

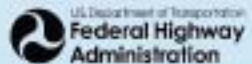
Transportation Management Plans



CONNECTING WISCONSIN

Presentation to MTMUG

September 23, 2009



Agenda

- TMP Overview
- Case Study
- Analysis Tools
- Findings
- Lessons Learned

What is TMP?

- Transportation Management Plan
 - Required by FHWA, Sept 2004
 - Significant projects
 - Stakeholder coordination
 - PS&E level of analysis

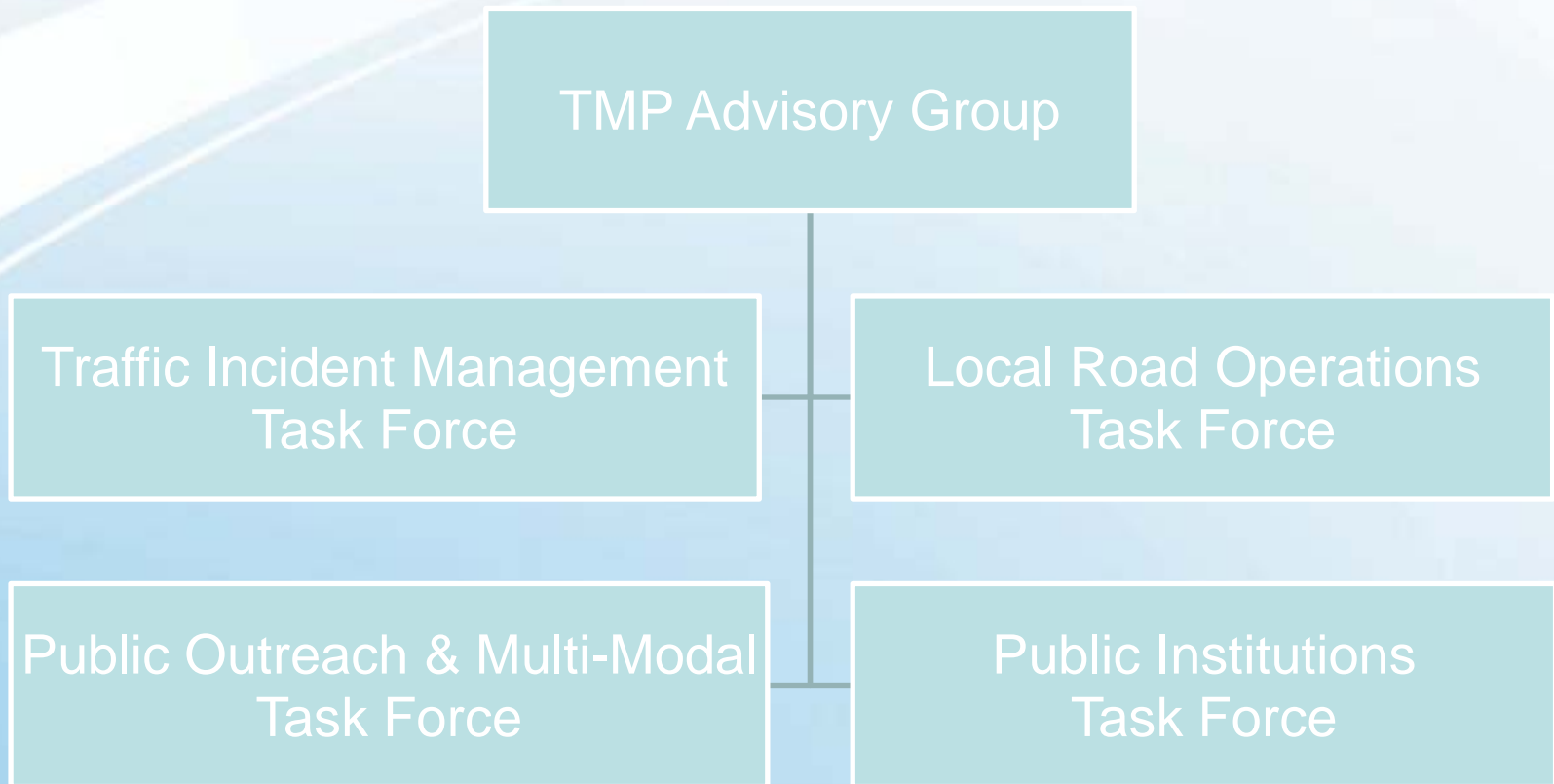
Goals of TMP

- Plan to provide:
 - Reduction in crashes
 - Safety and mobility for workers and public
 - Minimize work zone delays to 15 minutes
 - Provide traveler information
 - Define stakeholder responsibilities
 - Evaluate work zone safety and mobility

TMP Components & Phases

- Components
 - Temporary traffic control
 - Traffic operations
 - Public Information/Outreach
 - Incident/crisis management
- Phases
 - Design phase
 - Updating
 - Implementation
 - Monitoring
 - Post evaluation

Transportation management team

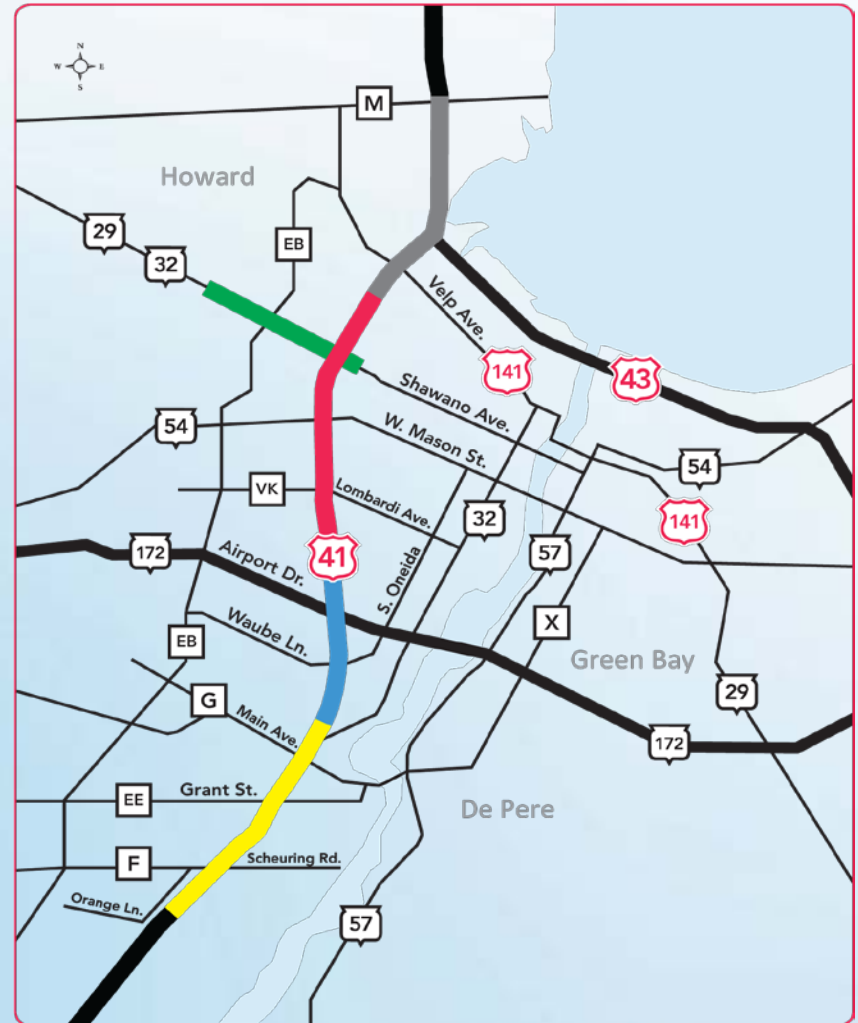


Transportation management plan

- Task forces include:
 - Police (De Pere, Hobart/Lawrence, Brown County)
 - Fire (De Pere and Lawrence)
 - Public Works (De Pere, Brown County Highway)
 - Brown County Planning, Bike/Pedestrian
 - Green Bay Metro
 - West De Pere and Syble Hopp schools

