



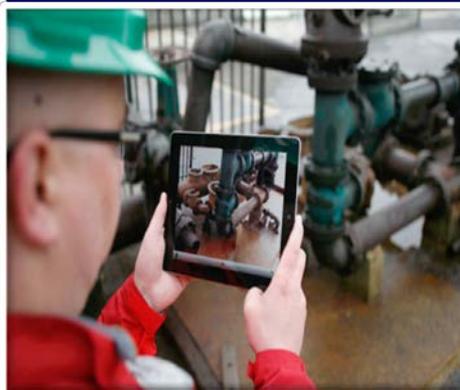
# **MDOT OVERVIEW**

## **34TH ANNUAL DBE CONFERENCE March 31, 2014**

**Gregory C. Johnson, P.E.  
Chief Operations Officer**

# What is e-Construction?

- ProjectWise Construction Document Management and Workflows
- Use of Digitally Encrypted Electronic Signatures
- Mobile Devices in the Field
- Use of 3D Modeling for Automated Machine Control
- Innovative Training/Manuals/Guides



# e-Construction in a Nutshell

e-Construction is the use of Innovative Technologies and **Paperless** Electronic Documentation in Construction:

- Embraces Electronic Document Management Systems
- Uses Mobile/Tablet Devices and State-of-the-Art Survey Tools
- Significant Benefits and **\$**avings for all Stakeholders:  
MDOT, Contractors, FHWA, Local Government Agencies,  
Consultants, Suppliers, Manufacturers, Etc.

# e-Construction Summary

## Improved Construction Documentation Efficiency:

- Contract Info in One Location
- Accessible Anywhere
- Secure Storage
- Intelligent Workflows (Automated Document Routing)
- Full Audit Trail

## Future Roll-Out:

- Training for Each TSC by July 2014
- All Trunkline Contracts Starting October 1, 2014
- Locals and Consultant Training Starting this Summer
- MDOT's Electronic Initiative e-Project

# **MDOT Accelerated Bridge Construction Program**

## **Achieve Industry Buy-in**

- Workshops and Technical Exchange Conferences**
- Allow Time to Become Comfortable and Knowledgeable Using PBES**

## **Think Like a Contractor**

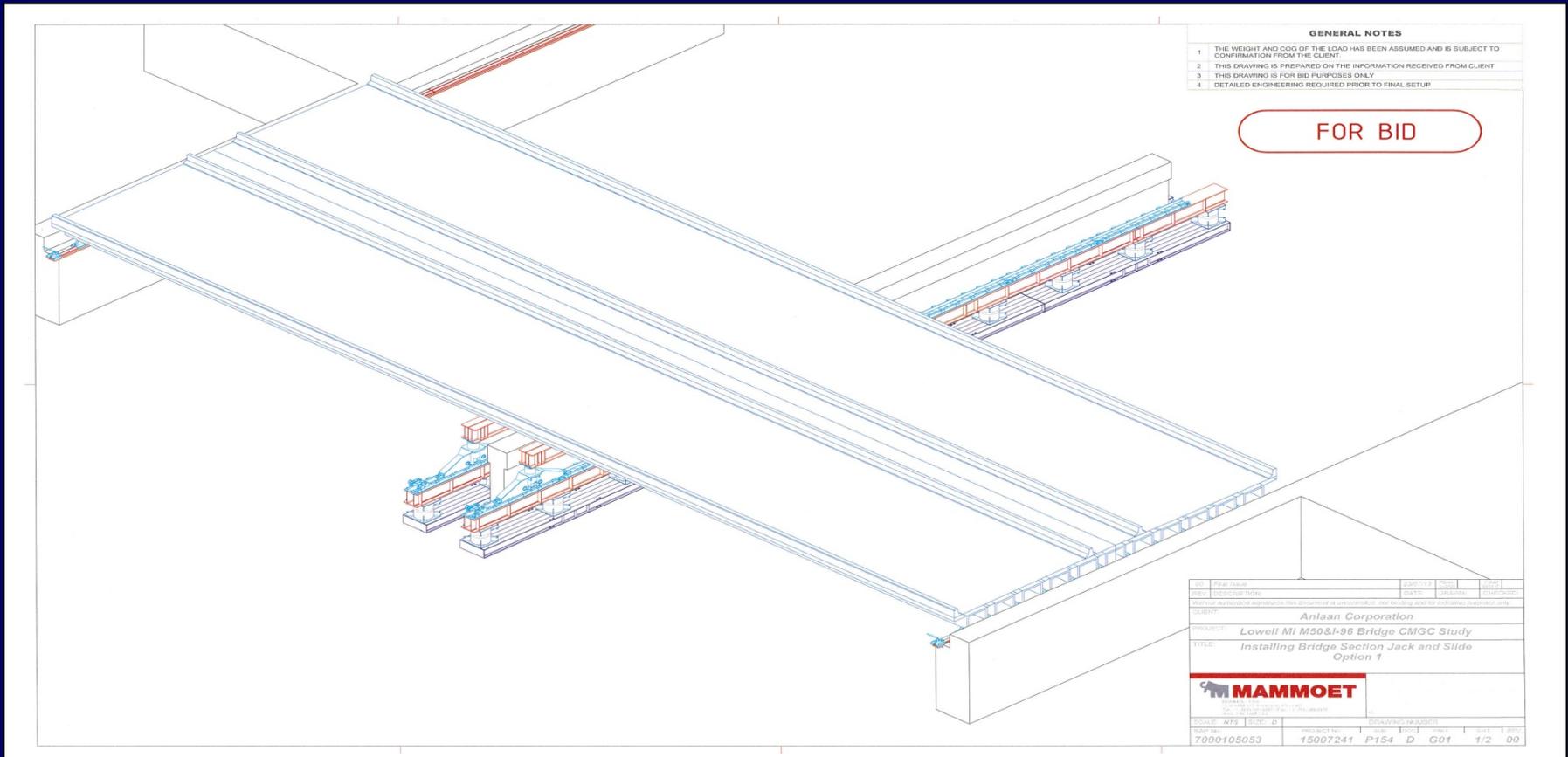
- Consider Equipment Capabilities and Capacities**
- Means and Methods to be More Thoroughly Developed During the Design Phase**

## **Plan a Program of Projects**

- Build Momentum – A Clear Signal to the Industry that the Business Model is Changing**

# MDOT Accelerated Bridge Construction Program

MDOT has 3 Bridge Slide Projects Programmed for 2014  
With Many More Expected in the Future!



