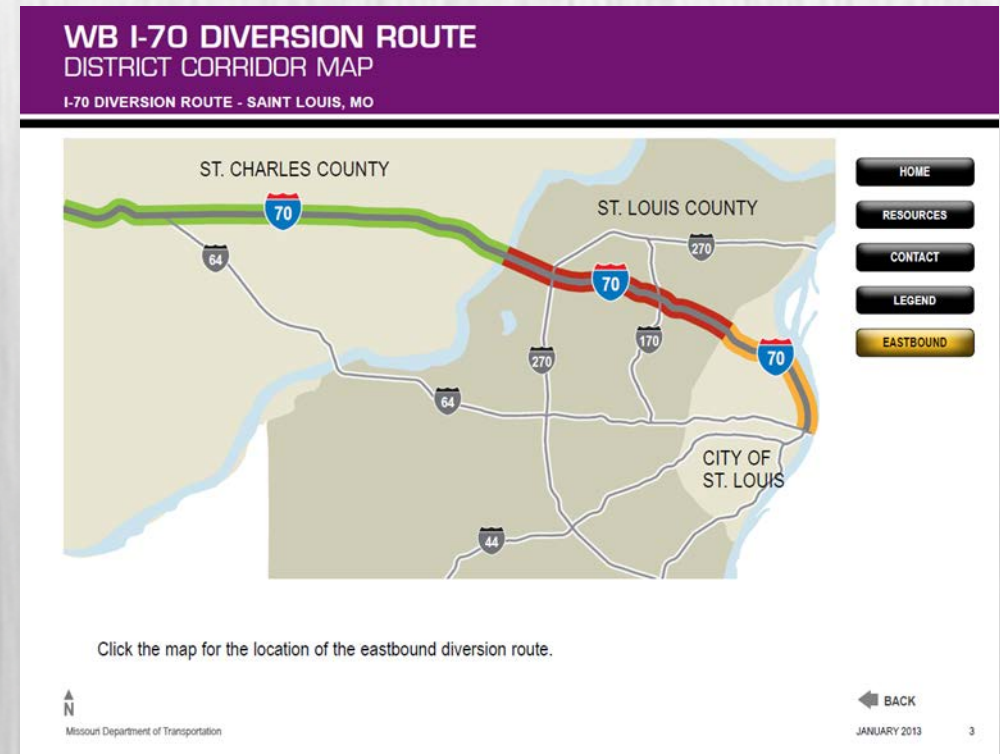
- Specific to MoDOT's Arterial Management Interface (AMI)
 - Pre-determined route options
 - Pre-programmed in each controller
 - Pre-selected in AMI per time of day and direction

St. Louis District's TIM Approach

- Central Signal System in use circa 2006
- Strong MoDOT Incident Management program via TMC
- Combination of both works best **ONLY** when signals changed **properly and rapidly**

Arterial Management Interface (AMI)

- Preplanned tool developed for use during incidents
- Provides a variety of information:
 - Easy and quick navigation
 - Preplanned diversion routes
 - Loaded signal timing plans
 - Diversion route descriptions
 - Signal timing actions
 - Contact lists



Overview of AMI

MoDOT HOME I-44 I-55 I-64 I-70 I-170 I-255 I-270 MO364 MO367 MO370

Click the corridor to select the appropriate diversion route.

Resources & Instructional Videos

ST. CHARLES COUNTY
ST. LOUIS COUNTY
FRANKLIN COUNTY
JEFFERSON COUNTY
CITY OF ST. LOUIS

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MoDOT HOME I-44 I-55 I-64 I-70 I-170 I-255 I-270 MO364 MO367 MO370