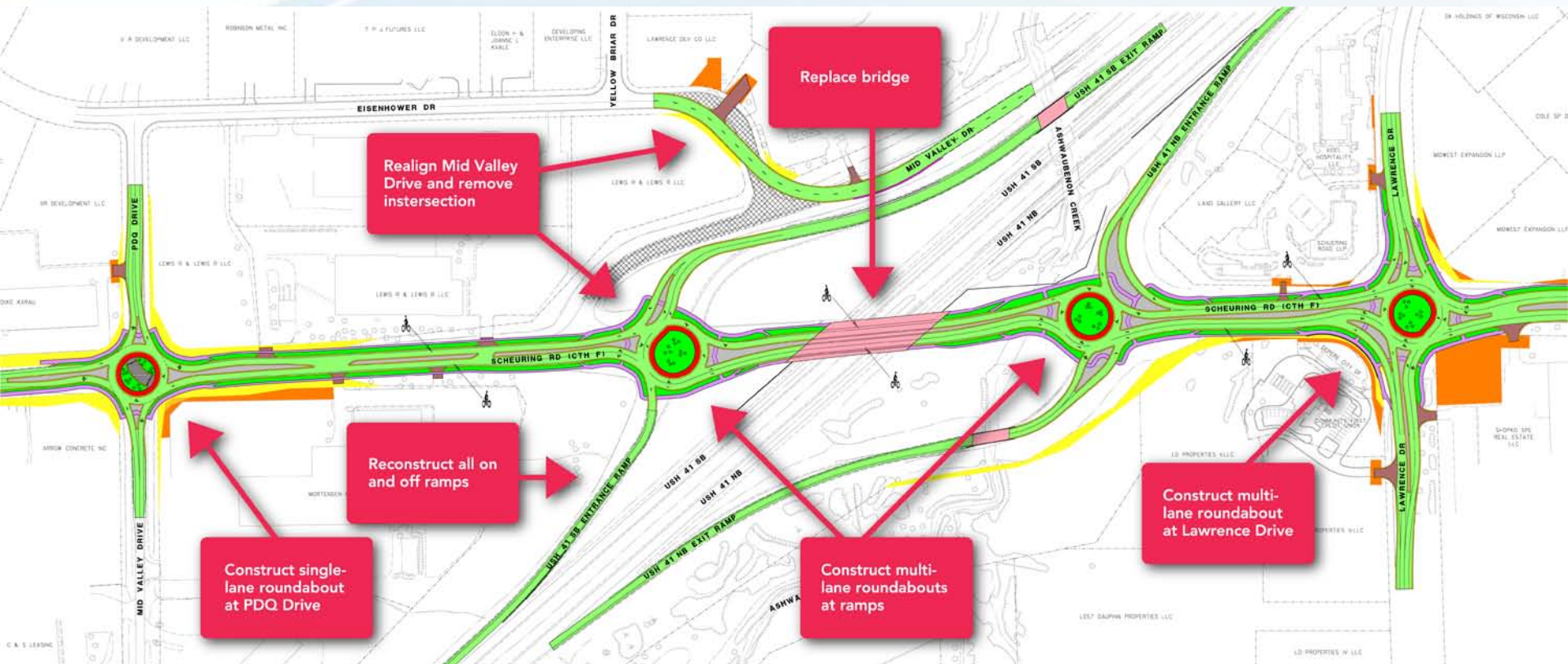
US 41 Project overview

- Brown County limits
 - Orange Lane, De Pere
 - Lineville Road, Suamico



Scheuring Road interchange

- Design features



Construction staging scenarios

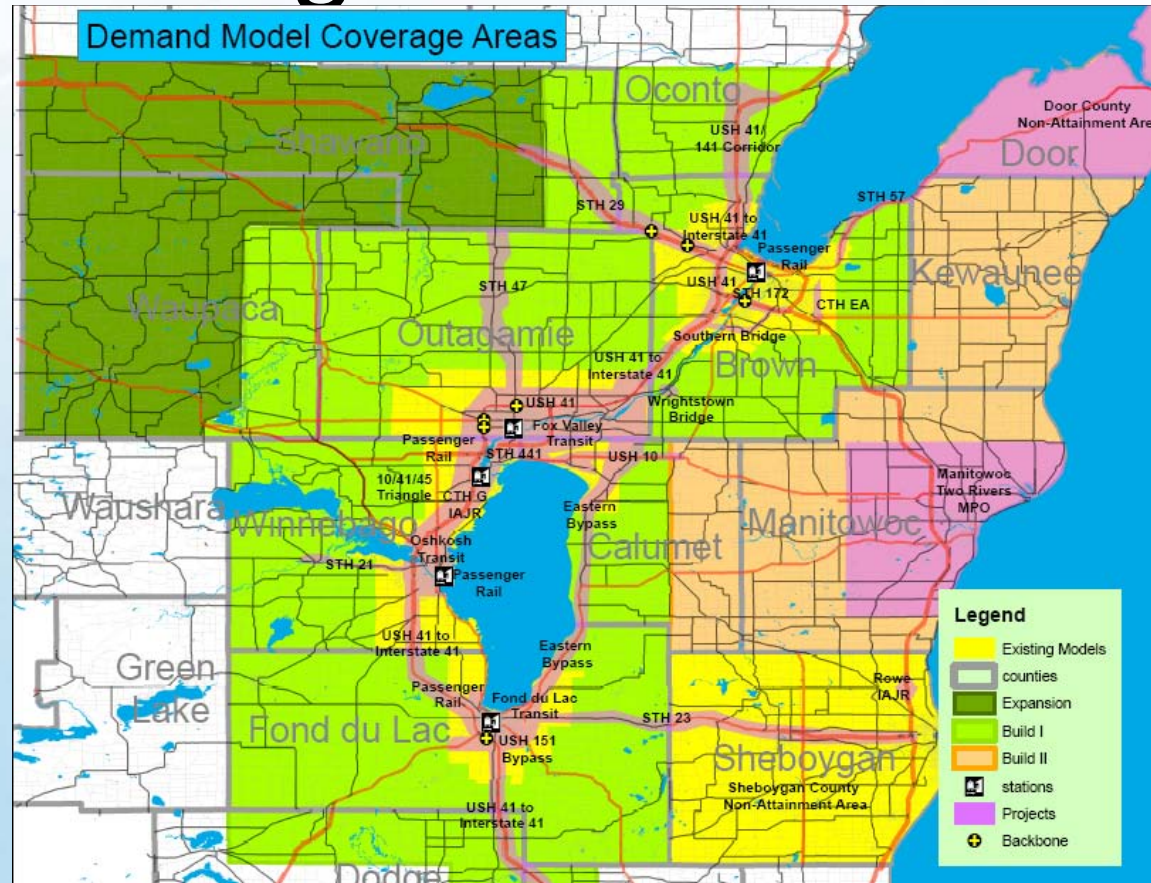
- **Scenario 1A**
 - Closure of PDQ Drive and Lawrence Drive – 2010
 - Closure of US 41-Scheuring Road Interchange – 2011
- **Scenario 1C**
 - Closure of PDQ Drive - 2010
 - Partial Closure of Lawrence Drive – 2010
 - Closure of US 41-Scheuring Road Interchange – 2011
- **Scenario 2**
 - Closure of PDQ Drive – 2010
 - Closure of Lawrence Drive and US 41-Scheuring Road Interchange – 2011