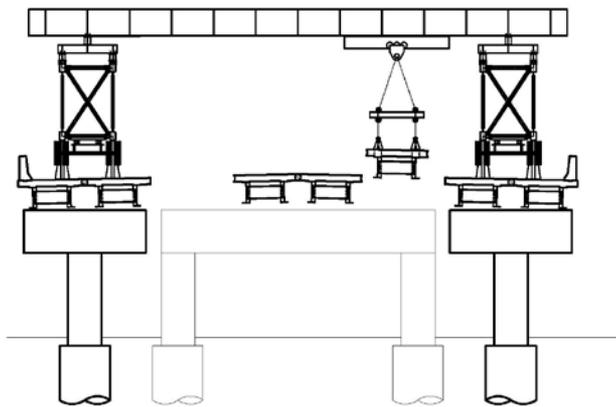
- GENERAL NOTES**
- 1 THE WEIGHT AND COG OF THE LOAD HAS BEEN ASSUMED AND IS SUBJECT TO CONFIRMATION FROM THE CLIENT
  - 2 THIS DRAWING IS PREPARED ON THE INFORMATION RECEIVED FROM CLIENT
  - 3 THIS DRAWING IS FOR BID PURPOSES ONLY
  - 4 DETAILED ENGINEERING REQUIRED PRIOR TO FINAL SETUP

**FOR BID**

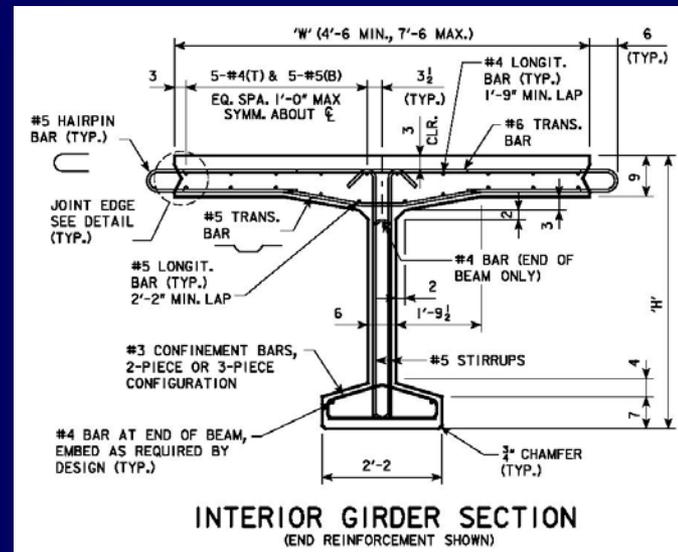
NO.	REV.	DATE	BY	CHKD.	APP'D.
1					
CLIENT: Anisan Corporation					
PROJECT: Lowell MI M50&I-96 Bridge CMGC Study					
TITLE: Installing Bridge Section Jack and Slide Option 1					
SCALE: NTS	SHEET: 0	DRAWING NUMBER			
7000105053	15007241	P154	D	G01	1/2 00

# Use of Pre-fabricated Elements

- MDOT has Implemented Several Projects Using Pre-fabricated Elements
- MDOT's Bridge Committee is Using Portions of the SHRP-2 R04 Rapid Renewal Toolkit to Standardize Details on MDOT Projects



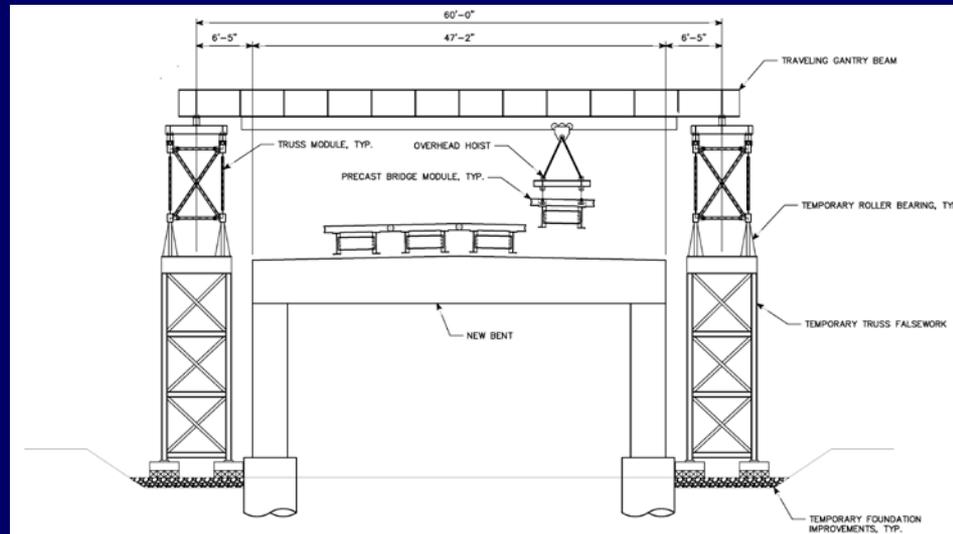
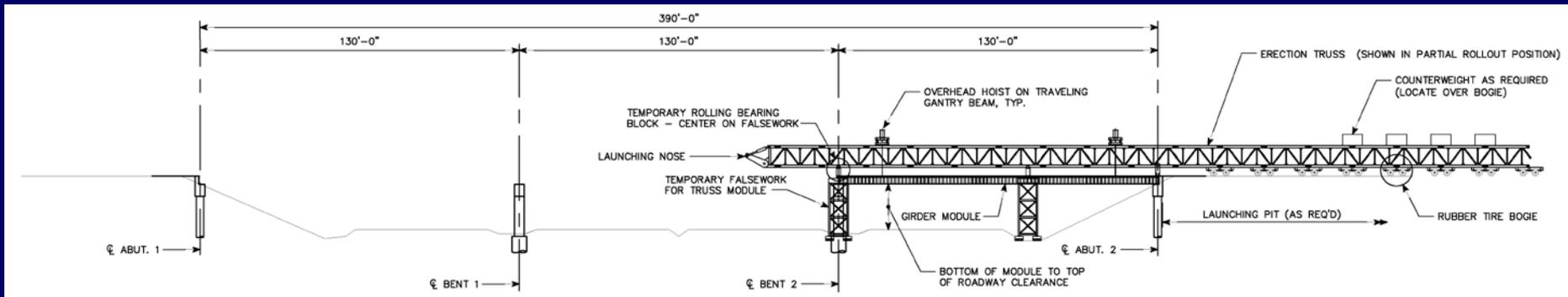
STAGE 5: PLACE NEW PREFABRICATED BRIDGE COMPONENTS