Exit 210 - US 61

CORRIDOR MAP ◀ ADJACENT ROUTE WESTBOUND ROUTE EASTBOUND ROUTE ADJACENT ROUTE ▶

I-70 WESTBOUND EXIT 210B
US 61

WESTBOUND DETOURS

DETOURS	WESTBOUND ROUTE DESCRIPTION	SIGNAL TIMING INSTRUCTIONS
DETOUR A	Pitman Ave: Exit 210B to northbound US 61 to westbound Pitman Ave. Continue on Pitman Ave to southbound US 61. Proceed to westbound I-70.	Monitor Luellenhaus between Pitman Road and Wentzville Parkway. Use plan 77 for AM or 94 for PM if needed @ Wentzville Parkway
DETOUR B	Wentzville Parkway: Exit 210B to northbound US 61 to southbound Wentzville Parkway. Proceed to westbound I-70.	-

WESTBOUND SIGNAL TIMING ACTIONS

Implement the following diversion timing plans per detour and time of day:

Use with Detours:	Interchange & Affected Signals:	Timing Plan & Cycle Length:			
		AM		PM	
DETOUR A	Exit 210B - US 61 NB	Plan #	Cycle Length	Plan #	Cycle Length
	Int 1107 - US 61 NB @ Pitman St (MoDOT)	77	120	77	120
	Int 1108 - US 61 SB @ Pitman St (MoDOT)	77	120	77	120
DETOUR B	Exit 210B - Wentzville Parkway:				
	Int 33 - Wentzville Pkwy @ West Meyer Road (Wentzville)	74	130	94	140
	Int 34 - Wentzville Pkwy @ William Dierbergs Dr (Wentzville)	74	130	94	140
	Int 35 - Wentzville Pkwy @ Dierbergs Entrance (Wentzville)	74	130	94	140
	Int 36 - Wentzville Pkwy @ Home Depot Entrance (Wentzville)	74	130	94	140
	Int 37 - Wentzville Pkwy @ West Pearce Blvd (Wentzville)	74	130	94	140
	Int 38 - Wentzville Pkwy @ Schroeder Creek Blvd (Wentzville)	74	130	94	140
	Int 40 - Wentzville Pkwy @ Meyer Road (Wentzville)	74	130	94	140
	Int 41 - Wentzville Pkwy @ Luellenhaus Blvd (Wentzville)	74	130	94	140
	Int 42 - Wentzville Pkwy @ QT Entrance (Wentzville)	74	130	94	140
	Int 1068 - IS 70 WB @ Wentzville Pkwy (MoDOT)	64	130	94	140
	Int 1069 - IS 70 EB/SR @ Wentzville Pkwy (MoDOT)	64	130	94	140
	Int 1103 - US 61 NB @ RT A (MoDOT)	77	130	87	140
	Int 1104 - US 61 SB @ RT A (MoDOT)	77	130	87	140