Traffic Analysis Tools

- Northeast Region travel demand model
- TransCAD (mapping)
- Synchro/Simtraffic
- Rodel
- VISSIM (animations)

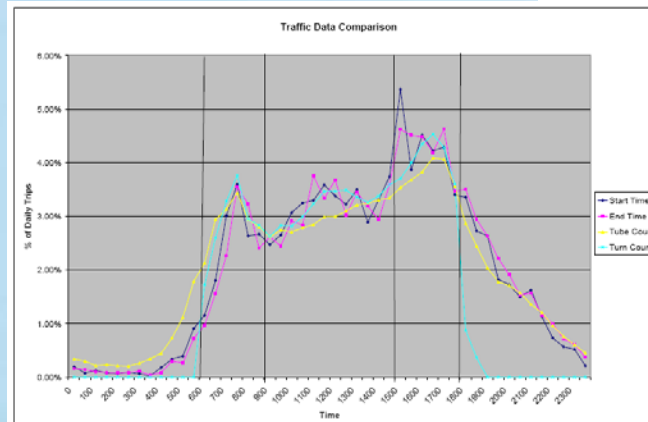
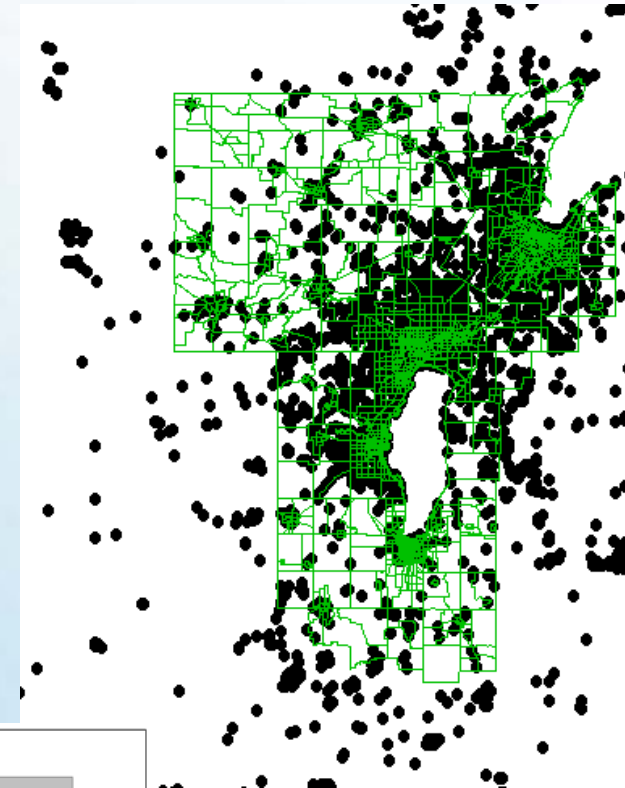
Northeast Region TDM

- Cube model
- Four periods
- Interpolated 2015 inputs
- Estimate traffic diversions
- Identify capacity issues



Northeast Region TDM

- Developed from NHTS data
- Feedback process
 - Distribution
 - Mode Choice
- Four time periods

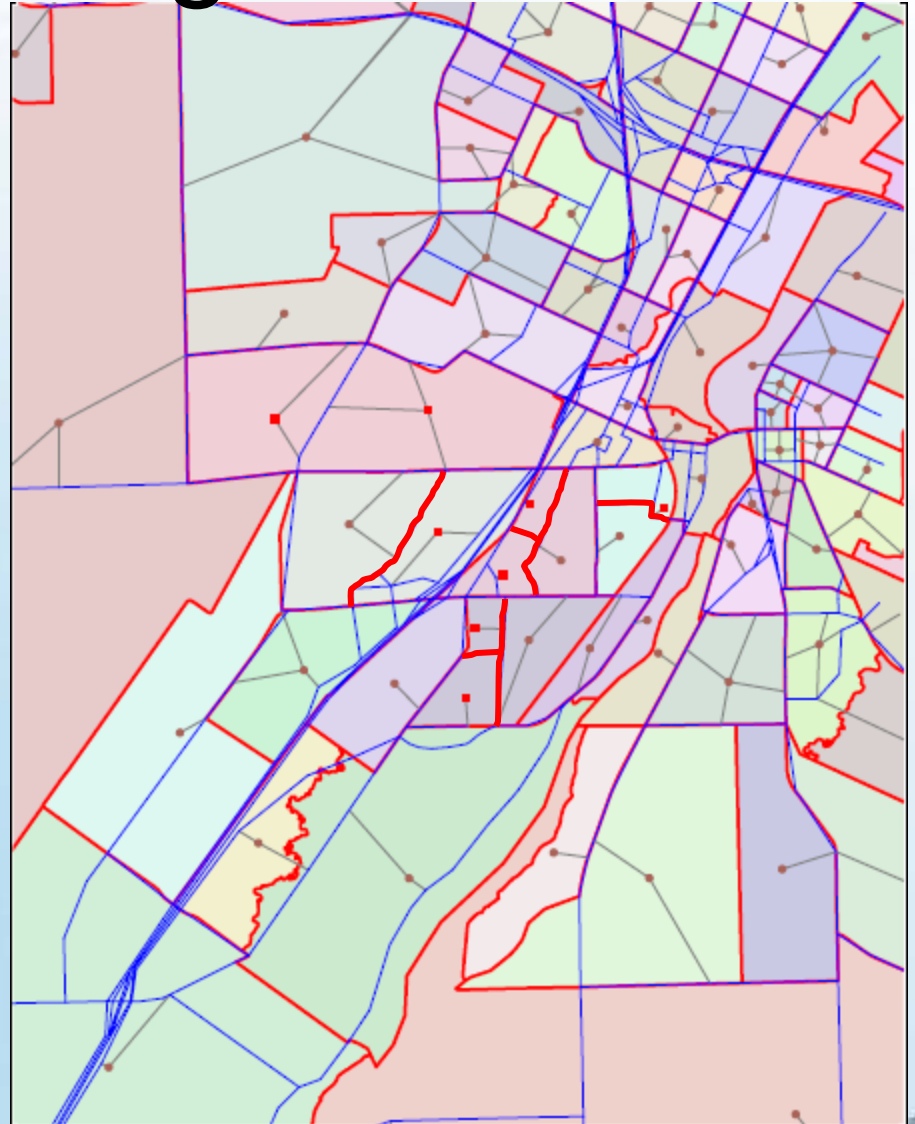


Northeast Region TDM

- Construction-related diversions assume:
 - No change in trip generation (conservative)
 - No change in trip distribution (conservative)
 - No change in mode
 - No change in time of day (conservative)
 - In other words, conservative static trip tables