INTERIOR GIRDER SECTION  
(END REINFORCEMENT SHOWN)

# Use of Innovative Delivery Methods

Think About Removing and Replacing Bridges in a Weekend...



# Innovative Bridge Materials



- *Placement of CFRP Grid Bridge Deck Reinforcement*

- *Installation of CFRP Transverse Post-tensioning Cables*



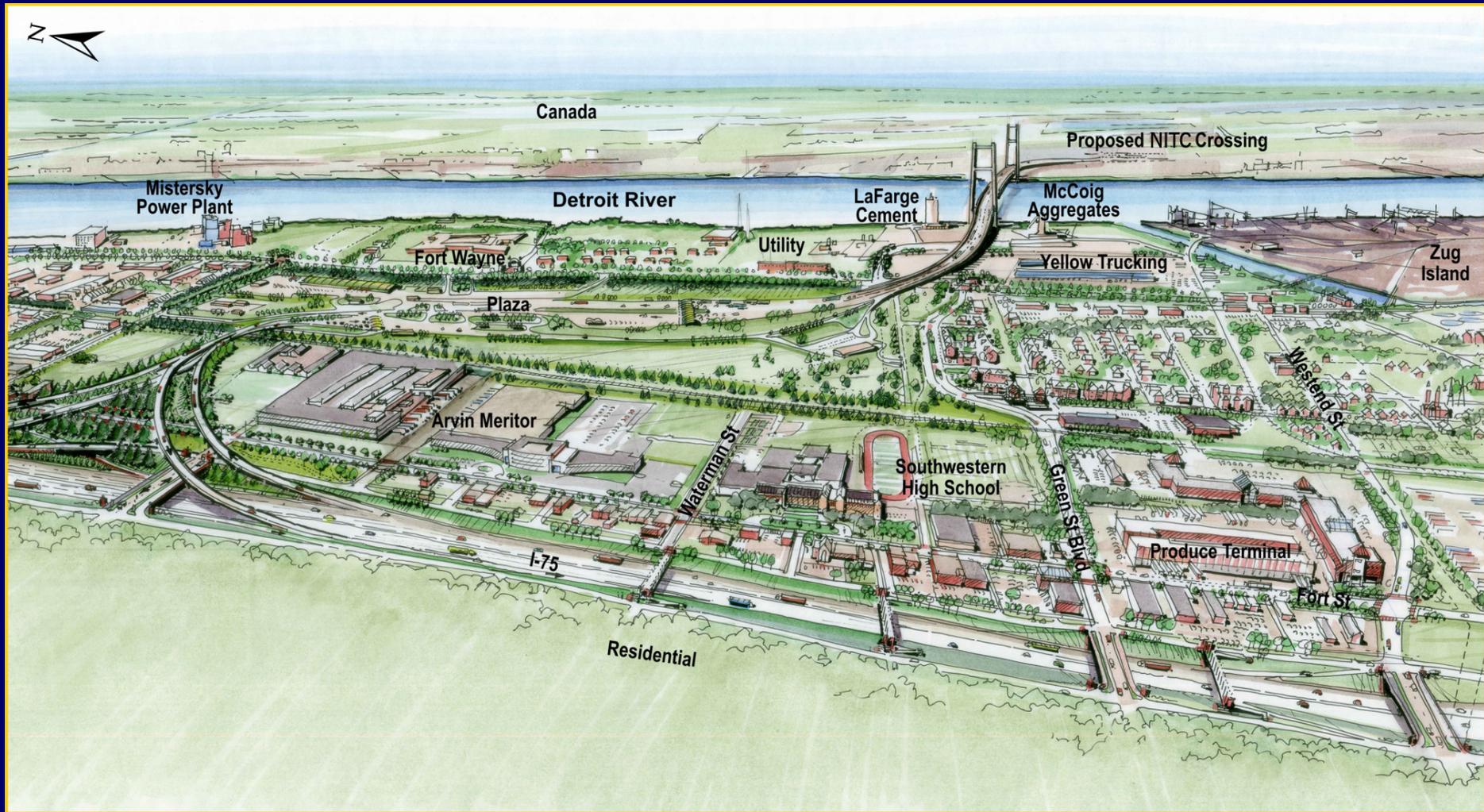
# Innovative Bridge Materials



Casting, and Completion of 27”  
Spread Box Beam Pre-stressed with  
CFRP Strands