TOP ▲

I-70 WESTBOUND EXIT 210B
US 61

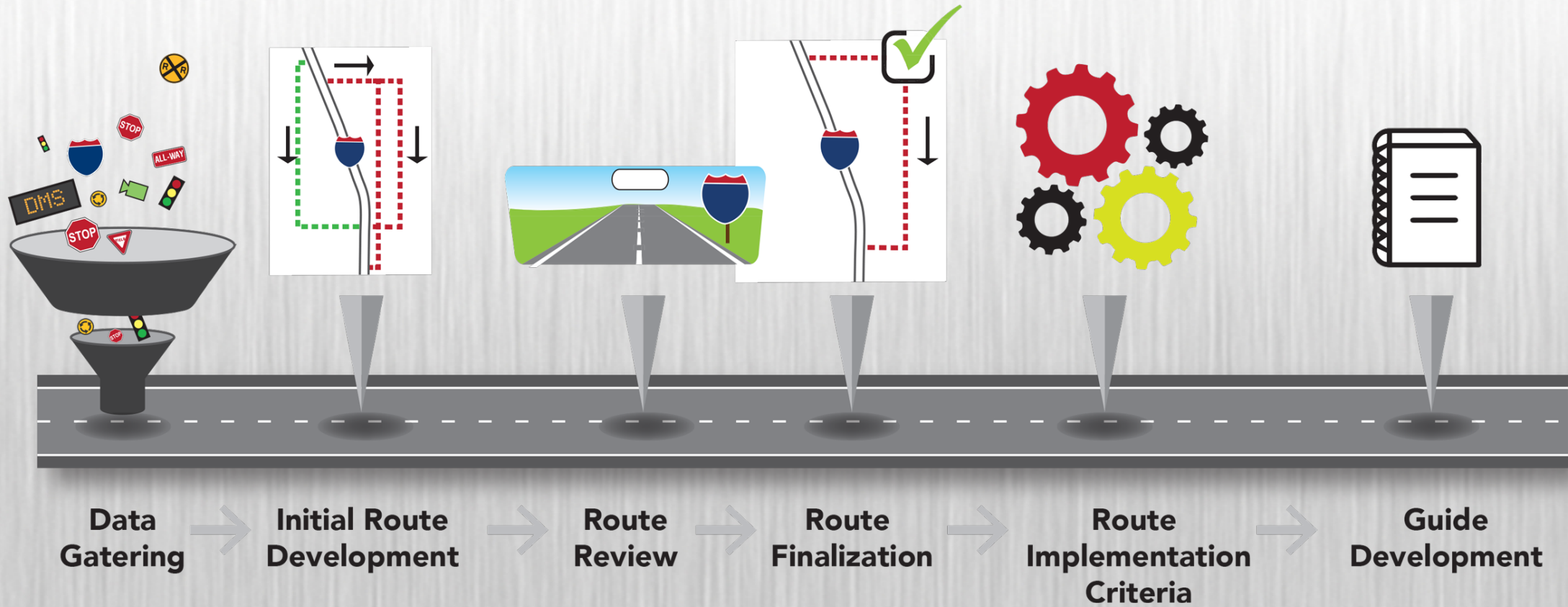
Signal Timing Report Tru-Traffic Synchro Legend Notes Contact

I-270 Corridor Map - Exits 25-34

Click the exit number for appropriate route

25A-B 26A 26B 27 28 29 30 30A 31 32 33 34

Route Development



Route Selection Criteria

- Required Attributes
 - Continuous MoDOT arterials only (first few phases)
 - Logical diversion path
 - Pathway back to freeway

Route Selection Criteria

- Negative Attributes
 - Non-MoDOT routes
 - Obvious lack of any spare capacity
 - No logical path back to freeway

Preloaded Signal Timing Plans

- Two plans by TOD to account for prevailing flow
- Approximately 50% increase in cycle length for coordinated routes
- Utilize ramp signals alone if primary diversion contained to interchange (“up and over”)

Successful Use of AMI

Saturday, August 26, 2017 1530 – Train Derailment I-55 STL County



Location: I-55 near Butler Hill, Southwest Area

Event: A train was derailed near the location which caused the all lanes in both directions to be shut down

Time: 1530 - 2130 **Total Time:** 12 + hours (extended into the night)

Action: Vehicles were being diverted to Lemay Ferry Rd (US 61/67) from the I-55 @ Butler Hill ramps. Vehicles coming southbound were directed off ramps then proceeded to head southbound on US 61/67. Local traffic seemed to continue to use Lemay Ferry Rd while travelers hopped back on I-55 at Meramec Bottom Rd / Baumgartner Rd just a little over a mile down from Butler Hill. Scanning of the timing plans, I decided to switch the controller to free and changed many of the phases to accommodate the increased vehicle demand. Most notably, phase 6 (Southbound Through) max time of 30 sec was changed to 100 sec and I changed the veh extension to 2 sec. At US 61/67 @ Butler Hill, I also changed the signal to free then increase the max times of the northbound southbound through lanes by an additional 30 sec then set the recall to max. I also changed the Eastbound left turn from Butler Hill on US61/67 from 25 sec to 40 sec. Vehicles going northbound were directed off at the Butler Hill interstate ramps. **I used the AMI program to look into finding a diversion plan.** I implemented the detour route timing plans for all signals north of Butler Hill up to Central City signal. I changed all the time of day timing plans to TP 84. I made tweaks to the signals throughout the event attempting to alleviate all the congestion.