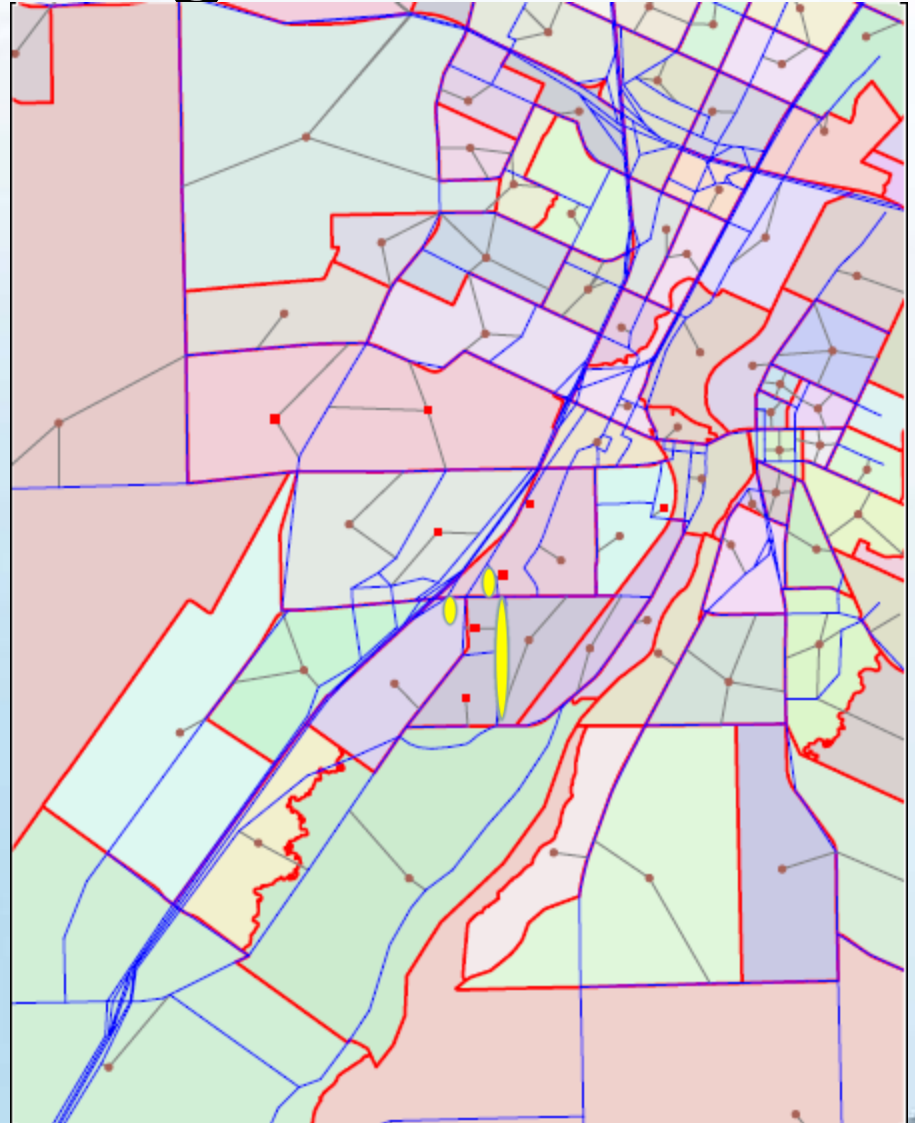
Northeast Region TDM

- Disaggregate model for local detail
 - Split zones
 - Estimate % of trips within new zones
 - Suballocate trips to new trip table
 - Local calibration



Northeast Region TDM

- Additional local network detail
 - Local streets
 - Private lots
 - Available parking lanes
 - Temporary bypass
 - Intersection turn delays

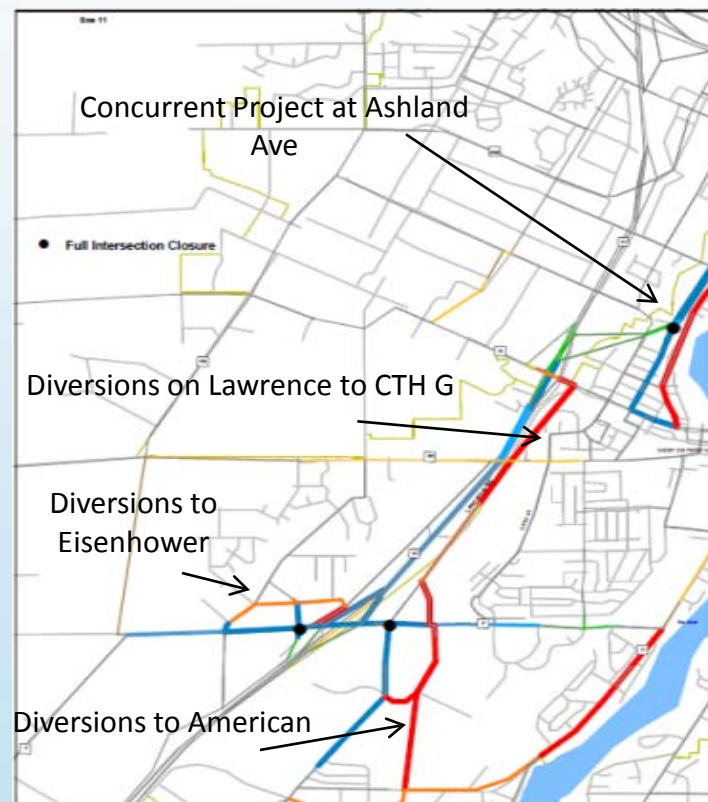


TDM Scenario Analysis

- Utilized TDM to predict diversions
- Saved turns for further analysis
- Calculate VMT, VHT for system performance
- Estimate user cost
 - Δ VHT
 - Value of Time (\$14.00)
- Extract subarea trip tables for simulation

TDM Diversions

- Link-specific diversions
 - Visual reasonableness check
 - Public consumption
 - Schools
 - Parks
 - Enviro corridors
 - Truck routes

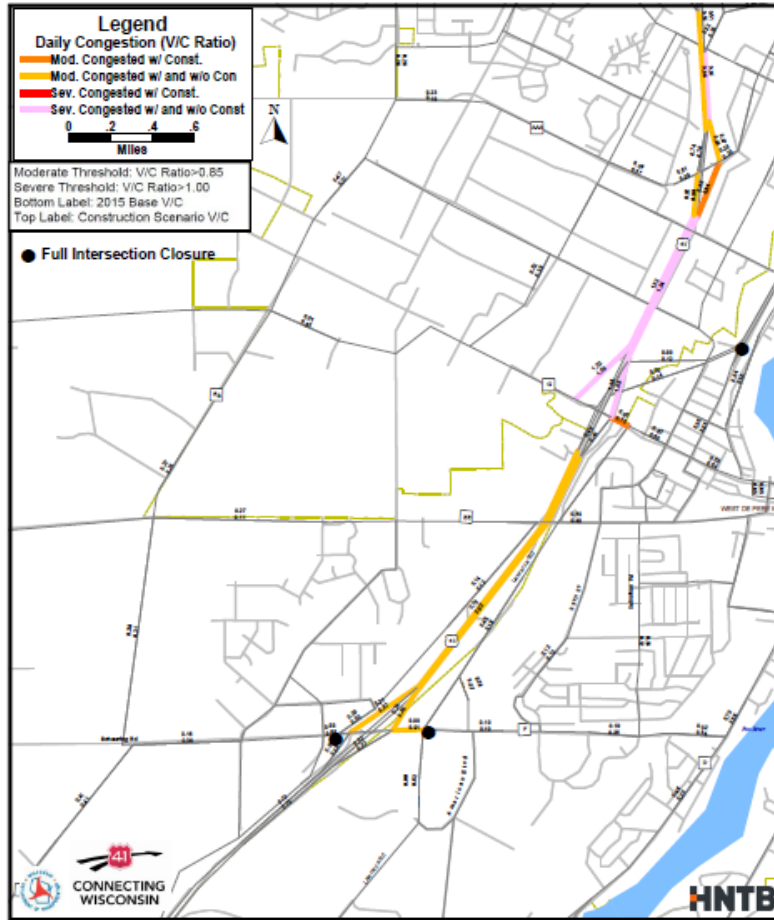


TDM Congestion

Daily Congestion under Construction Scenario 1
Phase 1 at Lawrence/Scheuring Rd Intersection
- 2015