# New International Trade Crossing (NITC)

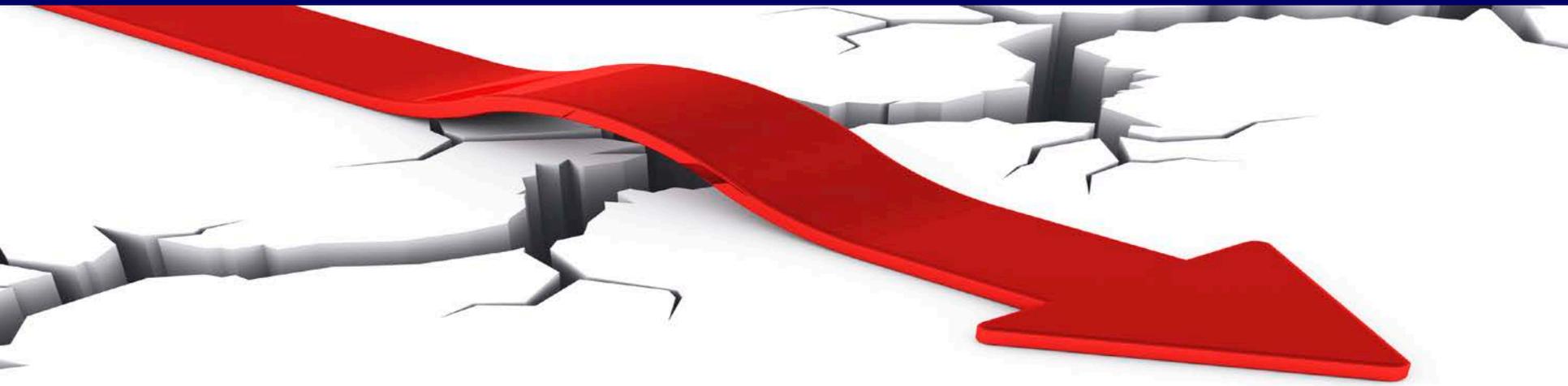


# NITC Positive Momentum

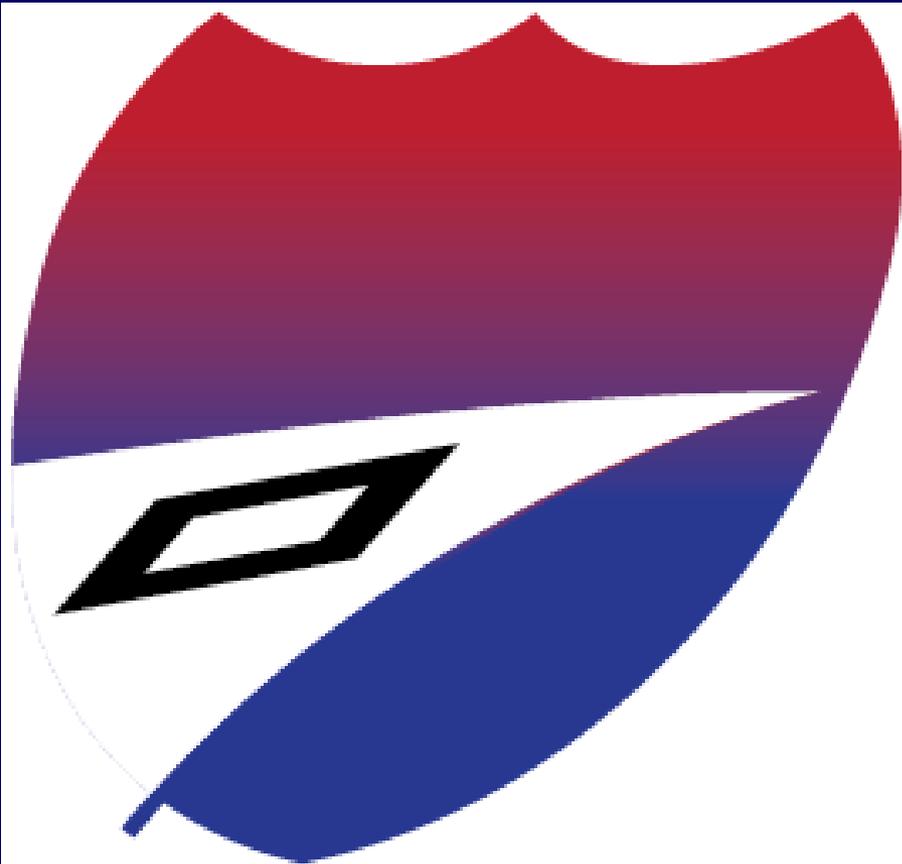
- Study Underway to Assess Opportunities in and Near NITC Project Area
- **ROW Authorization: Obtained FHWA Authorization**
- Title Work: Commenced Work on all Properties in Footprint
- **Geo-technical Drilling: Facilitated Commencement**
- Permits: Received MDEQ Permit; U.S. Coast Guard Considering Michigan's Application for Navigational Permit
- **Job Training: Aggressively Exploring the Most Effective way to Train Michiganders to be Skilled Laborers to Work on NITC and Other Infrastructure Projects**
- Continue Work on Crossing Agreement with Canada

# NITC Challenges

- **Litigation and Misinformation (7 or 8 Pending Lawsuits)**
- **Implementation will be Complex and Lengthy**
- **Need to Comply with Crossing Agreement**
- **Resolve Funding Issues**
- **Procurement for P3 will take about 2 years**
- **Construction will take 4 to 5 Years**



IT'S COMING...



*MODERNIZE*  
**75**

# I-75 Modernization Project

- Scope of Work (North of M-102 to South of M-59/South Boulevard)
- Approximately 17.7 Miles
- Reconstruct Existing Pavement
- Add 1 New Lane (**HOV** During Peak Hours and General Purpose Off-peak Hours)
- Replace Bridges
- Improve Drainage System
- Upgrade Geometrics and Interchanges (M-102 Ramps, I-696 Service Drive, 12 Mile, 14 Mile, Square Lake)



# General Timeline

- **2014: Hire Owners Rep Contract #1**
- **2014-2016: Planning & Development Activities Continue**
- **2016: Start ROW Process**
- **2016: Start First Construction Package from South of M-59 to Adams; Only Design-Build Contract**
- **2018, 2020, 2022, 2024, 2026, 2028, & 2030: Continue Construction Packages as Design-Bid-Build Until Completion**