Result: The changes that were made took little time to start to see improvements, but the additional time at the signals greatly increased the flow of traffic. Due to the high demand the signal at US61/67 @ Butler Hill, this signal was in constant gridlock during the entire event until later when it got dark. The southbound traffic was taken care of very easily as there was only 1 signal to get back on the interstate. The northbound traffic saw a lot of congestion during the peak time, but greatly began to die down later in the day. No other issues were noted. All signals were reverted to their original status at promptly 8 am on Sunday morning.



NORTHBOUND DETOURS

DETOURS	NORTHBOUND ROUTE DESCRIPTION	SIGNAL TIMING INSTRUCTIONS
DETOUR A	Exit 195: Down and Under	
DETOUR B	US 61/US 67: Exit 195 to eastbound Butler Hill Road to northbound US 61/US 67 (Lemay Ferry Road). Proceed to westbound I-255.	

NORTHBOUND SIGNAL TIMING ACTIONS

Implement the following diversion timing plans per detour and time of day.

Use with Detours:	Interchange & Affected Signals:	Timing Plan & Cycle Length:			
		AM		PM	
		Plan #	Cycle Length	Plan #	Cycle Length
DETOUR A	EXIT 195 - Butler Hill Rd				
	Int 6006 - IS 55 @ Butler Hill NB Ramp	74	90	84	90
	Int 6007 - IS 55 @ Butler Hill SB Ramp	74	90	84	90
DETOUR B	EXIT 195 - Butler Hill Rd				
	Int 6006 - IS 55 @ Butler Hill NB Ramp	74	90	84	90
	Int 6007 - IS 55 @ Butler Hill SB Ramp	74	90	84	90
	Int 6145 - US 61 @ South Co Center	74	130	84	150
	Int 6146 - US 61 @ Forder	74	130	84	150
	Int 6147 - US 61 @ I-255 EB Ramp	74	130	84	150
	Int 6149 - US 61 @ Central City	74	130	84	150
	Int 6151 - US 61 @ Mehl	74	130	84	150
	Int 6153 - US 61 @ Keller Plaza	74	130	84	150
	Int 6154 - US 61 @ Mattis	74	130	84	150
	Int 6156 - US 61 @ Butler Hill	94	130	97	150

Construction Zone TIM Strategies

DANE COUNTY MAPS & RESOURCES

EMERGENCY SERVICES MAPS

- [I-39/90 CORRIDOR MAP](#)
- [EMERGENCY MEDICAL SERVICE DISTRICTS AND FACILITIES](#)
- [FIRE DISTRICTS AND STATION LOCATIONS](#)
- [LAW ENFORCEMENT DISTRICTS AND FACILITIES](#)
- [COUNTY HIGHWAY FACILITIES](#)
- [TOWING FACILITIES](#)
- [INTELLIGENT TRANSPORTATION SYSTEMS DEVICES](#)
- [INCIDENT MANAGEMENT TRAILER LOCATIONS](#)
- [RAMP GATE AND BARRICADE LOCATIONS](#)



ADDITIONAL MAPS

State, Region, and County

- [WISCONSIN STATEWIDE MAP](#)
- [DANE COUNTY MAP](#)
- [SW REGION CONSTRUCTION](#)

Municipal

- [EDGERTON](#)
- [MADISON - 1](#)
- [MADISON - 2](#)
- [MCFARLAND](#)
- [STOUGHTON](#)