Scenario 1 Phase 1

Lawrence Rd and Scheuring Rd Intersection closed
Nimtz Rd and Scheuring Rd Intersection closed
Ashland Ave and 8th St Intersection closed
Right-in Right-out allowed at Ashland Ave and 9th St Intersection



- Identify link-specific congestion locations
 - Peak period turns for further analysis
 - Coordinate with local agencies for temp control modification

Synchro Analysis

- Utilized turns from TDM to estimate construction traffic volumes
- Analyzed existing and/or proposed geometry
- Identified minor improvements such as:
 - Retiming
 - Restriping
 - Temporary pavement
- Assessed 85% volumes for less conservative approach

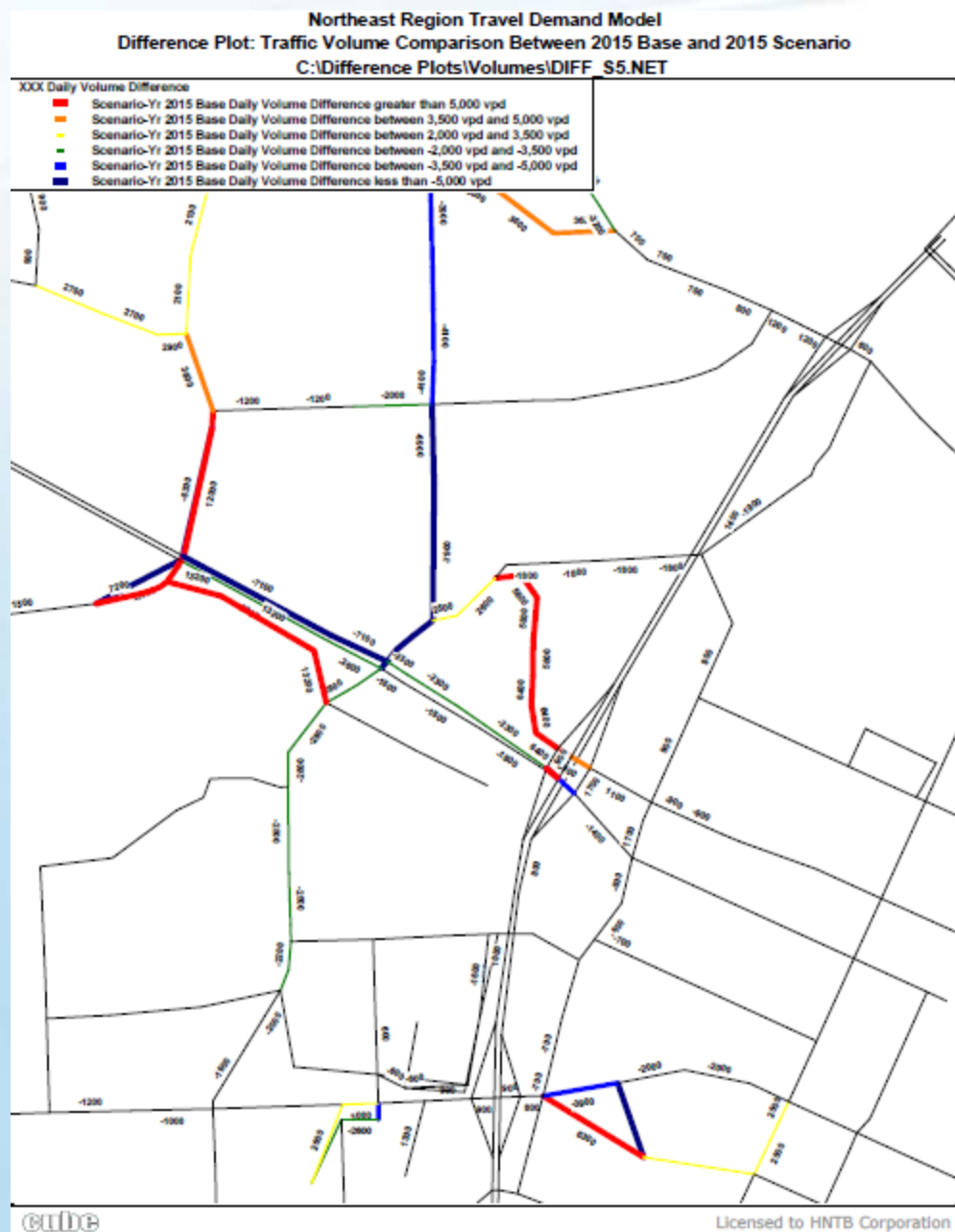
Stage 5 - Closures

- Packerland Dr closed north of WIS 29
- CTH J open
- WIS 29 open between Packerland Dr and Taylor St