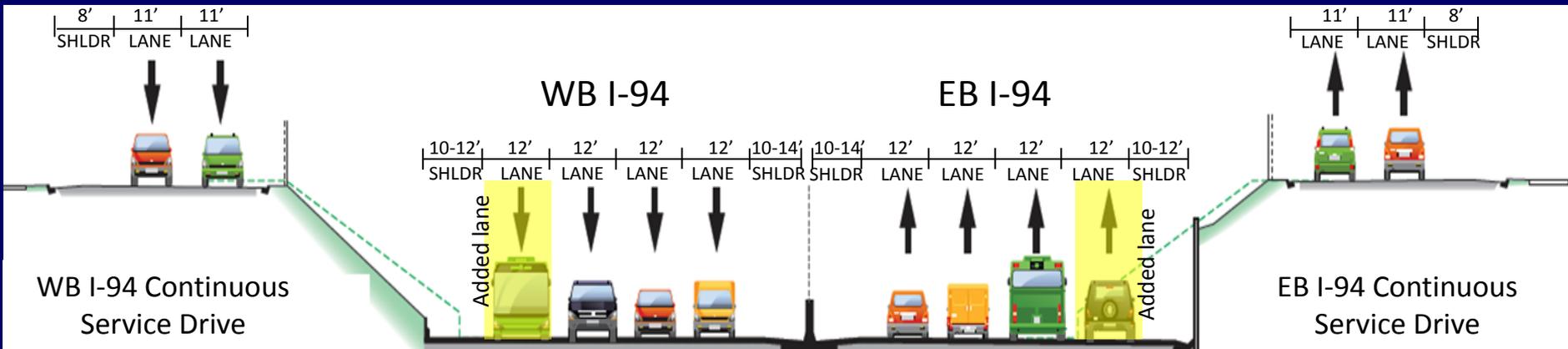


# I-94 Modernization (I-96 to Conner Avenue in Detroit)



# I-94 Modernization Key Features

- Reconstruction, Increase Capacity, and Improve Local Traffic Circulation
- Widen I-94 Freeway by Adding one Lane in Each Direction
- Increase I-94 Shoulder Widths
- M-10 and I-75 Interchange Reconstruction
- Continuous I-94 Service Drives
- Retaining Walls to Limit Impacts to Parcels



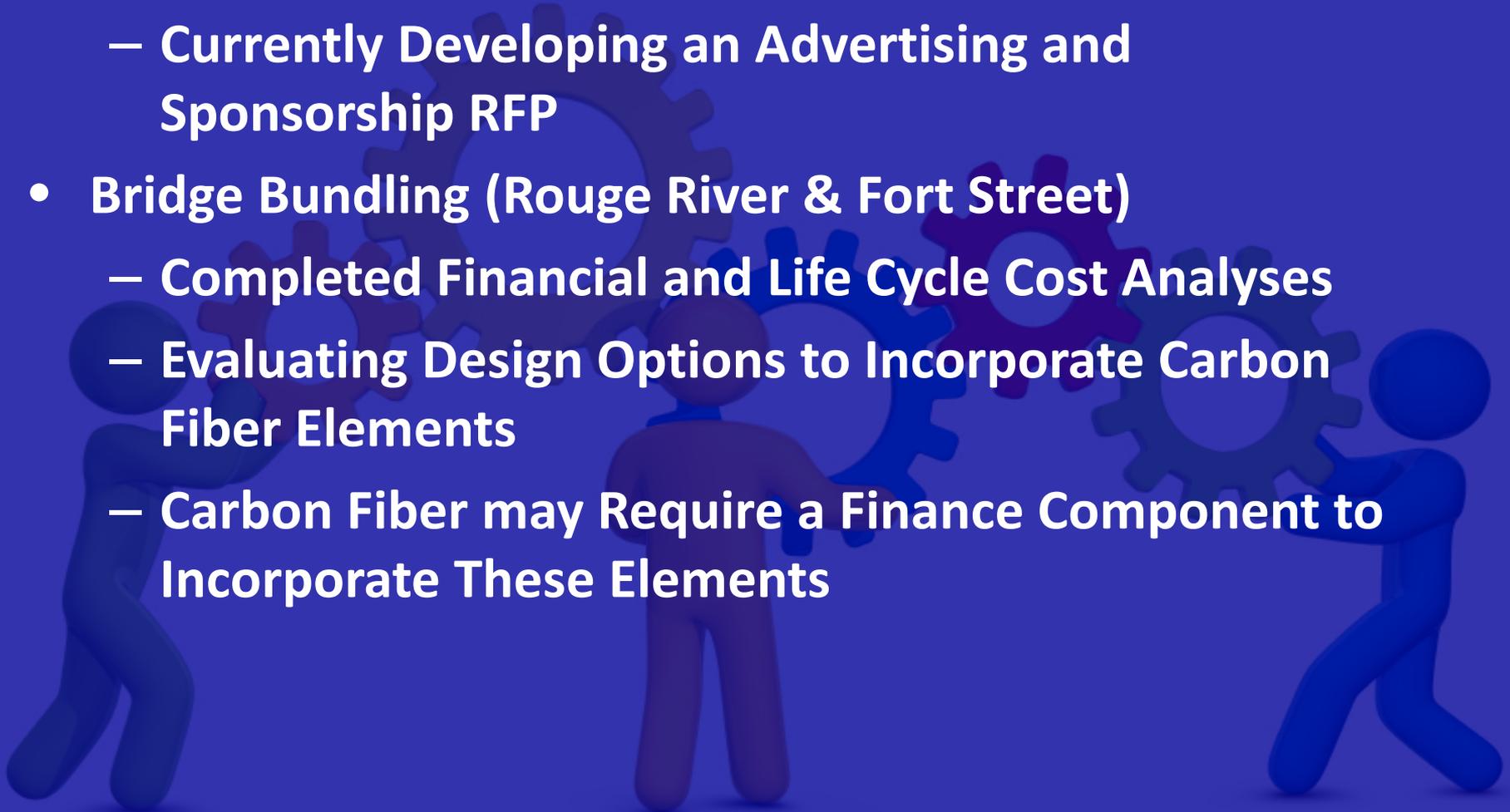
# Public Private Partnerships (P3)