OSOW Freight Network

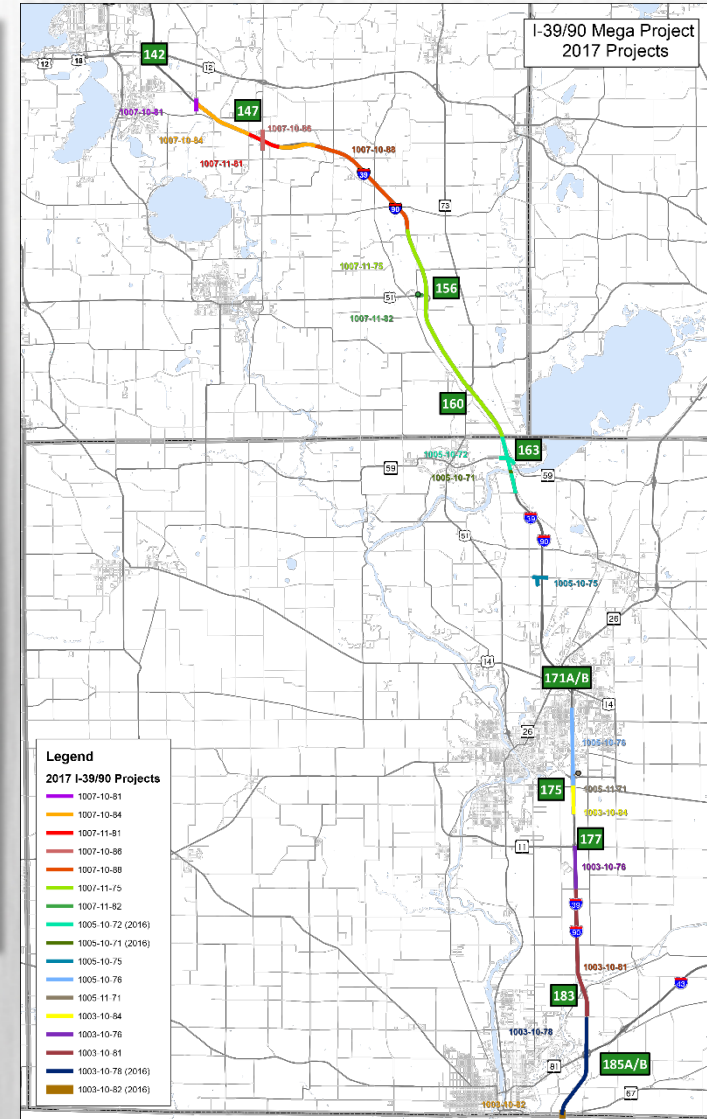
- [STATEWIDE](#)
- [SOUTHWEST REGION](#)

RESOURCES

- [CRASH RECONSTRUCTION EQUIPMENT & PERSONNEL](#)
- [INCIDENT MANAGEMENT TRAILER EQUIPMENT LIST](#)
- [EMERGENCY TRAFFIC CONTROL SCENE MANAGEMENT GUIDELINES](#)
- [FREEWAY SERVICE TEAM \(FST\)](#)
- [SOUTHWEST REGION ALTERNATE ROUTE GUIDE](#)
- [TIME PROCUREMENT LIST](#)
- [HAZMAT RESOURCES](#)
- [PROJECT INCIDENT MANAGEMENT GUIDE](#)
- [RIMC INFORMATION](#)
- [WORK ZONE SAFETY GUIDELINES \(2013\)](#)
- [SAFETY FIELD GUIDE \(2016\)](#)

INFORMATION

- [INTERCHANGE AERIALS](#)
- [2016 SW REGION - MADISON CONST. PROJECT CONTACTS](#)
- [INTERCHANGE DRAWINGS](#)
- [SW MAINTENANCE STAFF](#)
- [MILE POST / EXIT NUMBERS](#)
- [SW HIGHWAY TRAFFIC OPERATIONS STAFF](#)
- [I-39/90 EMERGENCY ACCESS](#)
- [SW REGION COUNTY CONTACTS](#)
- [MEDIAN CROSSOVER LOCATION](#)
- [WEBSITES](#)
- [INTERSTATE BRIDGE LOCATION](#)
- [PROJECT INFORMATION](#)
- [MOTORIST SAFETY MATERIALS](#)
- [ARCHIVES \(2014-2021\)](#)



Thank you!

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