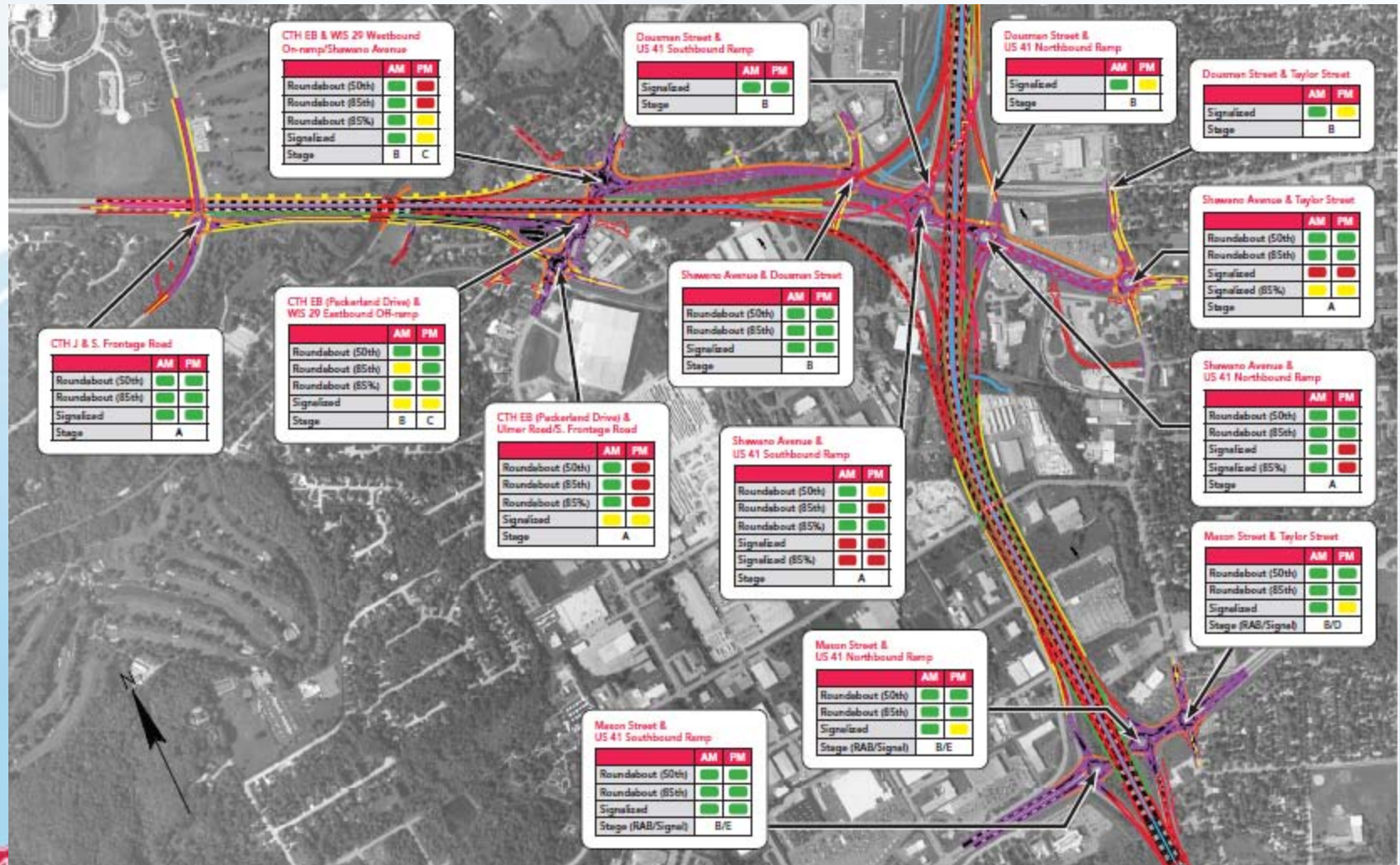


Stage 5 - Volumes

- Traffic diversion to
CTH J and
Dousman St



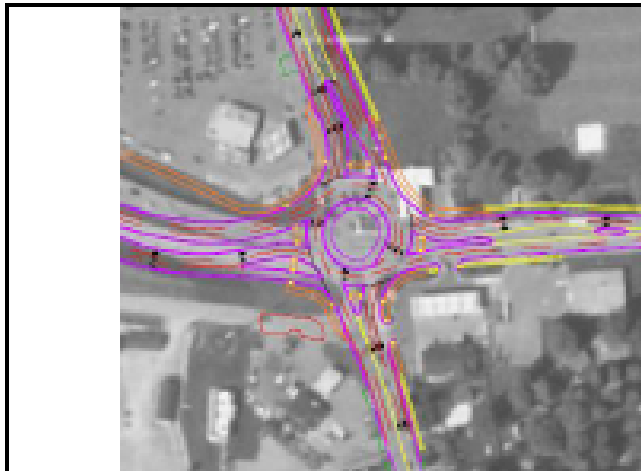
Synchro Analysis



Rodel Analysis

- Analyzed proposed roundabouts with construction detour traffic

Shawano Avenue & Taylor Street



Score: Green

Construction Stage Worst Case: Stage 5

Roundabout LOS (50th): A(AM); A(PM)

Maximum Queue with Thru+Left at the EB approach (50th): 25' EB (AM); 50' EB (PM)

Roundabout LOS (50th): A(AM); A(PM)

Maximum Queue with semi-bypass lane at the EB approach (50th): 25' EB(AM); 25' SB, EB and WB (PM)

Roundabout LOS (85th): A(AM); A(PM)

Maximum Queue with Thru+Left at the EB approach (85th): 25' EB (AM); 50' EB (PM)

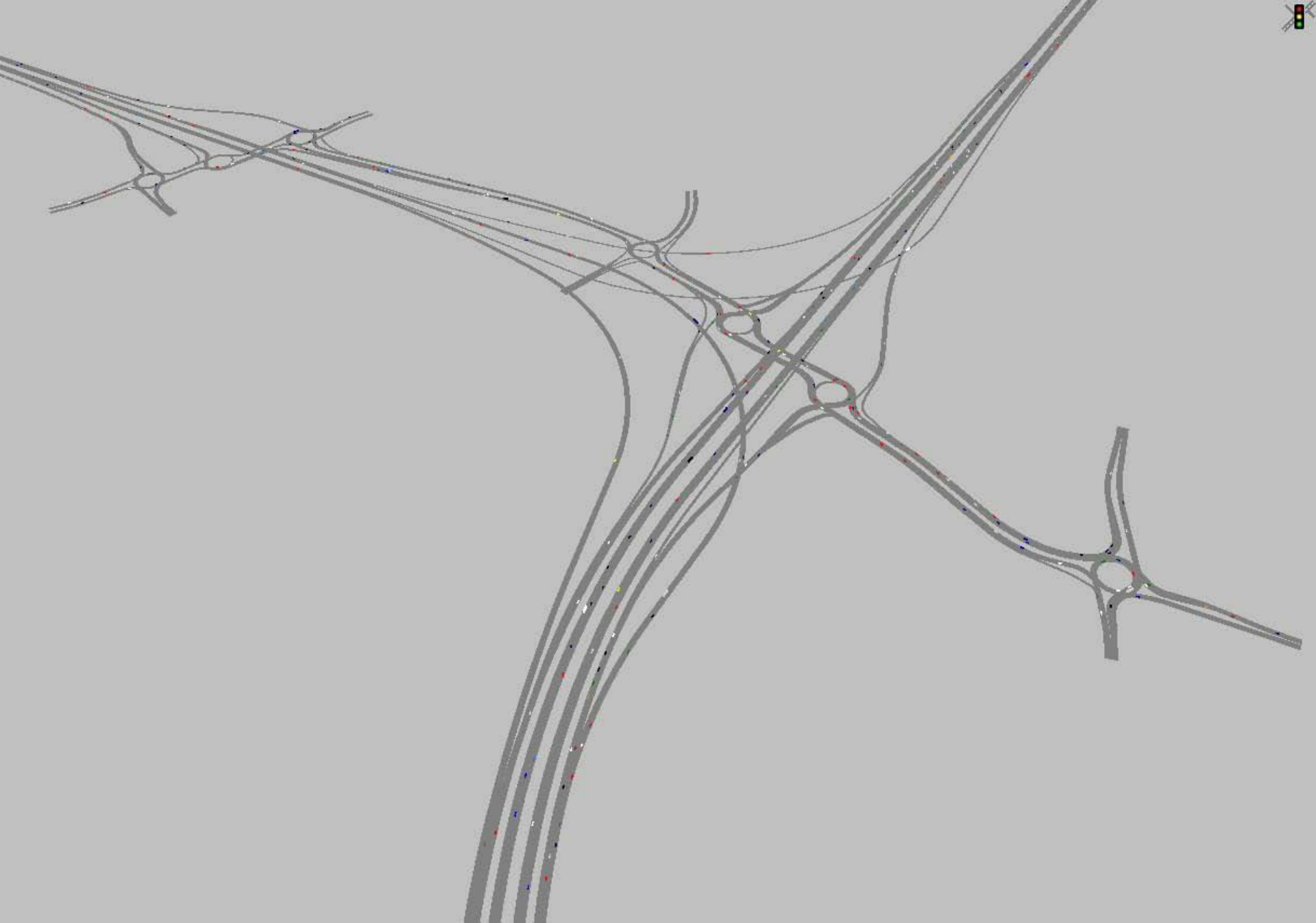
Roundabout LOS (85th): A(AM); A(PM)