- MDOT Requests Letters of Interest - July 25, 2013
- Timber Management
  - Have Asked MDNR if they have Interest in Partnering
  - Most likely will not Pursue
- Freeway Lighting
  - Have Performed Financial Analysis and Due Diligence
  - Currently Completing Risk Assessment
  - RFQ is Being Developed



# Public Private Partnerships

- Rest Area Services on US-127
  - Currently Developing an Advertising and Sponsorship RFP
- Bridge Bundling (Rouge River & Fort Street)
  - Completed Financial and Life Cycle Cost Analyses
  - Evaluating Design Options to Incorporate Carbon Fiber Elements
  - Carbon Fiber may Require a Finance Component to Incorporate These Elements



# Prompt Pay

- **Special Provision Updated in August 2013**
- **Revisions were Based on Discussions with Industry**
- **Effective on/after October 4, 2013, Lettings**
- **New MDOT Forms Created (All Forms Available Online)**



# Prompt Pay Special Provision

- **Applicable to all Contracting**
- **Satisfactory Completion**
  - **Sworn Statements**
  - **Waivers of Lien**
- **Violations**
  - **Reported Within 30 Days**
  - **Response Required Within 10 Days**
- **Lien Claim**
- **Remedies**

# Worker Safety

MDOT is Concerned About the Safety of ALL on our Construction Projects



Construction Advisory		CA 2013-12 November 14, 2013
From Brenda O'Brien, Engineer of Construction Field Services		
<p>MDOT-Construction Field Services Division P.O. Box 30049 Lansing, Michigan 48909 Phone/517-322-1087 Fax/517-322-5644 www.michigan.gov/mdot/</p> <p>Index: Safety</p> <p>Questions regarding this Construction Advisory should be directed to: Jason Gutting, Engineer of Construction Operations at</p>	<p><b>Project/Worksite Safety</b></p> <p>Contract Services, Construction Field Services and the Safety and Security Administration have discussed numerous safety issues that have been brought to our attention this construction season. Construction staff should remember the following criteria when observing and documenting construction work on MDOT transportation projects. This advisory provides clarification to the engineer and project inspection staff as these parties have authority to suspend work based on subsections 104.01.B and 104.01.D of the Standard Specifications for Construction. Any verbal directions to suspend work are to be followed up immediately with the issuance of Form 1165, Notice of Non-Compliance with Contract Requirements.</p> <p>The following criteria are to be used when directly witnessing safety issues:</p> <ul style="list-style-type: none"><li>Immediately suspend all work on the project related to or associated with the safety issue and report to your supervisor and the respective construction/project engineer any worker or worksite safety issue or practice in which any person (contractor, motorist, pedestrian, MDOT</li></ul>	

MDOT Construction Advisory (CA-2013-12) was Issued in 2012 for Workers Witnessing Safety issues, Including Responsibilities, per the Standard Specifications for Construction (aka: Spec Book)

# Worker Safety

Serious Safety Issues are Focused on 5 Key Areas:

- Falls
- Electrocutions
- Struck-by
- Crushed-by/Caught-between
- Excavations

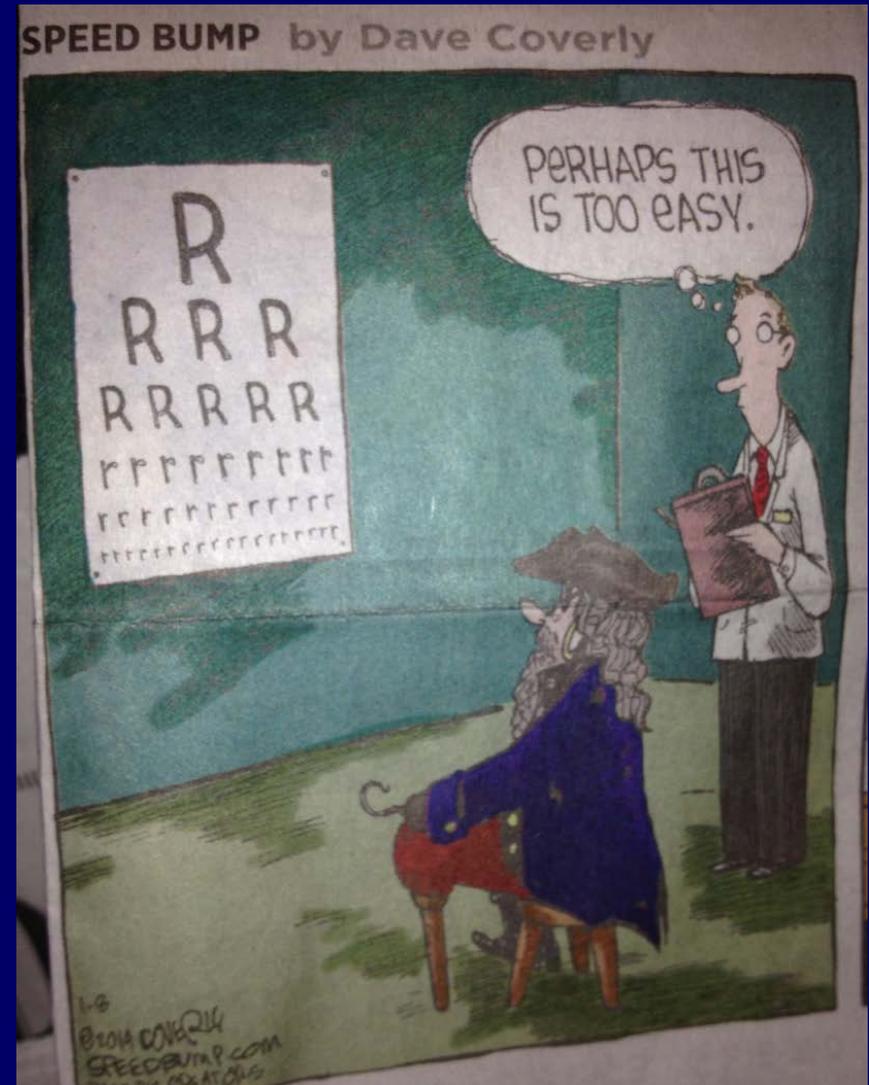
If you see Something Workers are Doing that Appears Unsafe and At-risk, Help them, Let us Know, or Contact Their Supervisor



Note the Attachment of the Lanyard and the Worker on the Structure. Both were MIOSHA Citation Items.

# Road and Risk Reserve Funds (RRRF)

- Project Selections Completed December 18
- Goal – Significant Construction in 2014
- Roughly 50/50 Trunkline and Local Project
- Projects Range from \$49K to \$5M
- Local Grant Program



# Road and Risk Reserve Funds Info

- 68 Local Projects, Approximately \$56M
- 46 Trunkline Projects, Approximately \$59M
- 114 Total Projects, \$115M
- **Work Activities:**
  - Road Construction
  - Mill and Resurfacing
  - Bridge Rehab/Replacement
  - Capital Preventative Maintenance
  - Traffic Signal Improvement
  - Non-Motorized Paths and Bike Lanes
  - ADA Compliant

# Other Recent Legislative Actions Impacting Transportation Funding

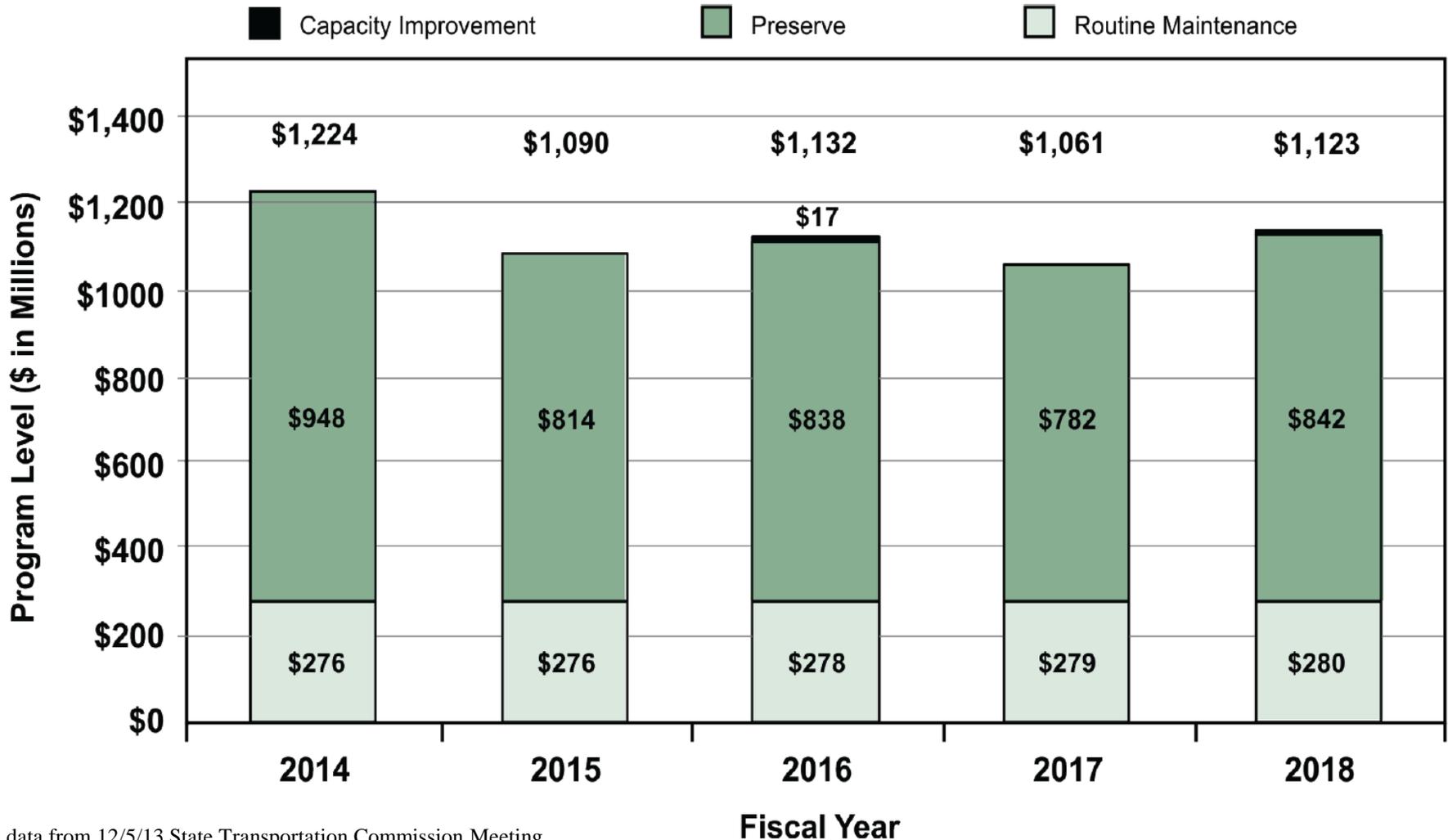
- **\$100M to MDOT, Counties, and Cities to Offset Winter Maintenance Overruns.**
- **\$115M to Address Transportation Needs Around State on MDOT and Local System.**

# MDOT's 2013 Program

Letting Month	Trunkline Projects Let	Local Projects Let	Total Projects Let	Construction Costs (Millions)
October	22	20	42	\$64.00
November	34	28	62	\$147.10
December	23	26	49	\$127.90
January	19	26	45	\$54.10
February	32	18	50	\$87.70
March	41	35	76	\$115.30
April	30	34	64	\$52.70
May	31	58	89	\$104.00
June	26	115	141	\$129.80
July	21	36	57	\$56.10
August	39	46	85	\$135.20
September	17	34	51	\$46.00
<b>Total</b>	<b>335</b>	<b>476</b>	<b>811</b>	<b>\$1,119.90</b>