Maximum Queue with semi-bypass lane at the EB approach (85th): 25' EB (AM); 25' SB and WB(PM)

Issues: No significant delay or queues

VISSIM Analysis

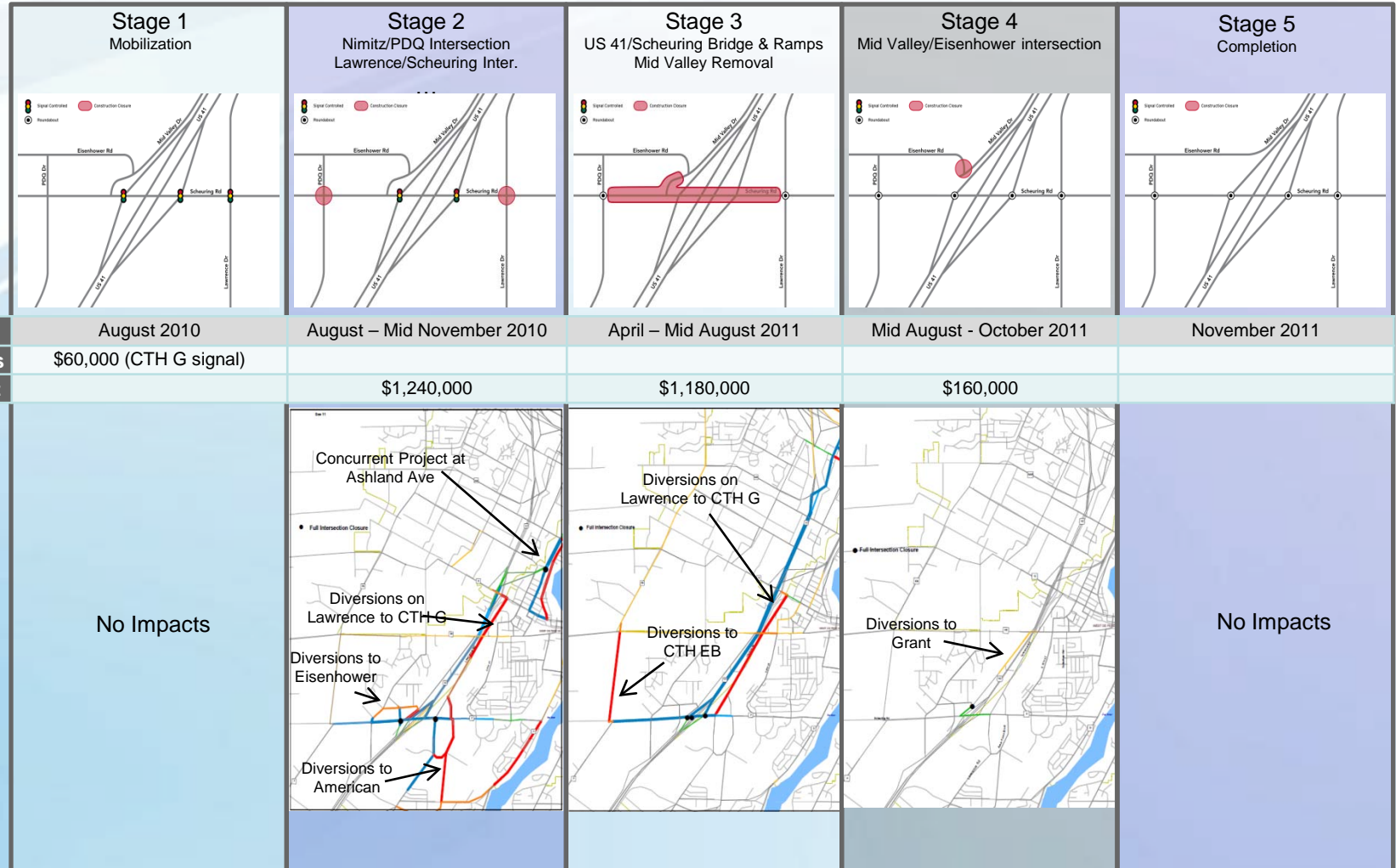
- Utilize TDM subarea trip tables
- Construction traffic and staging visualization
- Final design traffic visualization and analysis



TMP Task Forces

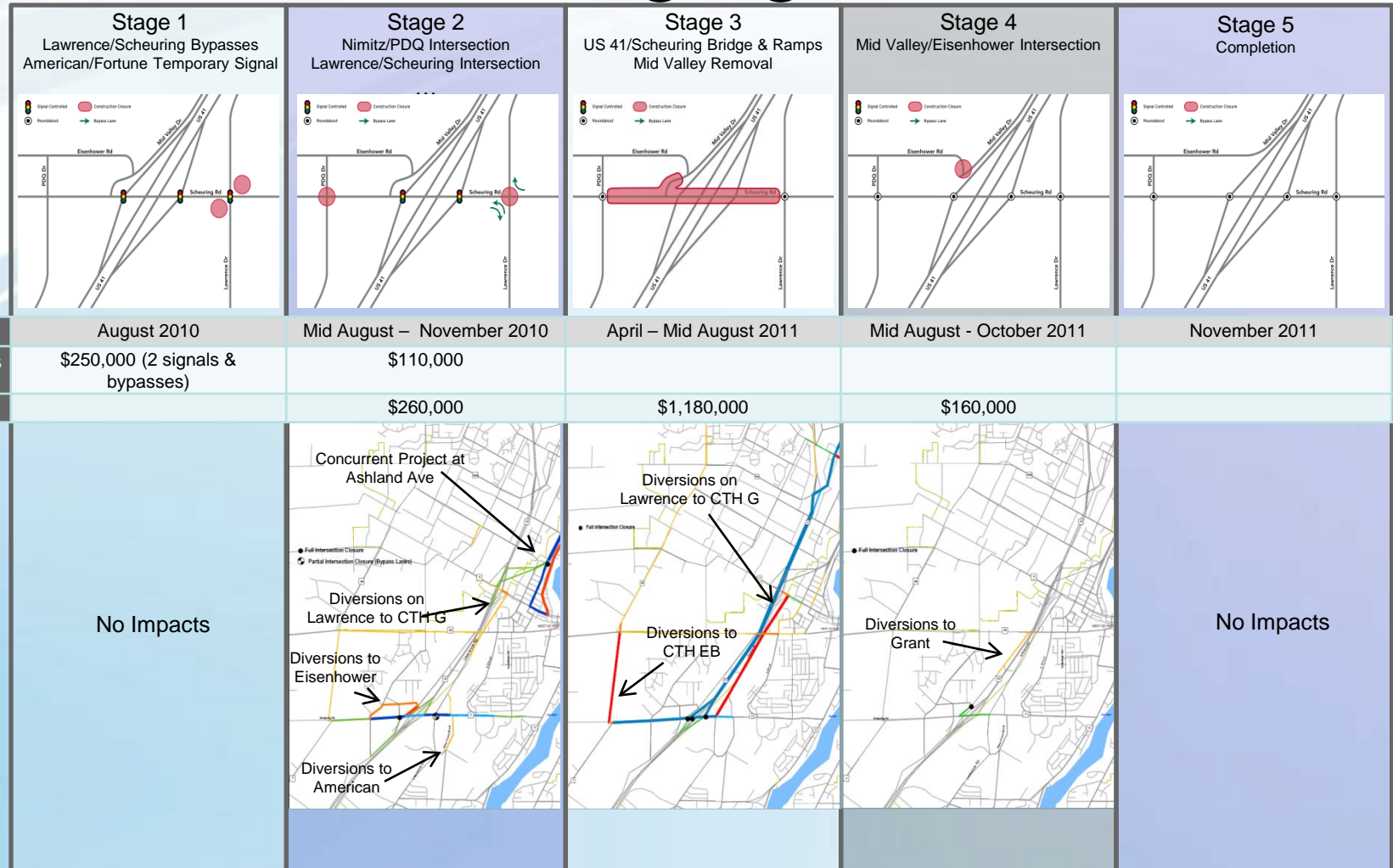
- Provided Task Forces with:
 - Construction scenarios
 - Construction costs
 - Traffic diversions
 - System user costs
 - Staging costs
- Developed mitigation items
- Initiated stakeholder and business outreach
- Guidance to Advisory Group on staging