# MDOT's 2014 – 2018 Outlook

## Highway Program Investment By Category FY 2014-2018



\* Draft data from 12/5/13 State Transportation Commission Meeting

# Monthly Anticipated Lettings

## 2014 FY Projected Lettings

1/10/2014

Letting Month	Projects	Construction Costs (\$ Millions)
October	18	\$35.8
November	31	\$66.8
December	49	\$248.0
January	25	\$40.3
February	34	\$93.4
March	64	\$120.0
April	24	\$23.2
May	23	\$32.0
June	13	\$15.0
July	9	\$6.9
August	10	\$48.7
September	8	\$24.8
<b>Total</b>	<b>308</b>	<b>\$754.9</b>

**MDOT Expects to Let  
Approximately \$300M in  
Construction Projects for Local  
Agency Projects in FY 2014**

*\* This information may change depending on budget and program needs.*

# Anticipated Quantities for FY 2014

**HMA: 1,924,300 Tons**

**Concrete: 1,565,973 Yards**

**Bridge Work: \$150.7M**

# **MDOT's Disadvantaged Business Enterprise (DBE) Program**

- **MDOT now has an Annual Goal of 9% for the Next Three Fiscal Years (2014-2016)**
- **2013 Goal Attainment was: 7.24 % (\$74,304,819 )**

# MDOT's DBE Program

- **New Initiatives – Growing Existing DBEs**
- **Bonding and Access to Capital Program**
  - **The USDOT BACEP is a Partnership with the Surety and Fidelity Association of America (SFAA) to Help Small Businesses Become “Bond Ready”**
  - **14 Contractors that took a 7-Week Training this past Fall have Already Successfully Increased Their Bonding Capacity**
- **Next Level Program Consultant – Grow Existing DBEs into New Construction Categories**

# MDOT's DBE Program

- Supportive Services:
  - Recruiting Eligible Firms
  - Community Forums/Outreach
  - Assist Applicants with Certification Process
- Providing Training
  - Orientation for Newly certified DBE Firms
  - Construction Bid Preparation
  - Wage and Labor Compliance
  - Payroll Preparation
  - Quick Books for Small Businesses
  - Marketing Your Business

# MDOT's DBE Program Training Partners



# **MDOT's Small Business Program (SBP)**

- **Required by Federal Regulation**
- **SBP Bidders must meet Federal Personal Net Worth and Small Business Size Standards**
- **SBP bidders must meet Conditions and Standards Required of all Contractors who Work for MDOT and its Sub-recipient Grantees**

# MDOT's SBP

- **FY 2013 SBP Information:**
  - **32 Non-DBE SBP Firms**
  - **11 SBP Projects Awarded**
  - **\$2,721,813.83 in Contracts**
- **5 Projects Awarded to DBEs**
- **6 Projects Awarded to Non-DBE SBP Firms**

# **State Transportation Innovation Council**

**Bring Together Stakeholders that  
Represent all Those Market  
Forces and Work Together to  
Lead Innovation in Their State  
Transportation Program**

# Autonomous Vehicles

>2025

## FULLY AUTOMATED

- Monitoring of the system not required
- Driver does not need to be able to take over the driving task

Example: Highway driving up to 130 km/h

2020

## HIGHLY AUTOMATED

- Monitoring of the system not required
- Driver needs to be able to take over the driving task with lead time

Example: Stop-and-go (highway)

2016

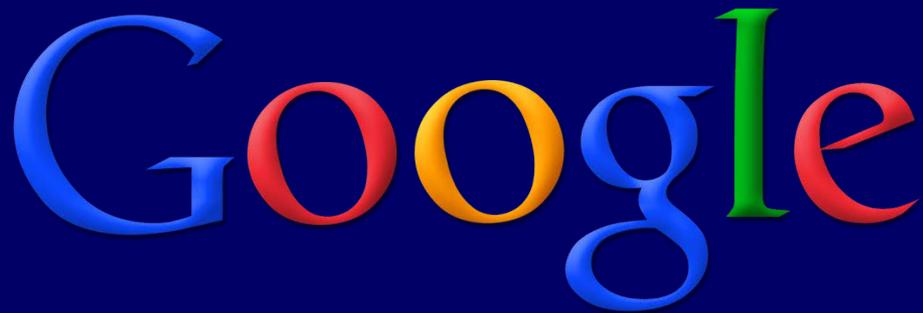
## PARTIALLY AUTOMATED

- Monitoring of the system required
- Driver needs to be able to take over the driving task at any moment

Example: Stop-and-go up to 30 km/h



# Companies Actively Developing Products



**Both Companies (and Probably Others) Have Announced Aggressive Plans to Have Products Introduced Within the Next Four to Five Years.**

# Michigan Mobility Transformation Facility



UMTRI

UNIVERSITY OF MICHIGAN  
TRANSPORTATION RESEARCH INSTITUTE



Michigan Department of Transportation



21ST WORLD CONGRESS

DETROIT  
2014

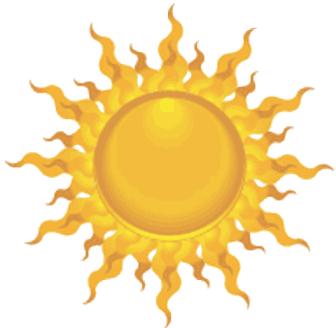
INTELLIGENT TRANSPORT SYSTEMS

September 7-11, 2014  
Detroit, Michigan

<http://itsworldcongress.org>

# Things We Cannot Control

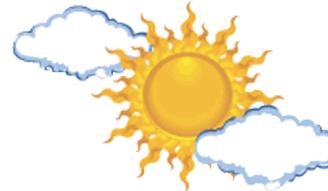
# FUNDING INCREASE



**Sunny**



**Partly Sunny**



**Partly Cloudy**



**Sun & Rain**



**Raining**



**Thunderstorms**



**Snowing**



**Cloudy**

# Things We CAN Control

- The Quality of our Efforts
- An Appreciation for the Efforts of our Partners
- The Strength of our Partnerships
- The Attitude we Bring to Issues
- A Recognition of the Bad/A Celebration of the Good
- Striving to be Continually Better