Construction staging scenario 1A

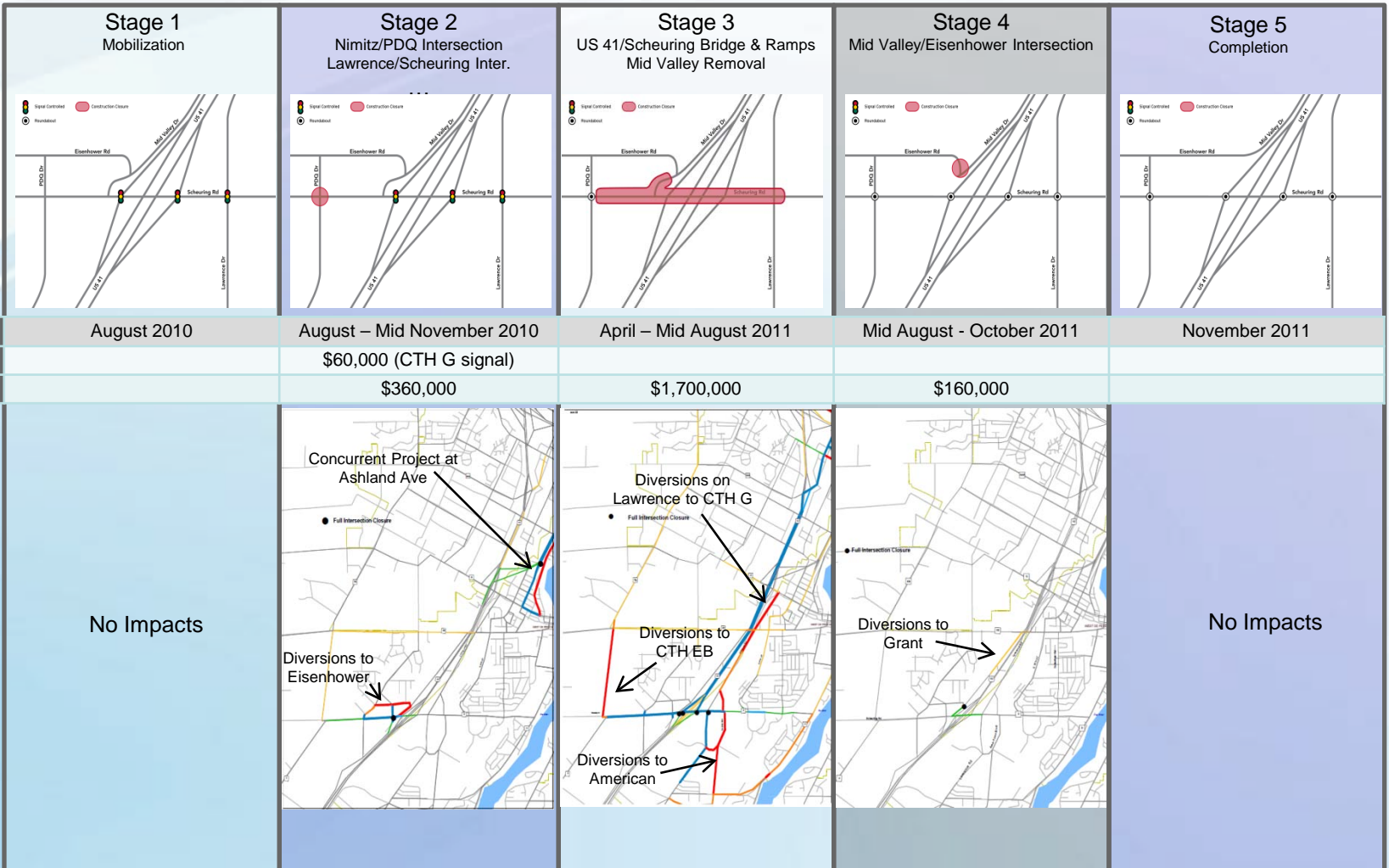


PDQ Drive and Scheuring Road closure / US 41 Interchange closure

Construction staging scenario 1C



PDQ Drive and Scheuring Road closure with bypass lanes / US 41 Interchange closure



PDQ Drive closure / US 41 Interchange and Scheuring Road closure

Staging scenarios summary

Considerations		Scenario 1A PDQ & Lawrence / 41 Interchange	Scenario 1C PDQ & Lawrence(bypasses) / 41 Interchange	Scenario 2 PDQ / Lawrence & 41 Interchange
Schedule	PDQ Intersection	Fall 2010	Fall 2010	Fall 2010
	41 Interchange	Summer/Fall 2011	Summer/Fall 2011	Summer/Fall 2011
	Lawrence Intersection	Fall 2010	Fall 2010 (Bypasses Open)	Summer/Fall 2011
	Eisenhower/Mid Valley	Fall 2011	Fall 2011	Fall 2011
Lawrence Intersection Business Impact		Closed Fall 2010	Limited Access to Businesses	Closed Summer/Fall 2011
Construction Cost		\$14.5 million	\$14.5 million	\$14.5 million
Additional Staging Cost		\$60,000	\$360,000	\$60,000
WisDOT Cost		\$14.56 million	\$14.86 million	\$14.56 million
Traveler Delay		\$2.6 million	\$1.6 million	\$2.2 million
Total Scenario Cost		\$17.2 million	\$16.5 million	\$16.8 million

Preliminary TMP recommendation

- Scenario 1C strategies

TMP Strategies			
Incident Management	Local Road Operations	Outreach / Multi-Modal	Public Institutions
<ul style="list-style-type: none">Position traffic control for incident closures	<ul style="list-style-type: none">Temporary traffic control at American and Fortune	<ul style="list-style-type: none">Coordinate with area businesses	<ul style="list-style-type: none">Review school bus routes
<ul style="list-style-type: none">Law enforcement for incident response	<ul style="list-style-type: none">Temporary traffic control at NB US 41 and CTH G	<ul style="list-style-type: none">Provide bicycle detour to Grant Street	<ul style="list-style-type: none">Keep bridge closure to one school year
	<ul style="list-style-type: none">Avoid schedule overlap with Ashland Ave. reconstruction	<ul style="list-style-type: none">Coordinate with Green Bay Metro	

Lessons Learned

- Overdo model disaggregation
- Confirm land uses
- Assure consistent number of assignment iterations
- Balance model's ability with local knowledge/expectations
- QC turning movements from model; hand adjust using Synchro analysis
- Resist "They'll find their way"